```
CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                                    1
CLEAR STORAGE 2     L068116,105106,110117B101/I9I#071029C029056B026/B001/0991,001/001117I0?                 2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039          ,0010011040                     3
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                    FORTRAN COMPILER -- ARITH PHASE FIVE -- PHASE 37                              PAGE   1


SEQ PG LIN  LABEL  OP    OPERANDS                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

101                JOB   FORTRAN COMPILER -- ARITH PHASE FIVE -- PHASE 37
102                CTL   6611
103         *
104         * IF STATEMENT EXITS AND STRINGS FOR EXPONENTIATION ARE CREATED.
105         *
106         X1     EQU   89                                                0089
107         X2     EQU   94                                                0094
108         X3     EQU   99                                                0099
109         *
110         * STUFF IN THE RESIDENT AREA
111         *
112         PHASID EQU   110  PHASE ID, FOR SNAPSHOT DUMPS                 0110
113         SERIES EQU   117  NEED SERIES ROUTINE IF NO WM                 0117
114         LOGF   EQU   119  SAW LOGF IF NO WM                            0119
115         EXPF   EQU   120  SAW EXPF IF NO WM                            0120
116         XFIXF  EQU   124  SAW XFIXF IF NO WM                           0124
117         FLOATF EQU   125  SAW FLOATF IF NO WM                          0125
118         NEGAR3 EQU   157  LOOKS LIKE NEGARY -- SEE PHASE 20            0157
119         ARYSIZ EQU   160  TOTAL ARRAY SIZE & 2                         0160
120         GLOBER EQU   184  GLOBAL ERROR FLAG -- WM MEANS ERROR          0184
121         SNAPSH EQU   333  CORE DUMP SNAPSHOT                           0333
122         LOADNX EQU   700  LOAD NEXT OVERLAY                            0700
123         CLEARL EQU   707  CS AT START OF OVERLAY LOADER                0707
124         *
125         * RUNTIME ADDRESSES
126         *
127         ARITF  EQU   700                                               0700
128         *
129                ORG   838                                                    0838
130         LOADDD EQU   *&1          LOAD ADDRESS                         0838
131    838  BEGINN BCE   DONE,X2,.   DONE?                              8  0838  B U99 094 .         4
132    846         C     0&X2                                           4  0846  C 0!0               4
133    850         SAR   X2                                            4  0850  Q 094               4
134    854         SBR   SX2                                           4  0854  H O89               4
135    858         C     0&X1                                           4  0858  C 0|0               4
136    862         SAR   X1                                            4  0862  Q 089               4
137    866  LOOP   MCW   0&X1,SEQNO                                     7  0866  M 0|0 O86           4
138    873         MCW                                                 1  0873  M                   5
139    874         BCE   ARIF,CODE,E  IF STATEMENT                      8  0874  B 894 O83 E         5
140    882         BCE   ARIF,CODE,R  ARITHMETIC ASSIGNMENT STATEMENT   8  0882  B 894 O83 R         5
141    890         B     ALMOST                                         4  0890  B U78               5
142    894  ARIF   LCA   0&X1,0&X2  MOVE UP PREFIX                      7  0894  L 0|0 0!0           5
143    901         SAR   X1                                            4  0901  Q 089               5
144    905         C     0&X2                                           4  0905  C 0!0               5
145    909         SAR   X2                                            4  0909  Q 094               6
146    913         LCA   1&X2,2&X2  MOVE UP GMWM?                       7  0913  L 0!1 0!2           6
147    920         SBR   X2                                            4  0920  H 094               6
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                      FORTRAN COMPILER -- ARITH PHASE FIVE -- PHASE 37                                    PAGE    2

SEQ PG LIN  LABEL   OP    OPERANDS                                      SFX CT  LOCN  INSTRUCTION TYPE  CARD

148    924         CW    PARITY                                          4 0924  ) O90                    6
149    928         BCE   IFSTMT,2&X1,E  IF STATEMENT                     8 0928  B V22 0|2 E              6
150          *
151          * ASSIGNMENT STATEMENT
152          *
153    936 ASGSTM LCA   0&X1,0&X2                                        7 0936  L 0|0 0!0               6
154    943         SAR   X1                                              4 0943  Q 089                   6
155    947         C     0&X2                                            4 0947  C 0!0                   7
156    951         SAR   X2                                              4 0951  Q 094                   7
157    955         SBR   X3,0&X1                                         7 0955  H 099 0|0               7
158    962         SBR   SX1                                             4 0962  H 093                   7
159    966         BCE   ENDSTM,0&X1,}                                   8 0966  B U21 0|0 } GMARK       7
160    974 GETOP  MN    0&X3,LOOKOP&7                                    7 0974  D 0?0 999               7
161    981         MZ    0&X3,LOOKOP&7                                   7 0981  Y 0?0 999               8
162    988         SAR   X3                                              4 0988  Q 099                   8
163    992 LOOKOP BCE   GOTOP,OPS,0  &-@*.#                              8 0992  B |09 O99 0              8
164  1 000         CHAIN 5                                                              MACRO
165              BCE                                                     1 1000  B          GEN          8
166              BCE                                                     1 1001  B          GEN          8
167              BCE                                                     1 1002  B          GEN          8
168              BCE                                                     1 1003  B          GEN          8
169              BCE                                                     1 1004  B          GEN          9
170  1 005         B     GETOP                                           4 1005  B 974                    9
171  1 009 GOTOP  BCE   EXPON,1&X3,.  EXPONENTIALTION                    8 1009  B /09 0?1 .              9
172  1 017         MZ    4&X3,SAVZON  TYPE OF LHS IF SUBSCRIPT           7 1017  Y 0?4 P00               9
173  1 024         BCE   SUBS,2&X3,$                                     8 1024  B /90 0?2 $              9
174  1 032         MZ    3&X3,SAVZON  TYPE OF LHS IF NO SUBSCRIPT        7 1032  Y 0?3 P00               9
175  1 039 OUTER  SBR   X3,4&X3                                          7 1039  H 099 0?4              10
176  1 046 INNER  C     X3,SX1                                           7 1046  C 099 O93             10
177  1 053         BE    GETASG                                          5 1053  B S16 S               10
178  1 058         SBR   X3,1&X3                                         7 1058  H 099 0?1             10
179  1 065         BCE   *&13,0&X3,F                                     8 1065  B |85 0?0 F            10
180  1 073         BCE   *&5,0&X3,X                                      8 1073  B |85 0?0 X            11
181  1 081         B     INNER                                           4 1081  B |46                 11
182  1 085         BW    EVEN,PARITY                                     8 1085  V /01 O90 1            11
183  1 093         SW    PARITY                                          4 1093  , O90                 11
184  1 097         B     INNER                                           4 1097  B |46                 11
185  1 101 EVEN   CW    PARITY                                           4 1101  ) O90                 11
186  1 105         B     INNER                                           4 1105  B |46                 11
187          *
188          * EXPONENTIATION
189          *
190  1 109 EXPON  SBR   SX3&6,0&X3                                       7 1109  H /41 0?0             12
191  1 116         BCE   EXPON2,0&X3,$                                   8 1116  B /54 0?0 $            12
192  1 124         SBR   X3                                              4 1124  H 099                 12
193  1 128 EXPONL MZ    0&X3,SAVZON                                      7 1128  Y 0?0 P00             12
194  1 135 SX3    SBR   X3,0                                             7 1135  H 099 000             12
195  1 142         BCE   SUBS,2&X3,$                                     8 1142  B /90 0?2 $            13
196  1 150         B     OUTER                                           4 1150  B |39                 13
197  1 154 EXPON2 C     0&X3,W8                                          7 1154  C 0?0 Q66             13
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SEQ PG LIN  LABEL  OP   OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

198  1 161         SAR  X3                                                 4  1161  Q 099                  13
199  1 165         BCE  EXPONL,0&X3,$                                      8  1165  B /28 0?0 $            13
200  1 173         B                                                      1  1173  B                     13
201  1 174         B                                                      1  1174  B                     13
202  1 175         C    0&X3,W6                                            7  1175  C 0?0 Q72             14
203  1 182         SAR  X3                                                 4  1182  Q 099                 14
204  1 186         B    EXPONL                                             4  1186  B /28                 14
205         *
206         * SUBSCRIPT -- SKIP IT
207         *
208  1 190  SUBS   SBR  X3,12&X3                                           7  1190  H 099 0A2            14
209  1 197         BCE  INNER,0&X3,$                                       8  1197  B |46 0?0 $           14
210  1 205         SBR  X3,6&X3                                            7  1205  H 099 0?6            14
211  1 212         B    INNER                                              4  1212  B |46                15
212         *
213         * GET DOWN TO ASSIGNMENT OPERATOR
214         *
215  1 216  GETASG BCE  GOTASG,0&X3,#                                      8  1216  B S32 0?0 #          15
216  1 224         SBR  X3                                                 4  1224  H 099                15
217  1 228         B    GETASG                                             4  1228  B S16                15
218  1 232  GOTASG MCW  0&X3,W18A                                          7  1232  M 0?0 P18            15
219  1 239         BCE  SUBLFT,2717,$  SUBSCRIPT BEFORE EQUAL              8  1239  B O57 P17 $          15
220  1 247         MZ   W18A-2,LSTYPE  TYPE TAG FOR LHS                    7  1247  Y P16 P19            16
221  1 254  SBLBAK BWZ  LFIX,LSTYPE,S  BACK HERE AFTER SUBSCRIPT           8  1254  V T40 P19 S          16
222  1 262         BWZ  LFIX,LSTYPE,K                                      8  1262  V T40 P19 K          16
223  1 270         BWZ  LFRF,SAVZON,2                                      8  1270  V T16 P00 2          16
224  1 278         BWZ  LFRF,SAVZON,B                                      8  1278  V T16 P00 B          16
225  1 286         BW   ENDEXP,PARITY  LEFT FLOAT RIGHT FIXED             8  1286  V T82 O90 1          17
226  1 294  LFRX   MCW  FCODE,0&X2                                         7  1294  M P20 0!0            17
227  1 301         SBR  X2                                                 4  1301  H 094                17
228  1 305         CW   1&X2,FLOATF    NEED FLOATF                         7  1305  ) 0!1 125            17
229  1 312         B    ENDEXP                                             4  1312  B T82                17
230  1 316  LFRF   BW   LFRX,PARITY    LEFT FLOAT RIGHT FLOAT             8  1316  V S94 O90 1          17
231  1 324         B    ENDEXP                                             4  1324  B T82                18
232  1 328  LXRX   BW   LXRF,PARITY    LEFT FIX RIGHT FIX                 8  1328  V T64 O90 1          18
233  1 336         B    ENDEXP                                             4  1336  B T82                18
234  1 340  LFIX   BWZ  LXRX,SAVZON,S  LEFT SIDE IS FIXED POINT           8  1340  V T28 P00 S          18
235  1 348         BM   LXRX,SAVZON                                       8  1348  V T28 P00 K          18
236  1 356         BW   ENDEXP,PARITY                                     8  1356  V T82 O90 1          19
237  1 364  LXRF   MCW  XCODE,0&X2      LEFT FIX RIGHT FLOAT              7  1364  M P21 0!0            19
238  1 371         SBR  X2                                                 4  1371  H 094                19
239  1 375         CW   1&X2,XFIXF      NEED XFIXF                         7  1375  ) 0!1 124            19
240  1 382  ENDEXP SBR  X3,0&X1                                            7  1382  H 099 0|0            19
241  1 389  ENDEX2 BCE  EXPON3,0&X1,.   EXPONENTIATION                    8  1389  B Y08 0|0 .          20
242  1 397         BCE  DIVOP,0&X1,@                                       8  1397  B U63 0|0 @          20
243  1 405         BCE  ENDSTM,0&X1,}                                      8  1405  B U21 0|0 } GMARK   20
244  1 413         SBR  X1                                                 4  1413  H 089                20
245  1 417         B    ENDEX2                                             4  1417  B T89                20
246         *
247         * END OF IF OR ASSIGNMENT STATEMENT
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SEQ PG LIN  LABEL  OP    OPERANDS                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

248            *
249  1 421  ENDSTM LCA   0&X3,0&X2                                  7  1421  L 0?0 0!0            20
250  1 428         SAR   X3                                         4  1428  Q 099               21
251  1 432         C     0&X2                                       4  1432  C 0!0               21
252  1 436         SAR   X2                                         4  1436  Q 094               21
253  1 440         BCE   FINSTM,1&X3,}                              8  1440  B U52 0?1 } GMARK    21
254  1 448         B     ENDSTM                                     4  1448  B U21               21
255  1 452  FINSTM SBR   X1,0&X3                                    7  1452  H 089 0?0           21
256  1 459         B     LOOP                                       4  1459  B 866               21
257            *
258            * DIVIDE OPERATOR -- TURN IT BACK TO SLASH
259            *
260  1 463  DIVOP  MCW   SLASH,0&X1                                 7  1463  M P22 0|0           22
261  1 470         SBR   X1                                         4  1470  H 089               22
262  1 474         B     1389                                       4  1474  B T89               22
263            *
264            * ALMOST DONE
265            *
266  1 478  ALMOST SBR   X1,5&X1                                    7  1478  H 089 0|5           22
267  1 485         MCW   SX2,X3                                     7  1485  M O89 099           22
268  1 492         SBR   X3,2&X3                                    7  1492  H 099 0?2           22
269            *
270  1 499  DONE   BSS   SNAPSH,C                                   5  1499  B 333 C             23
271  1 504         SBR   CLEARL&3,GMWM                              7  1504  H 710 Q73           23
272  1 511         LCA   ARITH6,PHASID                              7  1511  L P28 110           23
273  1 518         B     LOADNX                                     4  1518  B 700               23
274            *
275            * IF STATEMENT
276            *
277  1 522  IFSTMT C     0&X1                                       4  1522  C 0|0               23
278  1 526         SAR   X1                                         4  1526  Q 089               23
279  1 530         MCW   9&X1,LABNEG  NEGATIVE BRANCH               7  1530  M 0|9 N08           23
280  1 537         MCW   6&X1,LABZRO  ZERO BRANCH                   7  1537  M 0|6 N00           24
281  1 544         MCW   3&X1,LABPOS  POSITIVE BRANCH               7  1544  M 0|3 M92           24
282  1 551         MZ    X2ZONE,LABNEG-1                            7  1551  Y P29 N07           24
283  1 558         MZ    X2ZONE,LABZRO-1                            7  1558  Y P29 M99           24
284  1 565         MZ    X2ZONE,LABPOS-1                            7  1565  Y P29 M91           24
285  1 572         MCW   LABPOS,UNCOND                              7  1572  M M92 M88           25
286  1 579         LCA   KB20,W20                                   7  1579  L P49 M84           25
287  1 586         SBR   X3,RECMRK                                  7  1586  H 099 M64           25
288  1 593         C     LABPOS,LABZRO                              7  1593  C M92 N00           25
289  1 600         BE    POSZRO  POSITIVE AND ZERO THE SAME LABEL   5  1600  B X79 S             25
290  1 605         C     LABZRO,LABNEG                              7  1605  C N00 N08           26
291  1 612         BE    ZEQNEG  NEGATIVE AND ZERO THE SAME LABEL   5  1612  B W42 S             26
292  1 617         SBR   X3,8&X3                                    7  1617  H 099 0?8           26
293  1 624         MCW   BRZERO                                     4  1624  M N04               26
294  1 628         MCW                                              1  1628  M                   26
295  1 629         LCA                                              1  1629  L                   26
296  1 630         C     LABPOS,LABNEG                              7  1630  C M92 N08           26
297  1 637         BE    POSNEG  POSITIVE AND NEGATIVE THE SAME LABEL 5 1637  B W62 S             27
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SEQ PG LIN  LABEL   OP    OPERANDS                                           SFX CT  LOCN   INSTRUCTION TYPE  CARD

298  1 642  ZEQNEG SBR   X3,8&X3                                              7  1642  H 099 0?8           27
299  1 649         MCW   BRPOS                                               4  1649  M M96              27
300  1 653         MCW                                                       1  1653  M                  27
301  1 654         LCA                                                       1  1654  L                  27
302  1 655         MCW   LABNEG,UNCOND                                       7  1655  M N08 M88          27
303  1 662  POSNEG MCW   X3,SX1                                              7  1662  M 099 O93          27
304  1 669         BWZ   *&5,SEQNO,2                                         8  1669  V W81 O86 2        28
305  1 677         B     *&9                                                 4  1677  B W89              28
306  1 681         BWZ   *&15,SEQNO-2,2                                      8  1681  V X03 O84 2        28
307  1 689         MCW   SEQNO,X3   ADDRESS OF SEQUENCE NUMBER IF ZONES      7  1689  M O86 099          28
308  1 696         MCW   0&X3,SEQNO                                          7  1696  M 0?0 O86          28
309  1 703         A     KP1,SEQNO                                           7  1703  A P50 O86          29
310  1 710         MCW   UNCOND,X3                                           7  1710  M M88 099          29
311  1 717         C     0&X3,SEQNO                                          7  1717  C 0?0 O86          29
312  1 724         MCW   SX1,X3                                              7  1724  M O93 099          29
313  1 731         BE    MOVEUP                                              5  1731  B X48 S            29
314  1 736  POSN2  SBR   X3,4&X3                                             7  1736  H 099 0?4          30
315  1 743         MCW   UNCOND                                              4  1743  M M88              30
316  1 747         LCA                                                       1  1747  L                  30
317  1 748  MOVEUP LCA   0&X3,0&X2  MOVE UP GENERATED CODE                   7  1748  L 0?0 0!0          30
318  1 755         SAR   X3                                                  4  1755  Q 099              30
319  1 759         C     0&X2                                                4  1759  C 0!0              30
320  1 763         SAR   X2                                                  4  1763  Q 094              30
321  1 767         BCE   ASGSTM,0&X3,|                                       8  1767  B 936 0?0 |        31
322  1 775         B     MOVEUP                                              4  1775  B X48              31
323  1 779  POSZRO C     LABPOS,LABNEG                                       7  1779  C M92 N08          31
324  1 786         BE    POSN2  ALL THE SAME LABEL                           5  1786  B X36 S            31
325  1 791         SBR   X3,8&X3                                             7  1791  H 099 0?8          31
326  1 798         MCW   BRNEG                                               4  1798  M N12              31
327  1 802         MCW                                                       1  1802  M                  31
328  1 803         LCA                                                       1  1803  L                  32
329  1 804         B     POSNEG                                              4  1804  B W62              32
330         *
331         * EXPONENTIATION OPERATOR
332         *
333  1 808  EXPON3 SW    1&X1                                                4  1808  , 0|1              32
334  1 812         BCE   ESUBR,1&X1,$                                        8  1812  B N13 0|1 $        32
335  1 820         LCA   3&X1,W17A                                           7  1820  L 0|3 P67          32
336  1 827         MZ    2&X1,EXPRT                                          7  1827  Y 0|2 P68          32
337  1 834         SBR   SX1P3,3&X1                                          7  1834  H P71 0|3          32
338  1 841         C     SX1P3,X3                                            7  1841  C P71 099          33
339  1 848         BE    EXPON5                                              5  1848  B Y80 S            33
340  1 853         SW    4&X1                                                4  1853  , 0|4              33
341  1 857  EXPON4 LCA   0&X3,0&X2                                           7  1857  L 0?0 0!0          33
342  1 864         SAR   X3                                                  4  1864  Q 099              33
343  1 868         C     0&X2                                                4  1868  C 0!0              33
344  1 872         SAR   X2                                                  4  1872  Q 094              33
345  1 876         CW    1&X2                                                4  1876  ) 0!1              34
346  1 880  EXPON5 C     0&X1,KB4                                            7  1880  C 0|0 P75          34
347  1 887         SAR   X1                                                  4  1887  Q 089              34

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SEQ PG LIN  LABEL  OP    OPERANDS                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

348  1 891         BCE   ESUBL,3&X1,$                              8   1891  B N78 0|3 $        34
349  1 899         MZ    2&X1,EXPLT                                7   1899  Y 0|2 P76          34
350  1 906         SW    1&X1                                     4   1906  , 0|1              34
351  1 910  EXPON6 LCA   3&X1,W17B                                7   1910  L 0|3 P93          35
352  1 917         SAR   X1                                       4   1917  Q 089              35
353  1 921         BWZ   ERX,EXPRT,S                              8   1921  V !77 P68 S        35
354  1 929         BWZ   ERX,EXPRT,K                              8   1929  V !77 P68 K        35
355  1 937         CW    LOGF,EXPF   NEED LOGF AND EXPF           7   1937  ) 119 120          35
356  1 944         CW    SERIES       AND SERIES                  4   1944  ) 117              35
357  1 948         BWZ   ERFLF,EXPLT,2                            8   1948  V !32 P76 2        36
358  1 956         BWZ   ERFLF,EXPLT,B                            8   1956  V !32 P76 B        36
359  1 964         BWZ   *&5,SEQNO,2                              8   1964  V Z76 O86 2        36
360  1 972         B     *&9                                      4   1972  B Z84              36
361  1 976         BWZ   MSG30,SEQNO-2,2   SEQUENCE NUMBER IF NO ZONES  8  1976  V Z98 O84 2   36
362  1 984         MCW   SEQNO,X3   ADDRESS OF SEQUENCE NUMBER    7   1984  M O86 099          37
363  1 991         MCW   0&X3,SEQNO                               7   1991  M 0?0 O86          37
364  1 998  MSG30  CS    332                                      4   1998  / 332              37
365  2 002         CS                                             1   2002  /                  37
366  2 003         SW    GLOBER                                   4   2003  , 184              37
367  2 007         MN    SEQNO,244                                7   2007  D O86 244          37
368  2 014         MN                                             1   2014  D                  37
369  2 015         MN                                             1   2015  D                  38
370  2 016         MCW   ERR30                                    4   2016  M Q34              38
371  2 020         W                                              1   2020  2                  38
372  2 021         BCV   *&5                                      5   2021  B !30 @            38
373  2 026         B     *&3                                      4   2026  B !32              38
374  2 030         CC    1                                        2   2030  F 1                38
375  2 032  ERFLF  LCA   ECODE,0&X2   BOTH OPERANDS FLOAT         7   2032  L Q35 0!0          38
376  2 039         LCA   W17A                                     4   2039  L P67              39
377  2 043         LCA   KGSTAR  G*                               4   2043  L Q37              39
378  2 047         SBR   X2                                       4   2047  H 094              39
379  2 051         CW    3&X2,1&X1                                7   2051  ) 0!3 0|1          39
380  2 058         LCA   W17B,0&X2                                7   2058  L P93 0!0          39
381  2 065         SBR   X2                                       4   2065  H 094              39
382  2 069         CW    1&X2                                     4   2069  ) 0!1              39
383  2 073         B     ENDEXP                                   4   2073  B T82              40
384         *
385         * RIGHT OPERAND OF EXPONENTIATION IS FIXED POINT
386         *
387  2 077  ERX    BWZ   GETFUN,EXPRT,K                           8   2077  V K54 P68 K        40
388  2 085         BCE   GETFUN,W17A-2,<                          8   2085  B K54 P65 <        40
389  2 093         MCW   W17A,X3                                  7   2093  M P67 099          40
390  2 100         MA    ARYSIZ,X3                                7   2100  # 160 099          40
391  2 107         C     K3,0&X3                                  7   2107  C Q38 0?0          41
392  2 114         BH    GETFUN                                   5   2114  B K54 U            41
393  2 119         LCA   W17B,0&X2                                7   2119  L P93 0!0          41
394  2 126         LCA   KSTAR                                    4   2126  L Q39              41
395  2 130         SBR   X2                                       4   2130  H 094              41
396  2 134         SBR   SX2B                                     4   2134  H Q42              41
397  2 138         CW    1&X2,2&X2                                7   2138  ) 0!1 0!2          41
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SEQ PG LIN  LABEL   OP   OPERANDS                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

398  2 145          LCA  W17B,0&X2                          7  2145  L P93 0!0          42
399  2 152          SBR  X2                                 4  2152  H 094              42
400  2 156          CW   1&X2                               4  2156  ) 0!1              42
401  2 160          BCE  ERX2,0&X3,0                        8  2160  B K18 0?0 0        42
402  2 168          BCE  ERX3,0&X3,1                        8  2168  B K36 0?0 1        42
403  2 176          BCE  ENDEXP,0&X3,2                      8  2176  B T82 0?0 2        42
404  2 184          LCA  KSTAR,0&X2                         7  2184  L Q39 0!0          43
405  2 191          SBR  X2                                 4  2191  H 094              43
406  2 195          CW   1&X2                               4  2195  ) 0!1              43
407  2 199          LCA  W17B,0&X2                          7  2199  L P93 0!0          43
408  2 206          SBR  X2                                 4  2206  H 094              43
409  2 210          CW   1&X2                               4  2210  ) 0!1              43
410  2 214          B    ENDEXP                             4  2214  B T82              43
411          *
412  2 218  ERX2    MCW  SX2B,X3                            7  2218  M Q42 099          44
413  2 225          MCW  SLASH,1&X3                         7  2225  M P22 0?1          44
414  2 232          B    ENDEXP                             4  2232  B T82              44
415          *
416  2 236  ERX3    MCW  SX2B,X2                            7  2236  M Q42 094          44
417  2 243          SBR  X2,1&X2                            7  2243  H 094 0!1          44
418  2 250          B    ENDEXP                             4  2250  B T82              44
419          *
420  2 254  GETFUN  CW   LOGF,EXPF  NEED LOGF AND EXPF      7  2254  ) 119 120          45
421  2 261          CW   SERIES,FLOATF                      7  2261  ) 117 125          45
422  2 268          BWZ  GETFF1,EXPLT,2  LEFT IS FLOAT      8  2268  V L21 P76 2        45
423  2 276          BWZ  GETFF1,EXPLT,B  LEFT IS FLOAT      8  2276  V L21 P76 B        45
424  2 284          LCA  XCODE,0&X2  XFIXF CODE             7  2284  L P21 0!0          45
425  2 291          SBR  X2                                 4  2291  H 094              46
426  2 295          CW   0&X2,XFIXF                         7  2295  ) 0!0 124          46
427  2 302          LCA  NEGAR3,0&X2                        7  2302  L 157 0!0          46
428  2 309          LCA  KPLUS                              4  2309  L Q43              46
429  2 313          SBR  X2                                 4  2313  H 094              46
430  2 317          CW   2&X2                               4  2317  ) 0!2              46
431  2 321  GETFF1  LCA  ECODE,0&X2                         7  2321  L Q35 0!0          46
432  2 328          LCA  KFLESS  F*<4?                      4  2328  L Q48              47
433  2 332          LCA  W17A                               4  2332  L P67              47
434  2 336          SBR  X2                                 4  2336  H 094              47
435  2 340          CW   1&X2                               4  2340  ) 0!1              47
436  2 344          C    0&X1,KB4                           7  2344  C 0|0 P75          47
437  2 351          SAR  X3                                 4  2351  Q 099              47
438  2 355          BCE  SUBFUN,3&X3,$                      8  2355  B O23 0?3 $        47
439  2 363  SUBFUB  SW   1&X3                               4  2363  , 0?1              48
440  2 367          LCA  0&X1,0&X2                          7  2367  L 0|0 0!0          48
441  2 374          SAR  X1                                 4  2374  Q 089              48
442  2 378          C    0&X2                               4  2378  C 0!0              48
443  2 382          SAR  X2                                 4  2382  Q 094              48
444  2 386          CW   1&X2                               4  2386  ) 0!1              48
445  2 390          LCA  KGRM  G|                           4  2390  L Q50              48
446  2 394          SBR  X2                                 4  2394  H 094              49
447  2 398          BWZ  GETFF2,EXPLT,2  LEFT IS FLOAT      8  2398  V M25 P76 2        49
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

```
448  2 406         BWZ   GETFF2,EXPLT,B  LEFT IS FLOAT                      8  2406  V M25 P76 B        49
449  2 414         LCA   FCODE,0&X2                                         7  2414  L P20 0!0          49
450  2 421         SBR   X2                                                 4  2421  H 094             49
451  2 425  GETFF2 LCA   W17B,0&X2                                          7  2425  L P93 0!0          49
452  2 432         LCA   KL4  <4?#                                          4  2432  L Q54             50
453  2 436         SBR   X2                                                 4  2436  H 094             50
454  2 440         CW    5&X2                                               4  2440  ) 0!5             50
455  2 444         C     0&X1,BARITF&3                                      7  2444  C 0|0 Q58         50
456  2 451         BE    ENDEXP                                             5  2451  B T82 S           50
457  2 456         CW    1&X2                                               4  2456  ) 0!1             50
458  2 460         B     ENDEXP                                             4  2460  B T82             50
459        *
460  2 464  RECMRK DCW   @|@                                                1  2464                    51
461  2 484  W20    DCW   #20                                               20  2484                    51
462  2 485         B                                                        1  2485  B                 51
463  2 488  UNCOND DCW   #3                                                 3  2488                    51
464  2 489         BWZ                                                      1  2489  V                 51
465  2 492  LABPOS DCW   #3  POSITIVE BRANCH FROM ARITHMETIC IF             3  2492                    51
466  2 495         DSA   277&X3                                             3  2495  2G7               51
467  2 496  BRPOS  DC    @B@                                                1  2496                    51
468  2 497         B                                                        1  2497  B                 52
469  2 500  LABZRO DCW   #3  ZERO BRANCH FROM ARITHMETIC IF                 3  2500                    52
470  2 503         DSA   280                                                3  2503  280               52
471  2 504  BRZERO DC    0                                                  1  2504                    52
472  2 505         BWZ                                                      1  2505  V                 52
473  2 508  LABNEG DCW   #3  NEGATIVE BRANCH FROM ARITHMETIC IF             3  2508                    52
474  2 511         DSA   277&X3                                             3  2511  2G7               52
475  2 512  BRNEG  DC    @K@                                                1  2512                    52
476        *
477        * RIGHT OPERAND OF EXPONENTIATION OPERATOR IS SUBSCRIPTED
478        *
479  2 513  ESUBR  MZ    3&X1,EXPRT                                         7  2513  Y 0|3 P68         52
480  2 520         SBR   X1,11&X1                                           7  2520  H 089 0/1         53
481  2 527         BCE   *&8,0&X1,$                                         8  2527  B N42 0|0 $       53
482  2 535         SBR   X1,6&X1                                            7  2535  H 089 0|6         53
483  2 542         C     X1,X3                                              7  2542  C 089 099         53
484  2 549         BE    *&5                                                5  2549  B N58 S           53
485  2 554         SW    1&X1                                               4  2554  , 0|1             53
486  2 558         LCA   0&X1,W17A                                          7  2558  L 0|0 P67         54
487  2 565         SAR   X1                                                 4  2565  Q 089             54
488  2 569         BE    EXPON5                                             5  2569  B Y80 S           54
489  2 574         B     EXPON4                                             4  2574  B Y57             54
490        *
491        * LEFT OPERAND OF EXPONENTIATION OPERATOR IS SUBSCRIPTED
492        *
493  2 578  ESUBL  C     0&X1,W8                                            7  2578  C 0|0 Q66         54
494  2 585         SAR   X3                                                 4  2585  Q 099             54
495  2 589         BCE   *&12,1&X3,$                                        8  2589  B O08 0?1 $       54
496  2 597         C     0&X3,W6                                            7  2597  C 0?0 Q72         55
497  2 604         SAR   X3                                                 4  2604  Q 099             55
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SEQ PG LIN  LABEL   OP    OPERANDS                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

498  2 608         MZ    3&X3,EXPLT                                   7  2608  Y 0?3 P76          55
499  2 615         SW    1&X3                                         4  2615  , 0?1              55
500  2 619         B     EXPON6                                       4  2619  B Z10              55
501        *
502        * SUBSCRIPT AFTER ???
503        *
504  2 623  SUBFUN C     0&X3,W8                                      7  2623  C 0?0 Q66          55
505  2 630         SAR   X3                                           4  2630  Q 099              55
506  2 634         BCE   SUBFUB,1&X3,$                                8  2634  B L63 0?1 $        56
507  2 642         C     0&X3,W6                                      7  2642  C 0?0 Q72          56
508  2 649         SAR   X3                                           4  2649  Q 099              56
509  2 653         B     SUBFUB                                       4  2653  B L63              56
510        *
511        * SUBSCRIPT ON LEFT OF EQUAL SIGN
512        *
513  2 657  SUBLFT MZ    W18A-9,LSTYPE   TYPE TAG FOR LHS             7  2657  Y P09 P19          56
514  2 664         BCE   SBLBAK,W18A-11,$                             8  2664  B S54 P07 $        56
515  2 672         MZ    W18A-15,LSTYPE  TYPE TAG FOR LHS             7  2672  Y P03 P19          57
516  2 679         B     SBLBAK                                       4  2679  B S54              57
517        *
518        * DATA
519        *
520  2 683  CODE   DCW   #1   STATEMENT CODE                          1  2683                     57
521  2 686  SEQNO  DCW   #3   SEQUENCE NUMBER OR                      3  2686                     57
522  2 689  SX2    DCW   #3                                           3  2689                     57
523  2 690  PARITY DCW   #1   OF LOOP IN ASSIGNMENT STATEMENT PROCESSING  1  2690                 57
524  2 693  SX1    DCW   #3                                           3  2693                     57
525  2 699  OPS    DCW   @&-@*.#@                                     6  2699                     58
526  2 700  SAVZON DCW   #1                                           1  2700                     58
527  2 718  W18A   DCW   #18                                         18  2718                     58
528  2 719  LSTYPE DCW   #1   TYPE ZONE FOR LHS                       1  2719                     58
529  2 720  FCODE  DCW   @F@  FIX-TO-FLOAT (FLOATF) CODE              1  2720                     58
530  2 721  XCODE  DCW   @X@  FLOAT-TO-FIX (XFIXF) CODE               1  2721                     58
531  2 722  SLASH  DCW   @/@                                          1  2722                     58
532  2 728  ARITH6 DCW   @ARITH6@                                     6  2728                     59
533  2 729  X2ZONE DCW   @K@                                          1  2729                     59
534  2 749  KB20   DCW   #20                                         20  2749                     59
535  2 750  KP1    DCW   &1                                           1  2750                     59
536  2 767  W17A   DCW   #17                                         17  2767                     60
537  2 768  EXPRT  DCW   #1   TYPE TAG OF RIGHT OPERAND OF EXPONENTIATION  1  2768               60
538  2 771  SX1P3  DCW   #3                                           3  2771                     60
539  2 775  KB4    DCW   #4   USED IN COMPARE TO DECREMENT INDEX      4  2775                     60
540  2 776  EXPLT  DCW   #1   TYPE TAG OF LEFT OPERAND OF EXPONENTIATION  1  2776                60
541  2 793  W17B   DCW   #17                                         17  2793                     61
542  2 834  ERR30  DCW   @ERROR 30 - FIX TO FLOAT POWER, STATEMENT @ 41  2834                    63
543  2 835  ECODE  DCW   @E@   CODE FOR EXPONENTIAL                   1  2835                     63
544  2 837  KGSTAR DCW   @G*@  CODE FOR LOGARITHM                     2  2837                     63
545  2 838  K3     DCW   3                                            1  2838                     63
546  2 839  KSTAR  DCW   @*@                                          1  2839                     63
547  2 842  SX2B   DCW   #3                                           3  2842                     64

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  SEQ PG LIN  LABEL   OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE   CARD

  548  2 843  KPLUS   DCW   @&@                                                  1  2843                        64
  549  2 848  KFLESS  DCW   @F*<4?@                                              5  2848                        64
  550  2 850  KGRM    DCW   @G|@                                                 2  2850                        64
  551  2 854  KL4     DCW   @<4?#@                                               4  2854                        64
  552  2 855  BARITF  B     ARITF                                                4  2855  B 700                 64
  553  2 866  W8      DCW   #8  USED IN COMPARE TO DECREMENT INDEX               8  2866                        64
  554  2 872  W6      DCW   #6  USED IN COMPARE TO DECREMENT INDEX               6  2872                        65
  555  2 873  GMWM    DCW   @}@                                                  1  2873             GMARK      65
  556                ORG   201                                                             0201
  557    203        DSA   LOADDD    LOAD ADDRESS FOR CARD-TO-TAPE PROGRAM        3  0203  838                   66
  558                EX    BEGINN                                                      B 838                   67
  559                END                                                               / 000 080
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| SYMBOL | ADDRESS | SYMBOL | ADDRESS | SYMBOL | ADDRESS | SYMBOL | ADDRESS | SYMBOL | ADDRESS | SYMBOL | ADDRESS | SYMBOL | ADDRESS |
|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|
| ALMOST | 1478 | ARIF | 894 | ARITF | 700 | ARITH6 | 2728 | ARYSIZ | 160 | ASGSTM | 936 | BARITF | 2855 |
| BEGINN | 838 | BRNEG | 2512 | BRPOS | 2496 | BRZERO | 2504 | CLEARL | 707 | CODE | 2683 | DIVOP | 1463 |
| DONE | 1499 | ECODE | 2835 | ENDEX2 | 1389 | ENDEXP | 1382 | ENDSTM | 1421 | ERFLF | 2032 | ERR30 | 2834 |
| ERX | 2077 | ERX2 | 2218 | ERX3 | 2236 | ESUBL | 2578 | ESUBR | 2513 | EVEN | 1101 | EXPF | 120 |
| EXPLT | 2776 | EXPON | 1109 | EXPON2 | 1154 | EXPON3 | 1808 | EXPON4 | 1857 | EXPON5 | 1880 | EXPON6 | 1910 |
| EXPONL | 1128 | EXPRT | 2768 | FCODE | 2720 | FINSTM | 1452 | FLOATF | 125 | GETASG | 1216 | GETFF1 | 2321 |
| GETFF2 | 2425 | GETFUN | 2254 | GETOP | 974 | GLOBER | 184 | GMWM | 2873 | GOTASG | 1232 | GOTOP | 1009 |
| IFSTMT | 1522 | INNER | 1046 | K3 | 2838 | KB20 | 2749 | KB4 | 2775 | KFLESS | 2848 | KGRM | 2850 |
| KGSTAR | 2837 | KL4 | 2854 | KP1 | 2750 | KPLUS | 2843 | KSTAR | 2839 | LABNEG | 2508 | LABPOS | 2492 |
| LABZRO | 2500 | LFIX | 1340 | LFRF | 1316 | LFRX | 1294 | LOADDD | 838 | LOADNX | 700 | LOGF | 119 |
| LOOKOP | 992 | LOOP | 866 | LSTYPE | 2719 | LXRF | 1364 | LXRX | 1328 | MOVEUP | 1748 | MSG30 | 1998 |
| NEGAR3 | 157 | OPS | 2699 | OUTER | 1039 | PARITY | 2690 | PHASID | 110 | POSN2 | 1736 | POSNEG | 1662 |
| POSZRO | 1779 | RECMRK | 2464 | SAVZON | 2700 | SBLBAK | 1254 | SEQNO | 2686 | SERIES | 117 | SLASH | 2722 |
| SNAPSH | 333 | SUBFUB | 2363 | SUBFUN | 2623 | SUBLFT | 2657 | SUBS | 1190 | SX1 | 2693 | SX1P3 | 2771 |
| SX2 | 2689 | SX2B | 2842 | SX3 | 1135 | UNCOND | 2488 | W17A | 2767 | W17B | 2793 | W18A | 2718 |
| W20 | 2484 | W6 | 2872 | W8 | 2866 | X1 | 89 | X2 | 94 | X2ZONE | 2729 | X3 | 99 |
| XCODE | 2721 | XFIXF | 124 | ZEQNEG | 1642 | | | | | | | | | | |