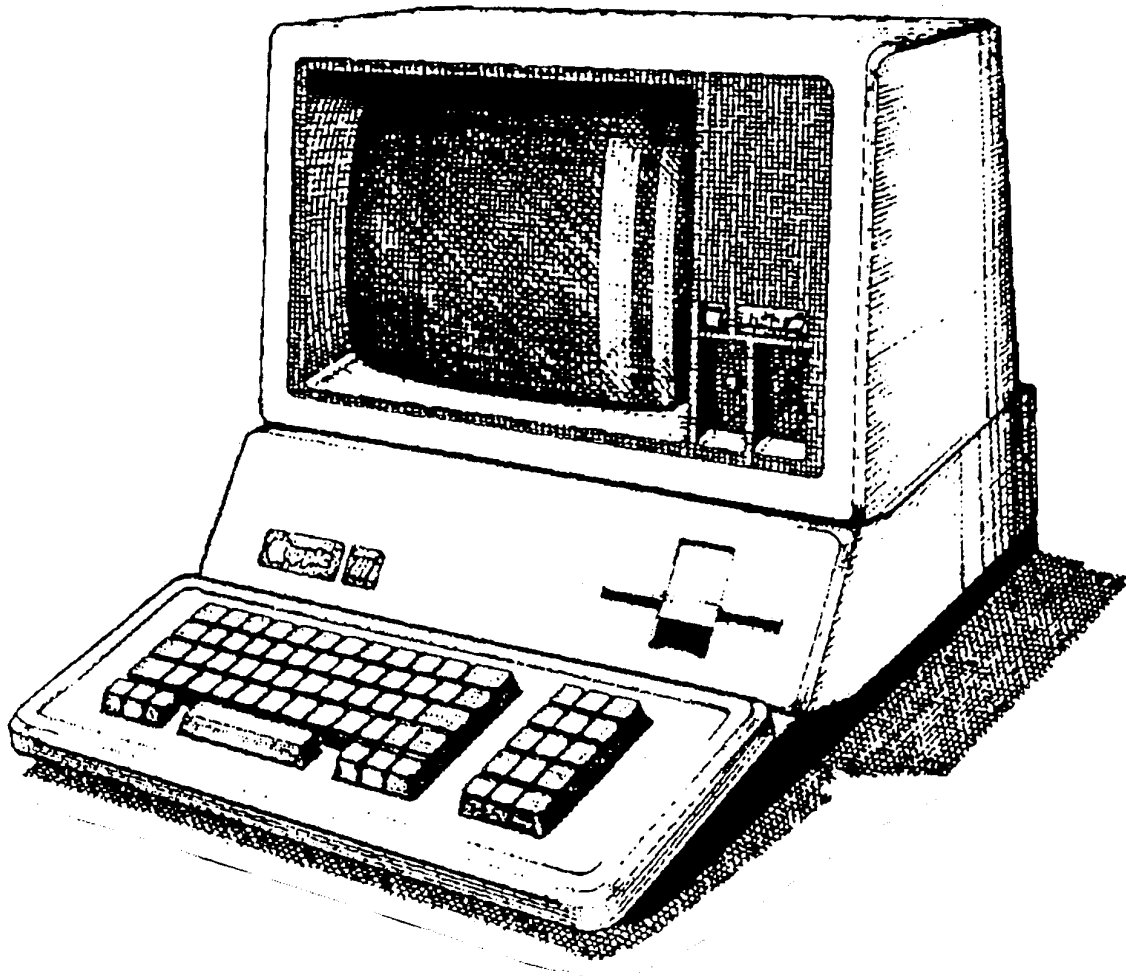




Apple /// Computer Information



DOCUMENT NAME	#
GRAFDEMO COMPILER LISTING SHOWING GENERATED P-CODE	DTC 1989 151

Ex Libris David T. Craig

34 pages

Source Code Listing
for
Apple][GrafDemo

Listing of compiled source
code with the generated
P-Code opcodes as
provided by the Apple ///
Pascal Compiler (2.136)

Written by Bill Atkinson
of
Apple Computer, Inc.

```

1
2      {$PC+} { Apple /// Pascal Compiler 2.136 P-code listing directive }
3
4      (*$$*) (* USE SWAPPING OPTION FOR LARGE PROGRAMS *)
5
6      1 1 1 -- PROGRAM GRAFDEMO;
7      (*****
8      (*
9      (* THIS IS A HURRIDLY-WRITTEN EXAMPLE SHOWING THE USE OF
10     (* ROUTINES IN TURTLEGRAPHICS AND APPLESTUFF UNITS.
11     (*
12     (* IT DOES HAVE A DESCRIPTION OF DRAWBLOCK TOWARD THE END.
13     (* I HOPE IT HELPS TO ANSWER SOME OF YOUR QUESTIONS.
14     (*
15     (* MANY THANKS TO THE FINE TEAM AT UCSD.
16     (* ENJOY YOUR NEW PASCAL SYSTEM.  BILL ATKINSON, MAY 5 1979
17     (*
18     (*****
19
20
21     20 1 1 -- TYPE
22     20 1 1 -- SCREENCOLOR=(NONE,WHITE,BLACK,REVERSE,RADAR,
23     20 1 1 -- BLACK1,GREEN,VIOLET,WHITE1,BLACK2,ORANGE,BLUE,WHITE2);
24
25     20 2 1 -- A PROCEDURE INITTURTLE;
26     20 3 1 -- A PROCEDURE TURN(ANGLE: INTEGER);
27     20 4 1 -- A PROCEDURE TURNTO(ANGLE: INTEGER);
28     20 5 1 -- A PROCEDURE MOVE(DIST: INTEGER);
29     20 6 1 -- A PROCEDURE MOVETO(X,Y: INTEGER);
30     20 7 1 -- A PROCEDURE PENCOLOR(PENMODE: SCREENCOLOR);
31     20 8 1 -- A PROCEDURE TEXTMODE;
32     20 9 1 -- A PROCEDURE GRAFMODE;
33     20 10 1 -- A PROCEDURE FILLSCREEN(FILLCOLOR: SCREENCOLOR);
34     20 11 1 -- A PROCEDURE VIEWPORT(LEFT,RIGHT,BOTTOM, TOP: INTEGER);
35     20 12 3 -- A FUNCTION TURTLEX: INTEGER;
36     20 13 3 -- A FUNCTION TURTLEY: INTEGER;
37     20 14 3 -- A FUNCTION TURTLEANG: INTEGER;
38     20 15 3 -- A FUNCTION SCREENBIT(X,Y: INTEGER): BOOLEAN;
39     20 16 1 -- A PROCEDURE DRAWBLOCK(VAR SOURCE; ROWSIZE,XSKIP,YSKIP,WIDTH,HEIGHT,
40     20 16 2 -- XSCREEN, YSCREEN,MODE: INTEGER);
41     20 17 1 -- A PROCEDURE WCHAR(CH: CHAR);
42     20 18 1 -- A PROCEDURE WSTRING(S: STRING);
43     20 19 1 -- A PROCEDURE CHARTYPE(MODE: INTEGER);
44
45
46
47     22 1 1 -- TYPE
48     22 1 1 -- DSTR8=STRING [8];
49     22 1 1 -- TSTR6=STRING [6];
50     22 1 1 -- SSTR18=STRING [18];
51
52     22 2 3 -- A FUNCTION PADDLE(SELECT: INTEGER): INTEGER;
53     22 3 3 -- A FUNCTION BUTTON(SELECT: INTEGER): BOOLEAN;
54     22 4 1 -- A PROCEDURE JOYSTICK(SELECT: INTEGER; VAR X,Y: INTEGER; VAR B0,B1: BOOLEAN);
55     22 5 3 -- A FUNCTION KEYPRESS: BOOLEAN;
56     22 6 3 -- A FUNCTION RANDOM: INTEGER;
57     22 7 1 -- A PROCEDURE RANDOMIZE;
58     22 8 1 -- A PROCEDURE NOTE(PITCH,DURATION: INTEGER);
59     22 9 1 -- A PROCEDURE SOUND(PITCH,DURATION,VOLUME: INTEGER);
60     22 10 1 -- A PROCEDURE DATE(VAR D: DSTR8);
61     22 11 1 -- A PROCEDURE TIMEOFDAY(VAR T: TSTR6);
62     22 12 1 -- A PROCEDURE CLOCKINFO(VAR YR,MON,DAY, DAYOFWK,HR,MIN,SEC,THOU: INTEGER);
63     22 13 1 -- A PROCEDURE SETTIME(T: SSTR18);

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64
65 1 1 12 -- USES TURTLEGRAPHICS,APPLESTUFF;
66
67 1 1 3 -- CONST XMAX=279;
68 1 1 3 -- YMAX=191;
69 1 1 3 -- XMID=140;
70 1 1 3 -- YMID=96;
71
72 1 1 3 -- TYPE PICTURE=PACKED ARRAY[0..53,0..120] OF BOOLEAN;
73
74 1 1 3 -- VAR I,J,K,SKIP,ROW: INTEGER;
75 1 1 8 -- CH: CHAR;
76 1 1 9 -- COLORS: ARRAY[0..5] OF SCREENCOLOR;
77 1 1 15 -- BUTTER: PICTURE;
78 1 1 447 -- BIT: BOOLEAN;
79
80
81 1 2 1 -- A PROCEDURE WAIT(TIME:INTEGER);
82 1 2 2 -- VAR DELAY: INTEGER;
83 1 2 0 0- A BEGIN
84 1 2 0 -- FOR DELAY:=1 TO TIME DO;
      0 01 SLDC 1
      1 CC 02 STL 2
      3 D8 SLDL 1
      4 CC 03 STL 3
      6 D9 SLDL 2
      7 DA SLDL 3
      8 C8 LEQI
      9 A1 ** FJP [1953]
     11 D9 SLDL 2
     12 01 SLDC 1
     13 82 ADI
     14 CC 02 STL 2
     16 B9 F6 UJP -10 (6)

     10 07 Patch 10 with 7 (18)

85 1 2 18 -0 A END;
     18 AD 00 RNP 0
86
87
88 1 3 1 -- A PROCEDURE FRAME(COLOR: SCREENCOLOR);
89 1 3 0 0- A BEGIN
90 1 3 0 -- PENCOLOR(NONE); MOVETO(0,0);
      0 00 SLDC 0
      1 CD 14 07 CXP 20,PENCOLOR
      4 00 SLDC 0
      5 00 SLDC 0
      6 CD 14 06 CXP 20,MOVETO
91 1 3 9 -- PENCOLOR(COLOR);
      9 D8 SLDL 1
     10 CD 14 07 CXP 20,PENCOLOR
92 1 3 13 -- MOVETO(0,YMAX); MOVETO(XMAX,YMAX);
     13 00 SLDC 0
     14 C7 BF00 LDCI 191
     17 CD 14 06 CXP 20,MOVETO
     20 C7 1701 LDCI 279
     23 C7 BF00 LDCI 191
     26 CD 14 06 CXP 20,MOVETO
93 1 3 29 -- MOVETO(XMAX,0); MOVETO(0,0);
     29 C7 1701 LDCI 279
     32 00 SLDC 0
     33 CD 14 06 CXP 20,MOVETO

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36 00          SLDC 0
37 00          SLDC 0
38 CD 14 06    CXP 20,MOVETO
94  1  3      41 --      PENCOLOR(NONE);
41 00          SLDC 0
42 CD 14 07    CXP 20,PENCOLOR
95  1  3      45 -0 A END;
45 AD 00          RNP 0
96
97
98  1  4      1 -- A PROCEDURE GOODBYE;
99  1  4      0 0- A BEGIN
100 1  4      0 --      TEXTMODE;
0 CD 14 08    CXP 20,TEXTMODE
101 1  4      3 --      READ(KEYBOARD,CH);
3 B6 02 04    LOD 2,4
6 A5 08      LAO 8
8 CD 00 10    CXP 0,READ_C
11 9E 00      CSP IOCHECK
102 1  4      13 --     WRITELN;
13 B6 02 03    LOD 2,3
16 CD 00 16    CXP 0,WRITELN
19 9E 00      CSP IOCHECK
103 1  4      21 --     WRITELN('THAT'S ALL FOLKS...');
21 B6 02 03    LOD 2,3
24 D7          NOP
25 A6 13 544841542753 LSA 19,"THAT'S
33 20414C4C2046      ALL F
39 4F4C4B532E2E      OLKS..
45 2E           ."
46 00          SLDC 0
47 CD 00 13    CXP 0,WRITE_STR
50 9E 00      CSP IOCHECK
52 B6 02 03    LOD 2,3
55 CD 00 16    CXP 0,WRITELN
58 9E 00      CSP IOCHECK
104 1  4      60 --     EXIT(PROGRAM);
60 01          SLDC 1
61 01          SLDC 1
62 9E 04      CSP EXIT
105 1  4      64 -0 A END;
64 AD 00          RNP 0
106
107
108 1  5      1 -- A PROCEDURE ERASE;
109 1  5      0 0- A BEGIN
110 1  5      0 --      IF KEYPRESS THEN GOODBYE;
0 00          SLDC 0
1 00          SLDC 0
2 CD 16 05    CXP 22,KEYPRESS
5 A1 **      FJP [673]
7 CF 04      CGP GOODBYE

6 02 Patch 6 with 2 (9)
111 1  5      9 --      VIEWPORT(0,XMAX,0,YMAX);
9 00          SLDC 0
10 C7 1701    LDCI 279
13 00          SLDC 0
14 C7 BF00    LDCI 191
17 CD 14 0B    CXP 20,VIEWPORT
112 1  5      20 --     FRAME(WHITE);
20 01          SLDC 1

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21 CF 03          CGP  FRAME
113  1  5  23 --      VIEWPORT(1,XMAX-1,1,YMAX-1);
      23 01          SLDC  1
      24 C7 1701     LDCI  279
      27 01          SLDC  1
      28 95          SBI
      29 01          SLDC  1
      30 C7 BF00     LDCI  191
      33 01          SLDC  1
      34 95          SBI
      35 CD 14 0B    CXP   20,VIEWPORT
114  1  5  38 --      FILLSCREEN(BLACK);
      38 02          SLDC  2
      39 CD 14 0A    CXP   20,FILLSCRE
115  1  5  42 -0 A END;
      42 AD 00          RNP   0

116
117
118  1  6  3 -- A FUNCTION RANDCOLOR: SCREENCOLOR;
119  1  6  0 0- A BEGIN
120  1  6  0 --      RANDCOLOR:=COLORS[RANDOM MOD 6];
      0 A5 09          LAO   9
      2 00          SLDC  0
      3 00          SLDC  0
      4 CD 16 06    CXP   22,RANDOM
      7 06          SLDC  6
      8 8E          MODI
      9 00          SLDC  0
      10 05         SLDC  5
      11 88         CHK
      12 A4 01       IXA   1
      14 F8         SIND  0
      15 CC 01       STL   1
121  1  6  17 -0 A END;
      17 AD 01          RNP   1

122
123
124  1  7  1 -- A PROCEDURE FAN;
125  1  7  0 0- A BEGIN
126  1  7  0 --      FOR J:=1 TO 3 DO
      0 01          SLDC  1
      1 AB 06       SRO   6
      3 03          SLDC  3
      4 CC 01       STL   1
      6 ED          SLDO  6
      7 D8          SLDL  1
      8 C8          LEQI
      9 A1 **       FJP   [28000]
127  1  7  11 --     FOR I:=17 DOWNT0 1 DO
      11 11         SLDC  17
      12 AB 07       SRO   7
      14 01         SLDC  1
      15 CC 02       STL   2
      17 EE         SLDO  7
      18 D9         SLDL  2
      19 C4         GEQI
      20 A1 **       FJP   [28000]
128  1  7  22 1-     BEGIN
129  1  7  22 --     PENCOLOR(NONE); MOVETO(0,0);
      22 00          SLDC  0
      23 CD 14 07    CXP   20,PENCOLOR
      26 00          SLDC  0
      27 00          SLDC  0
    
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130 1 7 28 CD 14 06      CXP 20,MOVETO
      31 --      PENCOLOR(REVERSE);
      31 03      SLDC 3
      32 CD 14 07      CXP 20,PENCOLOR
131 1 7 35 --      TURNTO(5*I); MOVE(400);
      35 05      SLDC 5
      36 EE      SLDO 7
      37 8F      MPI
      38 CD 14 04      CXP 20,TURNTO
      41 C7 9001      LDCI 400
      44 CD 14 05      CXP 20,MOVE
132 1 7 47 -1      END;
      47 EE      SLDO 7
      48 01      SLDC 1
      49 95      SBI
      50 AB 07      SRO 7
      52 B9 F6      UJP -10 (17)
      54 ED      SLDO 6
      55 01      SLDC 1
      56 82      ADI
      57 AB 06      SRO 6
      59 B9 F4      UJP -12 (6)

      21 20 Patch 21 with 32 (54)
      10 32 Patch 10 with 50 (61)

133 1 7 61 --      WAIT(2000);
      61 C7 D007      LDCI 2000
      64 CF 02      CGP WAIT
134 1 7 66 --      IF KEYPRESS THEN GOODBYE;
      66 00      SLDC 0
      67 00      SLDC 0
      68 CD 16 05      CXP 22,KEYPRESS
      71 A1 **      FJP [673]
      73 CF 04      CGP GOODBYE

      72 02 Patch 72 with 2 (75)

135 1 7 75 --      FILLSCREEN(REVERSE);
      75 03      SLDC 3
      76 CD 14 0A      CXP 20,FILLSCRE
136 1 7 79 --      FILLSCREEN(REVERSE);
      79 03      SLDC 3
      80 CD 14 0A      CXP 20,FILLSCRE
137
138 1 7 83 --      FOR I:=0 TO 4 DO
      83 00      SLDC 0
      84 AB 07      SRO 7
      86 04      SLDC 4
      87 CC 01      STL 1
      89 EE      SLDO 7
      90 D8      SLDL 1
      91 C8      LEQI
      92 A1 **      FJP [28000]
139 1 7 94 1-      BEGIN
140 1 7 94 --      SKIP:=I*15;
      94 EE      SLDO 7
      95 0F      SLDC 15
      96 8F      MPI
      97 AB 04      SRO 4

141      (* USE VIEWPORT TO SPECIFY PORTION OF SCREEN *)
142 1 7 99 --      VIEWPORT(SKIP,XMAX-SKIP,SKIP,YMAX-SKIP);
      99 EB      SLDO 4
    
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100 C7 1701      LDCI 279
103 EB          SLDO 4
104 95          SBI
105 EB          SLDO 4
106 C7 BF00     LDCI 191
109 EB          SLDO 4
110 95          SBI
111 CD 14 0B    CXP 20,VIEWPORT
143 1 7 114 --   IF I=2 THEN
114 EE          SLDO 7
115 02          SLDC 2
116 C3          EQUI
117 A1 **       FJP [28000]
144 1 7 119 2-   BEGIN
145 1 7 119 --   PENCOLOR(NONE);
119 00          SLDC 0
120 CD 14 07    CXP 20,PENCOLOR
146 1 7 123 --   MOVETO(SKIP,SKIP);
123 EB          SLDO 4
124 EB          SLDO 4
125 CD 14 06    CXP 20,MOVETO
147 1 7 128 --   PENCOLOR(WHITE);
128 01          SLDC 1
129 CD 14 07    CXP 20,PENCOLOR
148 1 7 132 --   MOVETO(SKIP,YMAX-SKIP);
132 EB          SLDO 4
133 C7 BF00     LDCI 191
136 EB          SLDO 4
137 95          SBI
138 CD 14 06    CXP 20,MOVETO
149 1 7 141 --   MOVETO(XMAX-SKIP,YMAX-SKIP);
141 C7 1701     LDCI 279
144 EB          SLDO 4
145 95          SBI
146 C7 BF00     LDCI 191
149 EB          SLDO 4
150 95          SBI
151 CD 14 06    CXP 20,MOVETO
150 1 7 154 --   MOVETO(XMAX-SKIP,SKIP);
154 C7 1701     LDCI 279
157 EB          SLDO 4
158 95          SBI
159 EB          SLDO 4
160 CD 14 06    CXP 20,MOVETO
151 1 7 163 --   MOVETO(SKIP,SKIP);
163 EB          SLDO 4
164 EB          SLDO 4
165 CD 14 06    CXP 20,MOVETO
152 1 7 168 --   VIEWPORT(SKIP+1,XMAX-SKIP-1,SKIP+1,YMAX-SKIP-1);
168 EB          SLDO 4
169 01          SLDC 1
170 82          ADI
171 C7 1701     LDCI 279
174 EB          SLDO 4
175 95          SBI
176 01          SLDC 1
177 95          SBI
178 EB          SLDO 4
179 01          SLDC 1
180 82          ADI
181 C7 BF00     LDCI 191
184 EB          SLDO 4
185 95          SBI

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186 01          SLDC 1
187 95          SBI
188 CD 14 0B    CXP 20,VIEWPORT
153 1 7 191 --      FILLSCREEN(BLACK);
191 02          SLDC 2
192 CD 14 0A    CXP 20,FILLSCRE
154 1 7 195 -2    END
155 1 7 195 --      ELSE FILLSCREEN(REVERSE);
195 B9 **       UJP [1209]
197 03          SLDC 3
198 CD 14 0A    CXP 20,FILLSCRE

118 4E Patch 118 with 78 (197)
196 04 Patch 196 with 4 (201)

156 1 7 201 -1    END;
201 EE          SLDO 7
202 01          SLDC 1
203 82          ADI
204 AB 07       SRO 7
206 B9 F2       UJP -14 (89)

93 72 Patch 93 with 114 (208)

157 1 7 208 --      WAIT(3000); ERASE;
208 C7 B80B     LDCI 3000
211 CF 02       CGP WAIT
213 CF 05       CGP ERASE
158 1 7 215 -0 A END;
215 AD 00       RNP 0

159
160
161 1 8 1 -- A PROCEDURE GRID;
162 1 8 0 0- A BEGIN
163              (* DRAW VERTICAL LINES *)
164 1 8 0 --      FOR I:=1 TO 27 DO
0 01          SLDC 1
1 AB 07       SRO 7
3 1B          SLDC 27
4 CC 01       STL 1
6 EE          SLDO 7
7 D8          SLDL 1
8 C8          LEQI
9 A1 **       FJP [28000]
165 1 8 11 1-     BEGIN
166 1 8 11 --      PENCOLOR(NONE);
11 00          SLDC 0
12 CD 14 07    CXP 20,PENCOLOR
167 1 8 15 --      MOVETO(I*10,YMAX);
15 EE          SLDO 7
16 0A          SLDC 10
17 8F          MPI
18 C7 BF00     LDCI 191
21 CD 14 06    CXP 20,MOVETO
168 1 8 24 --      PENCOLOR(WHITE);
24 01          SLDC 1
25 CD 14 07    CXP 20,PENCOLOR
169 1 8 28 --      MOVETO(I*10,0);
28 EE          SLDO 7
29 0A          SLDC 10
30 8F          MPI
31 00          SLDC 0
32 CD 14 06    CXP 20,MOVETO

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170 1 8 35 -1      END;
      35 EE          SLDO 7
      36 01          SLDC 1
      37 82          ADI
      38 AB 07       SRO 7
      40 B9 F6       UJP -10 (6)

      10 1F Patch 10 with 31 (42)

171          (* DRAW HORIZONTAL LINES *)
172 1 8 42 --      FOR I:=18 DOWNT0 1 DO
      42 12          SLDC 18
      43 AB 07       SRO 7
      45 01          SLDC 1
      46 CC 01       STL 1
      48 EE          SLDO 7
      49 D8          SLDL 1
      50 C4          GEQI
      51 A1 **       FJP [28000]

173 1 8 53 1-      BEGIN
174 1 8 53 --      PENCOLOR(NONE);
      53 00          SLDC 0
      54 CD 14 07    CXP 20,PENCOLOR
175 1 8 57 --      MOVETO(0,I*10);
      57 00          SLDC 0
      58 EE          SLDO 7
      59 0A          SLDC 10
      60 8F          MPI
      61 CD 14 06    CXP 20,MOVETO
176 1 8 64 --      PENCOLOR(WHITE);
      64 01          SLDC 1
      65 CD 14 07    CXP 20,PENCOLOR
177 1 8 68 --      MOVETO(XMAX,I*10);
      68 C7 1701    LDCI 279
      71 EE          SLDO 7
      72 0A          SLDC 10
      73 8F          MPI
      74 CD 14 06    CXP 20,MOVETO
178 1 8 77 -1      END;
      77 EE          SLDO 7
      78 01          SLDC 1
      79 95          SBI
      80 AB 07       SRO 7
      82 B9 F4       UJP -12 (48)

      52 1F Patch 52 with 31 (84)

179 1 8 84 --      WAIT(2000);
      84 C7 D007    LDCI 2000
      87 CF 02       CGP WAIT
180 1 8 89 --      FILLSCREEN(REVERSE);
      89 03          SLDC 3
      90 CD 14 0A    CXP 20,FILLSCRE
181 1 8 93 --      FILLSCREEN(REVERSE);
      93 03          SLDC 3
      94 CD 14 0A    CXP 20,FILLSCRE
182 1 8 97 --      WAIT(2000); ERASE;
      97 C7 D007    LDCI 2000
      100 CF 02      CGP WAIT
      102 CF 05      CGP ERASE
183 1 8 104 -0 A END;
      104 AD 00     RNP 0

184

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185
186 1 9 1 -- A PROCEDURE DIAGONALS;
187 1 9 0 0- A BEGIN
188 1 9 0 --      TURNTO(45);
           0 2D          SLDC 45
           1 CD 14 04      CXP 20,TURNTO
189 1 9 4 --      FOR I:=-19 TO 27 DO
           4 13          SLDC 19
           5 91          NGI
           6 AB 07        SRO 7
           8 1B          SLDC 27
           9 CC 01        STL 1
           11 EE         SLDO 7
           12 D8         SLDL 1
           13 C8         LEQI
           14 A1 **      FJP [28000]
190 1 9 16 1-      BEGIN
191 1 9 16 --      PENCOLOR(NONE);
           16 00          SLDC 0
           17 CD 14 07      CXP 20,PENCOLOR
192 1 9 20 --      MOVETO(I*10,0);
           20 EE         SLDO 7
           21 0A         SLDC 10
           22 8F         MPI
           23 00          SLDC 0
           24 CD 14 06      CXP 20,MOVETO
193 1 9 27 --      PENCOLOR(WHITE);
           27 01          SLDC 1
           28 CD 14 07      CXP 20,PENCOLOR
194 1 9 31 --      MOVE(500);
           31 C7 F401      LDCI 500
           34 CD 14 05      CXP 20,MOVE
195 1 9 37 -1      END;
           37 EE         SLDO 7
           38 01          SLDC 1
           39 82          ADI
           40 AB 07        SRO 7
           42 B9 F6        / UJP -10 (11)

           15 1C Patch 15 with 28 (44)

196 1 9 44 --      WAIT(2000); ERASE;
           44 C7 D007      LDCI 2000
           47 CF 02        CGP WAIT
           49 CF 05        CGP ERASE
197 1 9 51 -0 A END;
           51 AD 00        RNP 0
198
199
200 1 10 1 -- A PROCEDURE SPIRAL;
201 1 10 0 0- A BEGIN
202 1 10 0 --      PENCOLOR(NONE); MOVETO(XMID, YMID);
           0 00          SLDC 0
           1 CD 14 07      CXP 20,PENCOLOR
           4 C7 8C00      LDCI 140
           7 60          SLDC 96
           8 CD 14 06      CXP 20,MOVETO
203 1 10 11 --      TURNTO(0); PENCOLOR(RANDCOLOR);
           11 00          SLDC 0
           12 CD 14 04      CXP 20,TURNTO
           15 00          SLDC 0
           16 00          SLDC 0
           17 CF 06        CGP RANDCOLO

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19 CD 14 07      CXP 20,PENCOLOR
204  1 10 22 --      FOR I:=1 TO 300 DO
22 01            SLDC 1
23 AB 07        SRO 7
25 C7 2C01      LDCI 300
28 CC 01        STL 1
30 EE          SLDO 7
31 D8          SLDL 1
32 C8          LEQI
33 A1 **        FJP [28000]
205  1 10 35 1-      BEGIN
206  1 10 35 --      MOVE(I);
35 EE          SLDO 7
36 CD 14 05     CXP 20,MOVE
207  1 10 39 --      TURN(-30);
39 1E          SLDC 30
40 91          NGI
41 CD 14 03     CXP 20,TURN
208  1 10 44 -1     END;
44 EE          SLDO 7
45 01          SLDC 1
46 82          ADI
47 AB 07        SRO 7
49 B9 F6        UJP -10 (30)

34 10 Patch 34 with 16 (51)

209  1 10 51 --      WAIT(2000); ERASE;
51 C7 D007      LDCI 2000
54 CF 02        CGP WAIT
56 CF 05        CGP ERASE
210  1 10 58 -0 A END;
58 AD 00        RNP 0

211
212
213  1 11 1 -- A PROCEDURE SQUIGGLE;
214  1 11 0 0- A BEGIN
215  1 11 0 --      PENCOLOR(NONE); MOVETO(XMID,YMID);
0 00          SLDC 0
1 CD 14 07      CXP 20,PENCOLOR
4 C7 8C00      LDCI 140
7 60          SLDC 96
8 CD 14 06     CXP 20,MOVETO
216  1 11 11 --      PENCOLOR(WHITE);
11 01         SLDC 1
12 CD 14 07     CXP 20,PENCOLOR
217  1 11 15 1-     REPEAT
218  1 11 15 --      TURN((RANDOM MOD 90)-60);
15 00         SLDC 0
16 00         SLDC 0
17 CD 16 06     CXP 22,RANDOM
20 5A          SLDC 90
21 8E          MODI
22 3C          SLDC 60
23 95          SBI
24 CD 14 03     CXP 20,TURN
219  1 11 27 --      MOVE(5);
27 05         SLDC 5
28 CD 14 05     CXP 20,MOVE
220  1 11 31 -1     UNTIL (TURTTLEX>XMAX) OR (TURTTLEX<0) OR (TURTTLEY<0) OR (TURTTLEY>YMAX);
31 00         SLDC 0
32 00         SLDC 0
33 CD 14 0C     CXP 20,TURTTLEX

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36 C7 1701      LDCI 279
39 C5           GRTI
40 00          SLDC 0
41 00          SLDC 0
42 CD 14 0C     CXP 20,TURTXEX
45 00          SLDC 0
46 C9          LESI
47 8D          LOR
48 00          SLDC 0
49 00          SLDC 0
50 CD 14 0D     CXP 20,TURTXEY
53 00          SLDC 0
54 C9          LESI
55 8D          LOR
56 00          SLDC 0
57 00          SLDC 0
58 CD 14 0D     CXP 20,TURTXEY
61 C7 BF00     LDCI 191
64 C5          GRTI
65 8D          LOR
66 A1 F6       FJP -10 (15)
221 1 11 68 -- ERASE;
68 CF 05       CGP ERASE
222 1 11 70 -0 A END;
70 AD 00       RNP 0
223
224
225 1 12 1 -- A PROCEDURE WALLBUMP;
226 1 12 0 0- A BEGIN
227 1 12 0 -- PENCOLOR(NONE); MOVETO(XMID,YMID);
0 00          SLDC 0
1 CD 14 07     CXP 20,PENCOLOR
4 C7 8C00     LDCI 140
7 60          SLDC 96
8 CD 14 06     CXP 20,MOVETO
228 1 12 11 -- PENCOLOR(WHITE);
11 01         SLDC 1
12 CD 14 07     CXP 20,PENCOLOR
229 1 12 15 -- I:=0;
15 00         SLDC 0
16 AB 07       SRO 7
230 1 12 18 -- WHILE I<40 DO
18 EE         SLDO 7
19 28         SLDC 40
20 C9         LESI
21 A1 **       FJP [28000]
231 1 12 23 1- BEGIN
232 1 12 23 -- IF (TURTXEX>XMAX)
23 00         SLDC 0
24 00         SLDC 0
25 CD 14 0C     CXP 20,TURTXEX
28 C7 1701     LDCI 279
31 C5         GRTI
233 1 12 32 -- OR (TURTXEX<0)
32 00         SLDC 0
33 00         SLDC 0
34 CD 14 0C     CXP 20,TURTXEX
37 00         SLDC 0
38 C9         LESI
234 1 12 39 -- OR (TURTXEY>YMAX)
39 8D         LOR
40 00         SLDC 0
41 00         SLDC 0

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      42 CD 14 0D      CXP 20,TURTLEY
      45 C7 BF00      LDCI 191
      48 C5          GRTI
235   1 12 49 --      OR (TURTLEY<0)
      49 8D          LOR
      50 00          SLDC 0
      51 00          SLDC 0
      52 CD 14 0D      CXP 20,TURTLEY
      55 00          SLDC 0
      56 C9          LESI
236   1 12 57 2-      THEN BEGIN
      57 8D          LOR
      58 A1 **        FJP [28000]
237   1 12 60 --      TURN(180);
      60 C7 B400      LDCI 180
      63 CD 14 03      CXP 20,TURN
238   1 12 66 --      PENCOLOR(RANDCOLOR);
      66 00          SLDC 0
      67 00          SLDC 0
      68 CF 06        CGP RANDCOLO
      70 CD 14 07      CXP 20,PENCOLOR
239   1 12 73 --      I:=I+1;
      73 EE          SLDO 7
      74 01          SLDC 1
      75 82          ADI
      76 AB 07        SRO 7
240   1 12 78 -2      END
241   1 12 78 --      ELSE TURN((RANDOM MOD 45)-22);
      78 B9 **        UJP [3257]
      80 00          SLDC 0
      81 00          SLDC 0
      82 CD 16 06      CXP 22,RANDOM
      85 2D          SLDC 45
      86 8E          MODI
      87 16          SLDC 22
      88 95          SBI
      89 CD 14 03      CXP 20,TURN

59 14 Patch 59 with 20 (80)
79 0C Patch 79 with 12 (92)

242   1 12 92 --      MOVE(10);
      92 0A          SLDC 10
      93 CD 14 05      CXP 20,MOVE
243   1 12 96 -1      END;
      96 B9 F6        UJP -10 (18)

22 4B Patch 22 with 75 (98)

244   1 12 98 --      ERASE;
      98 CF 05        CGP ERASE
245   1 12 100 -0 A END;
      100 AD 00       RNP 0

246
247
248   1 13 1 -- A PROCEDURE POLYGON(SIDES,EDGE: INTEGER);
249   1 13 3 -- VAR I,ANG: INTEGER;
250   1 13 0 0- A BEGIN
251   1 13 0 --      ANG:=360 DIV SIDES;
      0 C7 6801      LDCI 360
      3 D9          SLDL 2
      4 86          DVI
      5 CC 03       STL 3

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252          (* SKIP POLYGONS WHICH DON'T CLOSE ALL THE WAY *)
253  1 13  7 --      IF (ANG*SIDES)<>360 THEN EXIT(POLYGON);
                7 DA          SLDL 3
                8 D9          SLDL 2
                9 8F          MPI
                10 C7 6801     LDCI 360
                13 CB          NEQI
                14 A1 **       FJP  [1185]
                16 01          SLDC 1
                17 0D          SLDC 13
                18 9E 04       CSP  EXIT

                15 04 Patch 15 with 4 (20)

254  1 13  20 --     PENCOLOR(WHITE);
                20 01          SLDC 1
                21 CD 14 07     CXP  20,PENCOLOR
255  1 13  24 --     FOR I:=1 TO SIDES DO
                24 01          SLDC 1
                25 CC 04       STL  4
                27 D9          SLDL 2
                28 CC 05       STL  5
                30 DB          SLDL 4
                31 DC          SLDL 5
                32 C8          LEQI
                33 A1 **       FJP  [28000]
256  1 13  35 1-     BEGIN
257  1 13  35 --     MOVE(EDGE);
                35 D8          SLDL 1
                36 CD 14 05     CXP  20,MOVE
258  1 13  39 --     TURN(-ANG);
                39 DA          SLDL 3
                40 91          NGI
                41 CD 14 03     CXP  20,TURN
259  1 13  44 -1     END;
                44 DB          SLDL 4
                45 01          SLDC 1
                46 82          ADI
                47 CC 04       STL  4
                49 B9 F6       UJP  -10 (30)

                34 10 Patch 34 with 16 (51)

260  1 13  51 --     PENCOLOR(NONE);
                51 00          SLDC 0
                52 CD 14 07     CXP  20,PENCOLOR
261  1 13  55 -0 A END;
                55 AD 00       RNP  0
262
263
264  1 14  1 -- A PROCEDURE POLYGONS;
265  1 14  0 0- A BEGIN
266  1 14  0 --     PENCOLOR(NONE);
                0 00          SLDC 0
                1 CD 14 07     CXP  20,PENCOLOR
267  1 14  4 --     FOR I:=1 TO 40 DO
                4 01          SLDC 1
                5 AB 07       SRO  7
                7 28          SLDC 40
                8 CC 01       STL  1
                10 EE         SLDO 7
                11 D8         SLDL 1
                12 C8         LEQI

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13 A1 **          FJP [28000]
268  1 14 15 1-   BEGIN
269  1 14 15 --   MOVETO((RANDOM MOD 400)-50,(RANDOM MOD 300)-50);
          15 00       SLDC 0
          16 00       SLDC 0
          17 CD 16 06   CXP 22,RANDOM
          20 C7 9001    LDCI 400
          23 8E        MODI
          24 32        SLDC 50
          25 95        SBI
          26 00        SLDC 0
          27 00        SLDC 0
          28 CD 16 06   CXP 22,RANDOM
          31 C7 2C01    LDCI 300
          34 8E        MODI
          35 32        SLDC 50
          36 95        SBI
          37 CD 14 06   CXP 20,RANDOM
270  1 14 40 --   TURNT0(0);
          40 00        SLDC 0
          41 CD 14 04   CXP 20,TURNT0
271  1 14 44 --   POLYGON((RANDOM MOD 9)+3,(RANDOM MOD 40)+5);
          44 00        SLDC 0
          45 00        SLDC 0
          46 CD 16 06   CXP 22,RANDOM
          49 09        SLDC 9
          50 8E        MODI
          51 03        SLDC 3
          52 82        ADI
          53 00        SLDC 0
          54 00        SLDC 0
          55 CD 16 06   CXP 22,RANDOM
          58 28        SLDC 40
          59 8E        MODI
          60 05        SLDC 5
          61 82        ADI
          62 CF 0D      CGP POLYGON
272  1 14 64 -1   END;
          64 EE        SLDO 7
          65 01        SLDC 1
          66 82        ADI
          67 AB 07      SRO 7
          69 B9 F6      UJP -10 (10)

          14 38 Patch 14 with 56 (71)

273  1 14 71 --   WAIT(4000); ERASE;
          71 C7 A00F    LDCI 4000
          74 CF 02      CGP WAIT
          76 CF 05      CGP ERASE
274  1 14 78 -0 A END;
          78 AD 00      RNP 0

275
276
277  1 15  1 -- A PROCEDURE STUFF(VAR BITMAP: PICTURE; S:STRING);
278          (* MAKE BUTTERFLY BITMAP FORM STRINGS *)
279  1 15 44 -- VAR J: INTEGER;
280  1 15  0 0- A BEGIN
281  1 15  0 --   FOR J:=1 TO LENGTH(S) DO
          0 C6 03      LLA 3
          2 D8         SLDL 1
          3 AA 50      SAS 80
          5 01        SLDC 1

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        6 CC 2C          STL  44
        8 C6 03          LLA   3
       10 00             SLDC 0
       11 BE             LDB
       12 CC 2D          STL  45
       14 CA 2C          LDL  44
       16 CA 2D          LDL  45
       18 C8             LEQI
       19 A1 **          FJP  [28000]
282   1  15  21 1-      BEGIN
283   1  15  21 --      BIT:=(S[J]<>' ');
        21 C6 03          LLA   3
        23 CA 2C          LDL  44
        25 9B             IXS
        26 BE             LDB
        27 20             SLDC 32
        28 CB             NEQI
        29 AB 81BF        SRO  447
284   1  15  32 --      BITMAP [ROW, J+59] :=BIT;
        32 D9             SLDL  2
        33 EA             SLDO  3
        34 00             SLDC 0
        35 35             SLDC 53
        36 88             CHK
        37 A4 08          IXA   8
        39 CA 2C          LDL  44
        41 3B             SLDC 59
        42 82             ADI
        43 00             SLDC 0
        44 78             SLDC 120
        45 88             CHK
        46 C0 10 01       IXP  16,1
        49 A9 81BF        LDO  447
        52 BB             STP
285   1  15  53 --      BITMAP [ROW, 60-J] :=BIT; (* SYMMETRIC *)
        53 D9             SLDL  2
        54 EA             SLDO  3
        55 00             SLDC 0
        56 35             SLDC 53
        57 88             CHK
        58 A4 08          IXA   8
        60 3C             SLDC 60
        61 CA 2C          LDL  44
        63 95             SBI
        64 00             SLDC 0
        65 78             SLDC 120
        66 88             CHK
        67 C0 10 01       IXP  16,1
        70 A9 81BF        LDO  447
        73 BB             STP
286   1  15  74 -1      END;
        74 CA 2C          LDL  44
        76 01             SLDC 1
        77 82             ADI
        78 CC 2C          STL  44
        80 B9 F6          UJP  -10 (14)

        20 3D Patch 20 with 61 (82)

287   1  15  82 --      ROW:=ROW-1;
        82 EA             SLDO  3
        83 01             SLDC 1
        84 95             SBI
    
```

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288 1 15 85 AB 03          SRO 3
      87 -0 A END;
      87 AD 00          RNP 0

289
290
291 1 16 1 -- A PROCEDURE BUTTER1;
292 1 16 0 0- A BEGIN
293 1 16 0 --      ROW:=53;
      0 35              SLDC 53
      1 AB 03          SRO 3
294 1 16 3 -- STUFF(BUTTER, '          XX          XXXXXXXXXXXX ');
      3 A5 0F          LAO 15
      5 A6 3C 2020202020 LSA 60,"
      13      2020202020
      19      2020202020
      25      202020202058          X
      31      5820202020          X
      37      2020202020
      43      2020202020
      49      5858585858          XXXXXX
      55      585858585820        XXXXXX
      61      2020202020          "
      67 D7              NOP
      68 CF 0F          CGP STUFF
295 1 16 70 -- STUFF(BUTTER, '          XXX          XXXXXXXXXXXXXXXXXXXXXXXX ');
      70 A5 0F          LAO 15
      72 D7              NOP
      73 A6 3C 2020202020 LSA 60,"
      81      2020202020
      87      2020202020
      93      202020205858          XX
      99      5820202020          X
      105     202020202058          X
      111     585858585858          XXXXXX
      117     585858585858          XXXXXX
      123     585858585858          XXXXXX
      129     5858202020          XX "
      135 CF 0F          CGP STUFF
296 1 16 137 -- STUFF(BUTTER, '          XXXXXXXXXXXXXXXXXXXX          XXXXXXXXXXXX          XX ');
      137 A5 0F          LAO 15
      139 A6 3C 2020202020 LSA 60,"
      147     202058585858          XXXX
      153     585858585858          XXXXXX
      159     585858585858          XXXXXX
      165     2020202020
      171     202058585858          XXXX
      177     585858585820          XXXXXX
      183     2020202020
      189     2020202020
      195     2058582020          XX "
      201 D7              NOP
      202 CF 0F          CGP STUFF
297 1 16 204 -- STUFF(BUTTER, '          XX          XXXXXXXX          X ');
      204 A5 0F          LAO 15
      206 D7              NOP
      207 A6 3C 2020202020 LSA 60,"
      215     5858202020          XX
      221     2020202020
      227     2020202020
      233     202020202058          X
      239     585858585858          XXXXXX
      245     2020202020
      251     2020202020
    
```

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257      202020202020
263      202020582020      X  "
269 CF OF      CGP STUFF
298  1  16  271 -- STUFF (BUTTER, ' XX      XXXXXXXX      X ');
271 A5 OF      LAO 15
273 A6 3C 202020205858 LSA 60, " XX
281      202020202020
287      202020202020
293      202020202020
299      202058585858      XXXX
305      585858202020      XXX
311      202020202020
317      202020202020
323      202020202020
329      202020205820      X  "
335 D7      NOP
336 CF OF      CGP STUFF
299  1  16  338 -- STUFF (BUTTER, ' X      XXXXXXXX      X ');
338 A5 OF      LAO 15
340 D7      NOP
341 A6 3C 202020582020 LSA 60, " X
349      202020202020
355      202020202020
361      202020202020
367      585858585858      XXXXXX
373      582020202020      X
379      202020202020
385      202020202020
391      202020202020
397      202020205820      X  "
403 CF OF      CGP STUFF
300  1  16  405 -- STUFF (BUTTER, ' X      XXXXXXXX      X ');
405 A5 OF      LAO 15
407 A6 3C 202058202020 LSA 60, " X
415      202020202020
421      202020202020
427      202020205858      XX
433      585858582020      XXXX
439      202020202020
445      202020202020
451      202020202020
457      202020202020
463      202020205820      X  "
469 D7      NOP
470 CF OF      CGP STUFF
301  1  16  472 -- STUFF (BUTTER, 'XX      XXXXXXXX      *X ');
472 A5 OF      LAO 15
474 D7      NOP
475 A6 3C 585820202020 LSA 60, "XX
483      202020202020
489      202020202020
495      205858585858      XXXXX
501      585820202020      XX
507      202020202020
513      202020202020
519      202020202020
525      202020202020
531      2020202A5820      *X  "
537 CF OF      CGP STUFF
302  1  16  539 -- STUFF (BUTTER, ' XX      XXXXXXXX      ----- * X ');
539 A5 OF      LAO 15
541 A6 3C 205858202020 LSA 60, " XX
549      202020202020

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555      202020202058      X
561      585858585820      XXXXX
567      202020202020
573      202020202020
579      202020202020
585      202020202020
591      20202D2D2D2D      ----
597      2D202A205820      - * X "
603 D7      NOP
604 CF OF      CGP STUFF
303  1  16  606 -- STUFF (BUTTER, ' X X      XXXXX      ----      XX ');
606 A5 OF      LAO 15
608 D7      NOP
609 A6 3C 205820582020 LSA 60," X X
617      202020202020
623      202020585858      XXX
629      585820202020      XX
635      202020202020
641      202020202020
647      202020202020
653      20202020202D      -
659      2D2D2D202020      ---
665      202020585820      XX "
671 CF OF      CGP STUFF
304  1  16  673 -- STUFF (BUTTER, ' XXX      XXXXX      ---      * X ');
673 A5 OF      LAO 15
675 A6 3C 205858582020 LSA 60," XXX
683      202020202020
689      205858585858      XXXXX
695      202020202020
701      202020202020
707      202020202020
713      202020202020
719      2020202D2D2D      ---
725      202020202020
731      202A20582020      * X "
737 D7      NOP
738 CF OF      CGP STUFF
305  1  16  740 -- STUFF (BUTTER, ' XX      XXXXX      ---      ** XX ');
740 A5 OF      LAO 15
742 D7      NOP
743 A6 3C 205858202020 LSA 60," XX
751      20202020202058      X
757      585858582020      XXXX
763      202020202020
769      202020202020
775      202020202020
781      202020202020
787      202D2D2D2020      ---
793      20202020202A      *
799      2A2058582020      * XX "
805 CF OF      CGP STUFF
306  1  16  807 -- STUFF (BUTTER, ' X      XXXX      ---      * * X ');
807 A5 OF      LAO 15
809 A6 3C 205820202020 LSA 60," X
817      202020585858      XXX
823      582020202020      X
829      202020202020
835      202020202020
841      202020202020
847      202020202020
853      2D2D2D202020      ---
859      202020202A20      *

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      865      2A2058202020      * X  "
      871 D7      NOP
      872 CF OF      CGP STUFF
307  1 16 874 -- STUFF (BUTTER, ' X XXXX      -----      *** XX  ');
      874 A5 OF      LAO 15
      876 D7      NOP
      877 A6 3C 202058202020 LSA 60," X
      885      205858585820      XXXX
      891      202020202020
      897      202020202020
      903      202020202020
      909      202020202020
      915      2D2D2D2D2D2D      -----
      921      2D2D2D2D2020      -----
      927      2020202A2A2A      ***
      933      205858202020      XX  "
      939 CF OF      CGP STUFF
308  1 16 941 -- STUFF (BUTTER, ' X XXX      --      -----      --      *** XX  ');
      941 A5 OF      LAO 15
      943 A6 3C 202020582020 LSA 60," X
      951      205858582020      XXX
      957      202020202020
      963      202020202020
      969      202D2D202020      --
      975      2020202D2D2D      ----
      981      2D2D2D2D2D2D      -----
      987      2020202D2D20      --
      993      20202A2A2A20      ***
      999      585820202020      XX  "
1005 D7      NOP
1006 CF OF      CGP STUFF
309  1 16 1008 -- STUFF (BUTTER, ' X XX      -----      -----      - * * XX  ');
1008 A5 OF      LAO 15
1010 D7      NOP
1011 A6 3C 202020205820 LSA 60," X
1019      205858202020      XX
1025      202020202020
1031      2020202D2D2D      ----
1037      2D2D20202020      --
1043      202D2D2D2D2D      -----
1049      202020202020
1055      20202020202D      -
1061      202A202A2058      * * X
1067      582020202020      X  "
1073 CF OF      CGP STUFF
310  1 16 1075 -- STUFF (BUTTER, 'X XXX      -----      -----      ** XX  ');
1075 A5 OF      LAO 15
1077 A6 3C 582020585858 LSA 60,"X XXX
1085      202020202020
1091      202020202D2D      --
1097      2D2D2D2D2020      ----
1103      202020202D2D      --
1109      2D2D20202020      --
1115      202020202020
1121      202020202020
1127      202A2A205858      ** XX
1133      202020202020      "
1139 D7      NOP
1140 CF OF      CGP STUFF
311  1 16 1142 -O A END;
      1142 AD 00      RNP 0
312
313  1 17 1 -- A PROCEDURE BUTTER2;

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```

314 1 17 0 0- A BEGIN
315 1 17 0 -- STUFF (BUTTER, ' X X      ---      -----      ****XX      ');
          0 A5 0F          LAO 15
          2 D7          NOP
          3 A6 3C 205820205820 LSA 60," X X
          11          202020202020
          17          20202D2D2D2D      ---
          23          202020202020
          29          202D2D2D2D2D      -----
          35          2D2D2D2D2D2D      -----
          41          2D2020202020      -
          47          20202020202A      *
          53          2A2A2A585820      ****XX
          59          202020202020      "
316 1 17 65 CF 0F          CGP STUFF
          67 -- STUFF (BUTTER, ' X X      -----      ---      ---      **** X      ');
          67 A5 0F          LAO 15
          69 A6 3C 205820205820 LSA 60," X X
          77          202020202D2D      --
          83          2D2D2D202020      ---
          89          202020202D2D      --
          95          2D2020202020      -
          101         202020202020
          107         2D2D2D202020      ---
          113         2020202A2A2A      ***
          119         2A2058202020      * X
          125         202020202020      "
          131 D7          NOP
          132 CF 0F          CGP STUFF
317 1 17 134 -- STUFF (BUTTER, ' X X      -----      -      ****XX      ');
          134 A5 0F          LAO 15
          136 D7          NOP
          137 A6 3C 205820205820 LSA 60," X X
          145         2D2D2D2D2D2D      -----
          151         2D2D2D2D2D2D      -----
          157         2D2D2D2D2D20      -----
          163         202020202020
          169         202020202020
          175         20202D202020      -
          181         202020202A2A      **
          187         2A5858202020      *XX
          193         202020202020      "
          199 CF 0F          CGP STUFF
318 1 17 201 -- STUFF (BUTTER, ' X X-----      ---      ---      -      ** * X      ');
          201 A5 0F          LAO 15
          203 A6 3C 20582020582D LSA 60," X X-
          211         2D2D2D2D2020      -----
          217         20202D2D2D20      ---
          223         2020202D2D2D      ---
          229         202020202020
          235         202020202020
          241         202020202D20      -
          247         20202A2A2020      **
          253         2A2058202020      * X
          259         202020202020      "
          265 D7          NOP
          266 CF 0F          CGP STUFF
319 1 17 268 -- STUFF (BUTTER, ' X X---      -      **** XX      ');
          268 A5 0F          LAO 15
          270 D7          NOP
          271 A6 3C 20582020582D LSA 60," X X-
          279         2D2D20202020      --
          285         202020202020
    
```

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291      202020202020
297      2D2020202020      -
303      202020202020
309      202020202020
315      202A2A2A2A20      ****
321      205858202020      XX
327      202020202020      "
333 CF OF      CGP STUFF
320  1  17  335 -- STUFF (BUTTER, ' X* ---      -      ***** X      ');
335 A5 OF      LAO 15
337 A6 3C 20202020582A LSA 60," X*
345      20202D2D2D20      ---
351      202020202020
357      202020202020
363      20202D202020      -
369      202020202020
375      202020202020
381      202A2A2A2A2A      *****
387      205820202020      X
393      202020202020      "
399 D7      NOP
400 CF OF      CGP STUFF
321  1  17  402 -- STUFF (BUTTER, ' X **      ***** XX      ');
402 A5 OF      LAO 15
404 D7      NOP
405 A6 3C 202020582020 LSA 60," X
413      2A2A20202020      **
419      202020202020
425      202020202020
431      202020202020
437      202020202020
443      20202020202A      *
449      2A2A2A2A2A20      *****
455      585820202020      XX
461      202020202020      "
467 CF OF      CGP STUFF
322  1  17  469 -- STUFF (BUTTER, 'XXX XX** *      ***** X      ');
469 A5 OF      LAO 15
471 A6 3C 585858202058 LSA 60,"XXX X
479      582A2A202A20      X** *
485      202020202020
491      202020202020
497      202020202020
503      202020202020
509      202020202A2A      **
515      2A2A2A2A2020      ****
521      582020202020      X
527      202020202020      "
533 D7      NOP
534 CF OF      CGP STUFF
323  1  17  536 -- STUFF (BUTTER, ' X XX***      ***** XX      ');
536 A5 OF      LAO 15
538 D7      NOP
539 A6 3C 202020582020 LSA 60," X
547      2058582A2A2A      XX***
553      202020202020
559      202020202020
565      202020202020
571      202020202020
577      20202020202A      *
583      2A2A2A2A2058      **** X
589      582020202020      X
595      202020202020      "

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324   1  17  601 CF OF          CGP STUFF
      603 -- STUFF (BUTTER, ' XXI XX ***          *** ** X ');
      603 A5 OF          LAO 15
      605 A6 3C 202020585849 LSA 60," XXI
      613          20205858202A          XX *
      619          2A2A20202020          **
      625          202020202020
      631          202020202020
      637          202020202020
      643          202A2A2A2020          ***
      649          2A2A2A202058          *** X
      655          202020202020
      661          202020202020          "
      667 D7          NOP
      668 CF OF          CGP STUFF
325   1  17  670 -- STUFF (BUTTER, 'XXX X I  XX** ****          ***** * XX ');
      670 A5 OF          LAO 15
      672 D7          NOP
      673 A6 3C 585858205820 LSA 60,"XXX X
      681          492020205858          I XX
      687          2A2A202A2A2A          ** ***
      693          2A2020202020          *
      699          202020202020
      705          202020202020
      711          202A2A2A2A2A          *****
      717          202A20205858          * XX
      723          202020202020
      729          202020202020          "
      735 CF OF          CGP STUFF
326   1  17  737 -- STUFF (BUTTER, ' X X II  XX ***** ** ** * * *** ***** X ');
      737 A5 OF          LAO 15
      739 A6 3C 202020582058 LSA 60," X X
      747          204949202020          II
      753          5858202A2A2A          XX ***
      759          2A202A2A202A          * ** *
      765          2A20202A2020          * *
      771          2A20202A2A2A          * ***
      777          20202A2A2A2A          *****
      783          2A2020205820          * X
      789          202020202020
      795          202020202020          "
      801 D7          NOP
      802 CF OF          CGP STUFF
327   1  17  804 -- STUFF (BUTTER, ' X X II  XX ***** ** ** ***** ** XX ');
      804 A5 OF          LAO 15
      806 D7          NOP
      807 A6 3C 202020582058 LSA 60," X X
      815          202049492020          II
      821          20205858202A          XX *
      827          2A2A2A2A2A2A          *****
      833          2A202A2A2A20          * ***
      839          2A2A202A2A2A          ** ***
      845          2A2A202A2A2A          ** ***
      851          2A2020585820          * XX
      857          202020202020
      863          202020202020          "
      869 CF OF          CGP STUFF
328   1  17  871 -- STUFF (BUTTER, ' X X I I  IXX* ***** ** ** X ');
      871 A5 OF          LAO 15
      873 A6 3C 202020582058 LSA 60," X X
      881          202049204920          I I
      887          202020495858          IXX
      893          2A20202A2A2A          * ***

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899      2A2A2A2A2A2A      *****
905      2A2A2A202A2A      *** **
911      2A2A2A202A2A      *** **
917      202020582020      X
923      202020202020
929      202020202020      "
935 D7      NOP
936 CF OF      CGP STUFF
329  1 17 938 -- STUFF (BUTTER, 'XXXX X II      I XX ***** *****      XX      ');
938 A5 OF      LAO 15
940 D7      NOP
941 A6 3C 585858582020 LSA 60, "XXXX
949      582020494920      X II
955      202020204920      I
961      5858202A2A2A      XX ***
967      2A2A202A2A2A      ** ***
973      2A2A2A20202A      *** *
979      2A2A2A2A2020      ****
985      202058582020      XX
991      202020202020
997      202020202020      "
1003 CF OF      CGP STUFF
330  1 17 1005 -- STUFF (BUTTER, ' X X I I      I XX      ***** *      XX      ');
1005 A5 OF      LAO 15
1007 A6 3C 202020205820 LSA 60, " X
1015      582020492049      X I I
1021      202020202049      I
1027      202058582020      XX
1033      202020202A2A      **
1039      2A2A2A2A202A      **** *
1045      2A2A2A202020      ***
1051      205858202020      XX
1057      202020202020
1063      202020202020      "
1069 D7      NOP
1070 CF OF      CGP STUFF
331  1 17 1072 -0 A END;
1072 AD 00      RNP 0
332
333
334  1 18 1 -- A PROCEDURE BUTTER3;
335  1 18 0 0- A BEGIN
336  1 18 0 -- STUFF (BUTTER, ' X X III      IIIIXX      ***      XX      ');
0 A5 OF      LAO 15
2 D7      NOP
3 A6 3C 202020205820 LSA 60, " X
11      582020494949      X III
17      202020202020
23      494949495858      IIIIXX
29      582020202020      X
35      202A2A2A2020      ***
41      202020202020
47      585820202020      XX
53      202020202020
59      202020202020      "
65 CF OF      CGP STUFF
337  1 18 67 -- STUFF (BUTTER, ' X X I I      I II XXX      XX      ');
67 A5 OF      LAO 15
69 A6 3C 202020205820 LSA 60, " X
77      205820204920      X I
83      492020202020      I
89      204920204949      I II
95      205858582020      XXX
    
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101      202020202020
107      202020202058      X
113      582020202020      X
119      202020202020
125      202020202020      "
131 D7      NOP
132 CF OF      CGP STUFF
338  1 18 134 -- STUFF (BUTTER, 'XXXX X III I II XXXX XX ');
134 A5 OF      LAO 15
136 D7      NOP
137 A6 3C 585858582020 LSA 60, "XXXX
145      205820202049      X I
151      494920202020      II
157      204920202020      I
163      494920205858      II XX
169      585820202020      XX
175      202020585820      XX
181      202020202020
187      202020202020
193      202020202020      "
199 CF OF      CGP STUFF
339  1 18 201 -- STUFF (BUTTER, ' XX X I I I 0 I XXXXXXXX ');
201 A5 OF      LAO 15
203 A6 3C 202020205858 LSA 60, " XX
211      205820202049      X I
217      204920202020      I
223      202049202030      I 0
229      202049202020      I
235      205858585858      XXXXX
241      585858582020      XXXX
247      202020202020
253      202020202020
259      202020202020      "
265 D7      NOP
266 CF OF      CGP STUFF
340  1 18 268 -- STUFF (BUTTER, ' XX X II I 00 I X XXXX ');
268 A5 OF      LAO 15
270 D7      NOP
271 A6 3C 202020205858 LSA 60, " XX
279      202058202020      X
285      204949202020      II
291      202049202030      I 0
297      302020492020      0 I
303      205820205858      X XX
309      585820202020      XX
315      202020202020
321      202020202020
327      202020202020      "
333 CF OF      CGP STUFF
341  1 18 335 -- STUFF (BUTTER, ' XX X I I II 000 I X ');
335 A5 OF      LAO 15
337 A6 3C 202020205858 LSA 60, " XX
345      202058202049      X I
351      202049202020      I
357      202049492020      II
363      303030204920      000 I
369      202058202020      X
375      202020202020
381      202020202020
387      202020202020
393      202020202020      "
399 D7      NOP
400 CF OF      CGP STUFF

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342  1 18 402 -- STUFF(BUTTER,'XXXXXX X I III I II 0 I X      ');
      402 A5 OF          LAO 15
      404 D7            NOP
      405 A6 3C 585858585858 LSA 60,"XXXXXX
      413              202058202049      X I
      419              202020494949      III
      425              202049204949      I II
      431              203020202049      0 I
      437              202058202020      X
      443              202020202020
      449              202020202020
      455              202020202020
      461              202020202020      "
      467 CF OF          CGP STUFF
343  1 18 469 -- STUFF(BUTTER,' X X X II I III II 0 I X      ');
      469 A5 OF          LAO 15
      471 A6 3C 202020205820 LSA 60," X
      479              582058202049      X X I
      485              492020492049      I I I
      491              494920202049      II I
      497              492020302020      I 0
      503              492058202020      I X
      509              202020202020
      515              202020202020
      521              202020202020
      527              202020202020      "
      533 D7            NOP
      534 CF OF          CGP STUFF
344  1 18 536 -- STUFF(BUTTER,' X X X II I I I 00 II 0 I X      ');
      536 A5 OF          LAO 15
      538 D7            NOP
      539 A6 3C 202020582020 LSA 60," X
      547              582020582049      X X I
      553              492020492020      I I
      559              204920303020      I 00
      565              494920302049      II 0 I
      571              205820202020      X
      577              202020202020
      583              202020202020
      589              202020202020
      595              202020202020      "
      601 CF OF          CGP STUFF
345  1 18 603 -- STUFF(BUTTER,'XXXX X X I I I 00 I IX      ');
      603 A5 OF          LAO 15
      605 A6 3C 585858582020 LSA 60,"XXXX
      613              205820582020      X X
      619              492020492020      I I
      625              202049203030      I 00
      631              204920202049      I I
      637              582020202020      X
      643              202020202020
      649              202020202020
      655              202020202020
      661              202020202020      "
      667 D7            NOP
      668 CF OF          CGP STUFF
346  1 18 670 -- STUFF(BUTTER,' X XX I I 0 I 00 I I X      ');
      670 A5 OF          LAO 15
      672 D7            NOP
      673 A6 3C 202020582020 LSA 60," X
      681              202058582020      XX
      687              492020492020      I I
      693              302049203030      0 I 00
    
```

```

699      202049202049      I I
705      205820202020      X
711      202020202020
717      202020202020
723      202020202020
729      202020202020      "
735 CF OF      CGP STUFF
347  1  18  737 -0 A END;
737 AD 00      RNP 0
348
349  1  19  1 -- A PROCEDURE BUTTER4;
350  1  19  0 0- A BEGIN
351  1  19  0 -- STUFF(BUTTER, 'XXX      X I I 000 I      II X      ');
          0 A5 OF      LAO 15
          2 D7      NOP
          3 A6 3C 585858202020 LSA 60, "XXX
11      202020582020      X
17      492020492030      I I 0
23      303020492020      00 I
29      202020494920      II
35      205820202020      X
41      202020202020
47      202020202020
53      202020202020
59      202020202020      "
65 CF OF      CGP STUFF
352  1  19  67 -- STUFF(BUTTER, ' X      X I 0 I 00 I 00 I X      ');
          67 A5 OF      LAO 15
          69 A6 3C 202058202020 LSA 60, " X
77      202020582020      X
83      492030204920      I 0 I
89      303020492020      00 I
95      303020492020      00 I
101     205820202020      X
107     202020202020
113     202020202020
119     202020202020
125     202020202020      "
131 D7      NOP
132 CF OF      CGP STUFF
353  1  19  134 -- STUFF(BUTTER, ' X      X I 0 I      I I X      ');
          134 A5 OF      LAO 15
          136 D7      NOP
          137 A6 3C 205820202020 LSA 60, " X
145     202020205820      X
151     492030204920      I 0 I
157     202020204920      I
163     202020492058      I X
169     202020202020
175     202020202020
181     202020202020
187     202020202020
193     202020202020      "
199 CF OF      CGP STUFF
354  1  19  201 -- STUFF(BUTTER, 'X      X I I 0 I I X      ');
          201 A5 OF      LAO 15
          203 A6 3C 582020202020 LSA 60, "X
211     202020205820      X
217     204920204920      I I
223     203020204920      0 I
229     202049202058      I X
235     202020202020
241     202020202020
    
```

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247      202020202020
253      202020202020
259      202020202020      "
265 D7      NOP
266 CF OF      CGP STUFF
355  1  19  268 -- STUFF(BUTTER, '      X I I 00 III X      ');
268 A5 OF      LAO 15
270 D7      NOP
271 A6 3C 202020202020 LSA 60,"
279      202020202058      X
285      204920204920      I I
291      203030202049      00 I
297      494920205820      II X
303      202020202020
309      202020202020
315      202020202020
321      202020202020
327      202020202020      "
333 CF OF      CGP STUFF
356  1  19  335 -- STUFF(BUTTER, '      X IIII I X      ');
335 A5 OF      LAO 15
337 A6 3C 202020202020 LSA 60,"
345      202020202020
351      582049494949      X IIII
357      202020204920      I
363      202020205820      X
369      202020202020
375      202020202020
381      202020202020
387      202020202020
393      202020202020      "
399 D7      NOP
400 CF OF      CGP STUFF
357  1  19  402 -- STUFF(BUTTER, '      X I I XXXX      ');
402 A5 OF      LAO 15
404 D7      NOP
405 A6 3C 202020202020 LSA 60,"
413      202020202020
419      205820202020      X
425      492020204920      I I
431      585858582020      XXXX
437      202020202020
443      202020202020
449      202020202020
455      202020202020
461      202020202020      "
467 CF OF      CGP STUFF
358  1  19  469 -- STUFF(BUTTER, '      XXXXXIII X      ');
469 A5 OF      LAO 15
471 A6 3C 202020202020 LSA 60,"
479      202020202020
485      202058585858      XXXX
491      584949492058      XIII X
497      202020202020
503      202020202020
509      202020202020
515      202020202020
521      202020202020
527      202020202020      "
533 D7      NOP
534 CF OF      CGP STUFF
359  1  19  536 -- STUFF(BUTTER, '      X X      ');
536 A5 OF      LAO 15

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538 D7 NOP
539 A6 3C 202020202020 LSA 60,"
547 202020202020
553 202020202020
559 205820205820 X X
565 202020202020
571 202020202020
577 202020202020
583 202020202020
589 202020202020
595 202020202020 "
360 1 19 601 CF OF CGP STUFF
603 -- STUFF (BUTTER, ' XX ');
603 A5 OF LAO 15
605 A6 3C 202020202020 LSA 60,"
613 202020202020
619 202020202020
625 202058582020 XX
631 202020202020
637 202020202020
643 202020202020
649 202020202020
655 202020202020
661 202020202020 "
667 D7 NOP
668 CF OF CGP STUFF
361 1 19 670 -0 A END;
670 AD 00 RNP 0
362
363
364 1 20 1 -- A PROCEDURE INITBUTTERFLY;
365 1 20 0 0- A BEGIN
366 1 20 0 -- BUTTER1;
0 CF 10 CGP BUTTER1
367 1 20 2 -- BUTTER2;
2 CF 11 CGP BUTTER2
368 1 20 4 -- BUTTER3;
4 CF 12 CGP BUTTER3
369 1 20 6 -- BUTTER4;
6 CF 13 CGP BUTTER4
370 1 20 8 -0 A END;
8 AD 00 RNP 0
371
372 (*****
373 (*
374 (* PARAMETERS TO DRAWBLOCK ARE: *)
375 (* 1. SOURCE ARRAY NAME *)
376 (* 2. ROWSIZE IN BYTES 2*(( DOTSWIDE+15 ) DIV 16 ) *)
377 (* 3. XSKIP HOW MANY DOTS TO SKIP BEFORE TRANSFERING *)
378 (* 4. YSKIP HOW MANY ROWS TO SKIP *)
379 (* 5. WIDTH IN DOTS *)
380 (* 6. HEIGHT IN DOTS *)
381 (* 7. XSCREEN WHERE TO PUT IT ON THE HIRES SCREEN (0..279) *)
382 (* 8. YSCREEN " " (0..191) *)
383 (* 9. MODE *)
384 (* *)
385 (* MODE RANGES 0..15 TO FILL IN THE FOLLOWING TRUTH TABLE: *)
386 (* *)
387 (* CURRENT SCREEN SOURCE RESULTANT SCREEN *)
388 (* I-----I-----I-----I *)
389 (* I FALSE I FALSE I LSB MODE I *)
390 (* I-----I-----I-----I *)
391 (* I FALSE I TRUE I I *)

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392          (*          I-----I-----I-----I          *)
393          (*          I  TRUE      I  FALSE      I          *)
394          (*          I-----I-----I-----I          *)
395          (*          I  TRUE      I  TRUE      I  MSB MODE  I          *)
396          (*          I-----I-----I-----I          *)
397          (*          *)
398          (* FOR EXAMPLE, MODE 0=FILL BLACK, 10=COPY SOURCE, 14=OR, 6=XOR, ETC. *)
399          (*          *)
400          (*****
401
402
403  1  21    1 -- A PROCEDURE FLUTTER;
404  1  21    0 0- A BEGIN
405          (* DRAW SIX BUTTERFLIES *)
406  1  21    0 --      DRAWBLOCK(BUTTER,16,0,0,120,54, 10,  0,14);
          0 A5 OF          LAO  15
          2 10          SLDC 16
          3 00          SLDC  0
          4 00          SLDC  0
          5 78          SLDC 120
          6 36          SLDC 54
          7 0A          SLDC 10
          8 00          SLDC  0
          9 0E          SLDC 14
         10 CD 14 10      CXP  20,DRAWBLOC
407  1  21   13 --      DRAWBLOCK(BUTTER,16,0,0,120,54,150, 64,14);
          13 A5 OF          LAO  15
          15 10          SLDC 16
          16 00          SLDC  0
          17 00          SLDC  0
          18 78          SLDC 120
          19 36          SLDC 54
          20 C7 9600       LDCI 150
          23 40          SLDC 64
          24 0E          SLDC 14
          25 CD 14 10      CXP  20,DRAWBLOC
408  1  21   28 --      DRAWBLOCK(BUTTER,16,0,0,120,54, 10,128,14);
          28 A5 OF          LAO  15
          30 10          SLDC 16
          31 00          SLDC  0
          32 00          SLDC  0
          33 78          SLDC 120
          34 36          SLDC 54
          35 0A          SLDC 10
          36 C7 8000       LDCI 128
          39 0E          SLDC 14
          40 CD 14 10      CXP  20,DRAWBLOC
409  1  21   43 --      DRAWBLOCK(BUTTER,16,0,0,120,54,150,128,14);
          43 A5 OF          LAO  15
          45 10          SLDC 16
          46 00          SLDC  0
          47 00          SLDC  0
          48 78          SLDC 120
          49 36          SLDC 54
          50 C7 9600       LDCI 150
          53 C7 8000       LDCI 128
          56 0E          SLDC 14
          57 CD 14 10      CXP  20,DRAWBLOC
410  1  21   60 --      DRAWBLOCK(BUTTER,16,0,0,120,54, 10, 64,14);
          60 A5 OF          LAO  15
          62 10          SLDC 16
          63 00          SLDC  0
          64 00          SLDC  0
    
```

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        65 78          SLDC 120
        66 36          SLDC 54
        67 0A          SLDC 10
        68 40          SLDC 64
        69 0E          SLDC 14
        70 CD 14 10    CXP 20,DRAWBLOC
411    1 21 73 --      DRAWBLOCK(BUTTER,16,0,0,120,54,150, 0,14);
        73 A5 0F          LAO 15
        75 10          SLDC 16
        76 00          SLDC 0
        77 00          SLDC 0
        78 78          SLDC 120
        79 36          SLDC 54
        80 C7 9600      LDCI 150
        83 00          SLDC 0
        84 0E          SLDC 14
        85 CD 14 10    CXP 20,DRAWBLOC
412    1 21 88 --      WAIT(8000); FILLSCREEN(REVERSE); WAIT(3000);
        88 C7 401F      LDCI 8000
        91 CF 02          CGP WAIT
        93 03          SLDC 3
        94 CD 14 0A    CXP 20,FILLSCRE
        97 C7 B80B      LDCI 3000
        100 CF 02       CGP WAIT
413    1 21 102 --     FILLSCREEN(REVERSE);
        102 03          SLDC 3
        103 CD 14 0A   CXP 20,FILLSCRE
414
        (* USE XOR MODE TO REMOVE ONE AT A TIME *)
415    1 21 106 --     DRAWBLOCK(BUTTER,16,0,0,120,54, 10, 0, 6);
        106 A5 0F          LAO 15
        108 10          SLDC 16
        109 00          SLDC 0
        110 00          SLDC 0
        111 78          SLDC 120
        112 36          SLDC 54
        113 0A          SLDC 10
        114 00          SLDC 0
        115 06          SLDC 6
        116 CD 14 10    CXP 20,DRAWBLOC
416    1 21 119 --     DRAWBLOCK(BUTTER,16,0,0,120,54,150, 64, 6);
        119 A5 0F          LAO 15
        121 10          SLDC 16
        122 00          SLDC 0
        123 00          SLDC 0
        124 78          SLDC 120
        125 36          SLDC 54
        126 C7 9600      LDCI 150
        129 40          SLDC 64
        130 06          SLDC 6
        131 CD 14 10    CXP 20,DRAWBLOC
417    1 21 134 --     DRAWBLOCK(BUTTER,16,0,0,120,54, 10,128, 6);
        134 A5 0F          LAO 15
        136 10          SLDC 16
        137 00          SLDC 0
        138 00          SLDC 0
        139 78          SLDC 120
        140 36          SLDC 54
        141 0A          SLDC 10
        142 C7 8000      LDCI 128
        145 06          SLDC 6
        146 CD 14 10    CXP 20,DRAWBLOC
418    1 21 149 --     DRAWBLOCK(BUTTER,16,0,0,120,54,150,128, 6);
        149 A5 0F          LAO 15

```



```

151 10          SLDC 16
152 00          SLDC 0
153 00          SLDC 0
154 78          SLDC 120
155 36          SLDC 54
156 C7 9600     LDCI 150
159 C7 8000     LDCI 128
162 06          SLDC 6
163 CD 14 10    CXP 20,DRAWBLOC
419 1 21 166 --  DRAWBLOCK(BUTTER,16,0,0,120,54, 10, 64, 6);
166 A5 0F       LAO 15
168 10          SLDC 16
169 00          SLDC 0
170 00          SLDC 0
171 78          SLDC 120
172 36          SLDC 54
173 0A          SLDC 10
174 40          SLDC 64
175 06          SLDC 6
176 CD 14 10    CXP 20,DRAWBLOC
420 1 21 179 --  DRAWBLOCK(BUTTER,16,0,0,120,54,150, 0, 6);
179 A5 0F       LAO 15
181 10          SLDC 16
182 00          SLDC 0
183 00          SLDC 0
184 78          SLDC 120
185 36          SLDC 54
186 C7 9600     LDCI 150
189 00          SLDC 0
190 06          SLDC 6
191 CD 14 10    CXP 20,DRAWBLOC
421 1 21 194 -0 A END;
194 AD 00          RNP 0
422
423
424 1 1 0 0- BEGIN
425 1 1 0 -- WRITELN('PRESS ANY KEY TO QUIT.');
```

```

0 D7          NOP
1 D7          NOP
2 CD 14 01     CXP 20,INIT_UNIT
5 CD 16 01     CXP 22,INIT_UNIT
8 B6 01 03     LOD 1,3
11 A6 16 505245535320 LSA 22,"PRESS
19 414E59204B45 ANY KE
25 5920544F2051 Y TO Q
31 5549542E UIT."
35 D7          NOP
36 00          SLDC 0
37 CD 00 13    CXP 0,WRITE_STR
40 9E 00      CSP IOCHECK
42 B6 01 03     LOD 1,3
45 CD 00 16    CXP 0,WRITELN
48 9E 00      CSP IOCHECK
426 1 1 50 -- WRITELN('PLEASE WAIT WHILE CREATING BUTTERFLY');
```

```

50 B6 01 03     LOD 1,3
53 A6 24 504C45415345 LSA 36,"PLEASE
61 205741495420 WAIT
67 5748494C4520 WHILE
73 435245415449 CREATI
79 4E4720425554 NG BUT
85 544552464C59 TERFLY"
91 D7          NOP
92 00          SLDC 0

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          93 CD 00 13      CXP 0,WRITE_STR
          96 9E 00      CSP IOCHECK
          98 B6 01 03      LOD 1,3
         101 CD 00 16      CXP 0,WITELN
         104 9E 00      CSP IOCHECK
427      1 1 106 --      INITBUTTERFLY;
          106 CE 14      CLP INITBUTT
428      1 1 108 --      INITTURTLE;
          108 CD 14 02      CXP 20,INITTURT
429      1 1 111 --      FRAME(WHITE);
          111 01      SLDC 1
          112 CE 03      CLP FRAME
430      1 1 114 --      RANDOMIZE;
          114 CD 16 07      CXP 22,RANDOMIZ
431      1 1 117 --      COLORS[0]:=WHITE;
          117 A5 09      LAO 9
          119 00      SLDC 0
          120 00      SLDC 0
          121 05      SLDC 5
          122 88      CHK
          123 A4 01      IXA 1
          125 01      SLDC 1
          126 9A      STO
432      1 1 127 --      COLORS[1]:=REVERSE;
          127 A5 09      LAO 9
          129 01      SLDC 1
          130 00      SLDC 0
          131 05      SLDC 5
          132 88      CHK
          133 A4 01      IXA 1
          135 03      SLDC 3
          136 9A      STO
433      1 1 137 --      COLORS[2]:=GREEN;
          137 A5 09      LAO 9
          139 02      SLDC 2
          140 00      SLDC 0
          141 05      SLDC 5
          142 88      CHK
          143 A4 01      IXA 1
          145 06      SLDC 6
          146 9A      STO
434      1 1 147 --      COLORS[3]:=VIOLET;
          147 A5 09      LAO 9
          149 03      SLDC 3
          150 00      SLDC 0
          151 05      SLDC 5
          152 88      CHK
          153 A4 01      IXA 1
          155 07      SLDC 7
          156 9A      STO
435      1 1 157 --      COLORS[4]:=ORANGE;
          157 A5 09      LAO 9
          159 04      SLDC 4
          160 00      SLDC 0
          161 05      SLDC 5
          162 88      CHK
          163 A4 01      IXA 1
          165 0A      SLDC 10
          166 9A      STO
436      1 1 167 --      COLORS[5]:=BLUE;
          167 A5 09      LAO 9
          169 05      SLDC 5
          170 00      SLDC 0
    
```

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171 05          SLDC 5
172 88          CHK
173 A4 01       IXA 1
175 0B          SLDC 11
176 9A          STO
437
438 1 1 177 1-  REPEAT
439 1 1 177 --  FAN;
177 CE 07       CLP FAN
440 1 1 179 --  GRID;
179 CE 08       CLP GRID
441 1 1 181 --  SPIRAL;
181 CE 0A       CLP SPIRAL
442 1 1 183 --  SQUIGGLE;
183 CE 0B       CLP SQUIGGLE
443 1 1 185 --  DIAGONALS;
185 CE 09       CLP DIAGONAL
444 1 1 187 --  WALLBUMP;
187 CE 0C       CLP WALLBUMP
445 1 1 189 --  POLYGONS;
189 CE 0E       CLP POLYGONS
446 1 1 191 --  FLUTTER;
191 CE 15       CLP FLUTTER
447 1 1 193 -1  UNTIL KEYPRESS;
193 00          SLDC 0
194 00          SLDC 0
195 CD 16 05    CXP 22,KEYPRESS
198 A1 F6       FJP -10 (177)
448 1 1 200 --  GOODBYE;
200 CE 04       CLP GOODBYE
202 16          SLDC 22
203 9E 16       CSP UNLOAD_SEG
205 14          SLDC 20
206 9E 16       CSP UNLOAD_SEG
208 15          SLDC 21
209 9E 16       CSP UNLOAD_SEG
211 B9 **       UJP [3001]
213 15          SLDC 21
214 9E 15       CSP LOAD_SEG
216 14          SLDC 20
217 9E 15       CSP LOAD_SEG
219 16          SLDC 22
220 9E 15       CSP LOAD_SEG
222 B9 F2       UJP -14 (2)
224 C1 00       RBP 0

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212 0B Patch 212 with 11 (224)

449 64 1 202 -0 END.

Compilation complete - no errors found.
Smallest available space = 18887 words.
449 lines compiled in 9.98 minutes.