GAL

```
100|( START OF GALAXIANS AREA )
101|( GALAXIAN 1A )
102|( GALAXIAN 1B )
103|( GALAXIAN 2A )
104|( GAL2B )
105|( GALAXIAN 3A )
106|( GALAXIAN 3B )
107|( GALAXIAN 4 )
108|( FIRST ROTATED GALAX3 PATTERN )
109|( SECOND ROTATED GALAX3 PATTERN )
110|( THIRD ROTATED GALAX3 PATTERN )
111|( LAST ROTATED GALAX3 PATTERN )
112|( FIRST ROTATED GALAX2 PATTERN )
113|( SECOND ROTATED GALAX2 PATTERN )
114|( THIRD ROTATED GALAX2 PATTERN )
115|( LAST ROTATED GALAX2 PATTERN )
116|( FIRST ROTATED GALAX1 PATTERN )
117|( SECOND ROTATED GALAX1 PATTERN )
118|( THIRD ROTATED GALAX1 PATTERN )
119|( LAST ROTATED GALAX1 PATTERN )
120|( FIRST ROTATED GALAXIAN 4 )
121|( SECOND ROTATED GALAXIAN 4 )
122|( THIRD ROTATED GALAXIAN 4 )
123|( LAST GALAXIAN 4 ROTATED )
150|( GALAXIANS ) DECIMAL
151|( MORE GOODIES )
152|( BUMP GALAXIAN RACK COORDINATES ) HEX
153|( BOMB DROPPING FLIPOVER SUBROUTINES )
154|( INTERRUPT BOMB DROPPER ) HEX
155|( INTERRUPT BOMB DROPPER CONTINUED )
156|( START A BOMB DROPPING ) HEX
157|( ANIMATION LISTS TO ACTIVATE FIREBASE AND BOMBING )
158|( SPACE MISSIONS GALAXIAN ATTACK SOUND- GA ) HEX
159|( SPACE MISSIONS BMUSIC BLOCK cont. )
160|( SUBROUTINE TO START AN ATTACKER VECTOR ) DECIMAL
161|( ROUTINE TO RETARGET AN ATTACKER )
162|( PATTERN TABLE FOR GAL3 )
163|( REENTER GALAXIAN 4 )
164|( LEFT ROLL GAL3 )
165|( LEFT ROLL GAL2 )
166|( ROLL GAL1 LEFT AND RIGHT )
167|( RANDOM GORF GOODIES )
168|( LEFT PEELOFF FOR GALAXIAN 4 )
169|( ATTACK PATH TABLES )
170|( SUBROUTINE TO RESET THE ATTACK TIMER )
171|( ATTACK ROUTINE FOR CODES 1 THRU 6 ) HEX
172|( ATTACK ROUTINE FOR CODES 7-10 )
173|( CHECK FOR ATTACK ROUTINE ) HEX
174|( PHASOR INTERCEPT CHECK ROUTINE )
175|( GALAXIAN COLORS AND WAIT ROUTINE )
176|( INITIALIZE GALAXIAN GAME )
177|( SCAN LOOP AND WAIT ROUTINE )
178|( ANIMATION STUFF TO DUMP OUT GALAXIANS )
179|( DUMPOUT ROUTINE )
180|( SCAN LOOP AND STARTUP )
```

```
 +--------Block    100--------
 0|( START OF GALAXIANS AREA )
 1|CC? NOT IFTRUE DATA GSAB 0 B, 0 , 0 , IFEND
 2|DECIMAL -->
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14|
15|
 +--------Block    101--------
 0|( GALAXIAN 1A )
 1|DECIMAL DATA GAL1A 3 B, 11 B, QUAD
 2|3300 B, 1100 B, 0000 B,
 3|3330 B, 1000 B, 0000 B,
 4|0030 B, 1000 B, 0000 B,
 5|0031 B, 1100 B, 0000 B,
 6|0111 B, 1311 B, 0000 B,
 7|1111 B, 1111 B, 0000 B,
 8|0111 B, 1311 B, 0000 B,
 9|0031 B, 1100 B, 0000 B,
10|0030 B, 1000 B, 0000 B,
11|3330 B, 1000 B, 0000 B,
12|3300 B, 1100 B, 0000 B,
13|DECIMAL -->
14|
15|
 +--------Block    102--------
 0|( GALAXIAN 1B )
 1|DECIMAL DATA GAL1B 3 B, 11 B, QUAD
 2|0033 B, 0111 B, 0000 B,
 3|0030 B, 1100 B, 0000 B,
 4|0030 B, 1000 B, 0000 B,
 5|0031 B, 1100 B, 0000 B,
 6|0111 B, 3110 B, 0000 B,
 7|1111 B, 1100 B, 0000 B,
 8|0111 B, 3110 B, 0000 B,
 9|0031 B, 1100 B, 0000 B,
10|0030 B, 1000 B, 0000 B,
11|0030 B, 1100 B, 0000 B,
12|0033 B, 0111 B, 0000 B,
13|DECIMAL -->
14|
15|
```

```
 +--------Block    103--------
 0|( GALAXIAN 2A )
 1|DATA GAL2A 3 B, 11 B, QUAD
 2|1100 B, 2200 B, 0000 B,
 3|1110 B, 2000 B, 0000 B,
 4|0110 B, 2000 B, 0000 B,
 5|0012 B, 2200 B, 0000 B,
 6|0222 B, 1222 B, 0000 B,
 7|2222 B, 2200 B, 0000 B,
 8|0222 B, 1222 B, 0000 B,
 9|0012 B, 2200 B, 0000 B,
10|0110 B, 2000 B, 0000 B,
11|1110 B, 2000 B, 0000 B,
12|1100 B, 2200 B, 0000 B,
13|DECIMAL -->
14|
15|
 +--------Block    104--------
 0|( GAL2B )
 1|DECIMAL DATA GAL2B 3 B, 11 B, QUAD
 2|0011 B, 0222 B, 0000 B,
 3|0010 B, 2200 B, 0000 B,
 4|0010 B, 2000 B, 0000 B,
 5|0012 B, 2200 B, 0000 B,
 6|0222 B, 1220 B, 0000 B,
 7|2222 B, 2200 B, 0000 B,
 8|0222 B, 1220 B, 0000 B,
 9|0012 B, 2200 B, 0000 B,
10|0010 B, 2000 B, 0000 B,
11|0010 B, 2200 B, 0000 B,
12|0011 B, 0222 B, 0000 B,
13|DECIMAL -->
14|
15|
 +--------Block    105--------
 0|( GALAXIAN 3A )
 1|DATA GAL3A 3 B, 11 B, QUAD
 2|2200 B, 3300 B, 0000 B,
 3|2220 B, 3000 B, 0000 B,
 4|0220 B, 3000 B, 0000 B,
 5|0023 B, 3300 B, 0000 B,
 6|0333 B, 2333 B, 0000 B,
 7|3333 B, 3300 B, 0000 B,
 8|0333 B, 2333 B, 0000 B,
 9|0023 B, 3300 B, 0000 B,
10|0220 B, 3000 B, 0000 B,
11|2220 B, 3000 B, 0000 B,
12|2200 B, 3300 B, 0000 B,
13|DECIMAL -->
14|
15|
```

```
  +--------Block    106--------
 0|( GALAXIAN 3B )
 1|DECIMAL DATA GAL3B 3 B, 11 B, QUAD
 2|0022 B, 0333 B, 0000 B,
 3|0020 B, 3300 B, 0000 B,
 4|0020 B, 3000 B, 0000 B,
 5|0023 B, 3300 B, 0000 B,
 6|0333 B, 2330 B, 0000 B,
 7|3333 B, 3300 B, 0000 B,
 8|0333 B, 2330 B, 0000 B,
 9|0023 B, 3300 B, 0000 B,
10|0020 B, 3000 B, 0000 B,
11|0020 B, 3300 B, 0000 B,
12|0022 B, 0333 B, 0000 B,
13|DECIMAL -->
14|
15|
  +--------Block    107--------
 0|( GALAXIAN 4 )
 1|DATA GAL4 4 B, 11 B, QUAD
 2|0000 B, 0222 B, 2200 B, 0000 B,
 3|0000 B, 2211 B, 0000 B, 0000 B,
 4|0002 B, 2113 B, 0000 B, 0000 B,
 5|0022 B, 1113 B, 3000 B, 0000 B,
 6|0000 B, 0111 B, 3300 B, 0000 B,
 7|1111 B, 1133 B, 3330 B, 0000 B,
 8|0000 B, 0111 B, 3300 B, 0000 B,
 9|0022 B, 1113 B, 3000 B, 0000 B,
10|0002 B, 2113 B, 0000 B, 0000 B,
11|0000 B, 2211 B, 0000 B, 0000 B,
12|0000 B, 0222 B, 2200 B, 0000 B,
13|DECIMAL -->
14|
15|
  +--------Block    108--------
 0|( FIRST ROTATED GALAX3 PATTERN )
 1|DECIMAL DATA GAL3R1 4 B, 12 B, QUAD
 2|0003 B, 3000 B, 0000 B, 0 B,
 3|0003 B, 0000 B, 0000 B, 0 B,
 4|0003 B, 0030 B, 0000 B, 0 B,
 5|2203 B, 3300 B, 0000 B, 0 B,
 6|2223 B, 2330 B, 0000 B, 0 B,
 7|2023 B, 3333 B, 0000 B, 0 B,
 8|0003 B, 3323 B, 0000 B, 0 B,
 9|0003 B, 3333 B, 0000 B, 0 B,
10|0000 B, 0233 B, 0030 B, 0 B,
11|0000 B, 0223 B, 0330 B, 0 B,
12|0000 B, 0220 B, 0000 B, 0 B,
13|0000 B, 0200 B, 0000 B, 0 B,
14|-->
15|
```

```
 +--------Block    109--------
 0|( SECOND ROTATED GALAX3 PATTERN )
 1|DECIMAL DATA GAL3R2 4 B, 12 B, QUAD
 2|0003 B, 0000 B, 0000 B, 0 B,
 3|0030 B, 0000 B, 0000 B, 0 B,
 4|0003 B, 0003 B, 0000 B, 0 B,
 5|0000 B, 3330 B, 0000 B, 0 B,
 6|0220 B, 3233 B, 0300 B, 0 B,
 7|2222 B, 3333 B, 3000 B, 0 B,
 8|0003 B, 3332 B, 3000 B, 0 B,
 9|0003 B, 3333 B, 3000 B, 0 B,
10|0003 B, 3320 B, 0303 B, 0 B,
11|0000 B, 0022 B, 0030 B, 0 B,
12|0000 B, 0022 B, 0000 3, 0 B,
13|0000 B, 0020 B, 0000 B, 0 B,
14|DECIMAL -->
15|
 +--------Block    110--------
 0|( THIRD ROTATED GALAX3 PATTERN )
 1|DECIMAL DATA GAL3R3 4 B, 11 B, QUAD
 2|0330 B, 0000 B, 0000 B, 0 B,
 3|0300 B, 0000 B, 0000 B, 0 B,
 4|0030 B, 0003 B, 0000 B, 0 B,
 5|0033 B, 3330 B, 0000 B, 0 B,
 6|0223 B, 3233 B, 0300 B, 0 B,
 7|2222 B, 3333 B, 3000 B, 0 B,
 8|0000 B, 3332 B, 3003 B, 0 B,
 9|0000 B, 3333 B, 3333 B, 0 B,
10|0000 B, 0022 B, 0000 B, 0 B,
11|0000 B, 0002 B, 2000 B, 0 B,
12|0000 B, 0022 B, 2000 B, 0 B,
13|DECIMAL -->
14|
15|
 +--------Block    111--------
 0|( LAST ROTATED GALAX3 PATTERN )
 1|DECIMAL DATA GAL3R4 4 B, 8 B, QUAD
 2|0000 B, 0303 B, 0000 B, 0 B,
 3|0000 B, 0303 B, 0000 B, 0 B,
 4|0300 B, 3333 B, 3003 B, 0 B,
 5|0333 B, 3232 B, 3333 B, 0 B,
 6|0000 B, 3333 B, 3000 B, 0 B,
 7|0022 B, 2333 B, 2220 B, 0 B,
 8|0222 B, 0333 B, 0222 B, 0 B,
 9|0220 B, 0030 B, 0022 B, 0 B,
10|DECIMAL -->
11|
12|
13|
14|
15|
```

```
 +--------Block    112--------
 0|( FIRST ROTATED GALAX2 PATTERN )
 1|DECIMAL DATA GAL2R1 4 B, 12 B, QUAD
 2|0002 B, 2000 B, 0000 B, 0 B,
 3|0002 B, 0000 B, 0000 B, 0 B,
 4|0002 B, 0020 B, 0000 B, 0 B,
 5|1102 B, 2200 B, 0000 B, 0 B,
 6|1112 B, 1220 B, 2000 B, 0 B,
 7|1012 B, 2222 B, 0000 B, 0 B,
 8|0002 B, 2212 B, 0000 B, 0 B,
 9|0002 B, 2222 B, 0000 B, 0 B,
10|0000 B, 0222 B, 2020 B, 0 B,
11|0000 B, 0222 B, 0220 B, 0 B,
12|0000 B, 0220 B, 0220 B, 0 B,
13|0000 B, 0200 B, 0000 B, 0 B,
14|DECIMAL -->
15|
 +--------Block    113--------
 0|( SECOND ROTATED GALAX2 PATTERN )
 1|DECIMAL DATA GAL2R2 4 B, 12 B, QUAD
 2|0002 B, 0000 B, 0000 B, 0 B,
 3|0020 B, 0000 B, 0000 B, 0 B,
 4|0002 B, 0002 B, 0000 B, 0 B,
 5|0000 B, 2220 B, 0000 B, 0 B,
 6|0110 B, 2122 B, 0200 B, 0 B,
 7|1111 B, 2222 B, 2000 B, 0 B,
 8|0002 B, 2221 B, 2000 B, 0 B,
 9|0002 B, 2222 B, 2000 B, 0 B,
10|0002 B, 2210 B, 0202 B, 0 B,
11|0000 B, 0011 B, 0020 B, 0 B,
12|0000 B, 0011 B, 0000 B, 0 B,
13|0000 B, 0010 B, 0000 B, 0 B,
14|DECIMAL -->
15|
 +--------Block    114--------
 0|( THIRD ROTATED GALAX2 PATTERN )
 1|DECIMAL DATA GAL2R3 4 B, 11 B, QUAD
 2|0220 B, 0000 B, 0000 B, 0 B,
 3|0200 B, 0000 B, 0000 B, 0 B,
 4|0020 B, 0002 B, 0000 B, 0 B,
 5|0022 B, 2220 B, 0000 B, 0 B,
 6|0112 B, 2122 B, 0200 B, 0 B,
 7|1111 B, 2222 B, 2000 B, 0 B,
 8|0000 B, 2221 B, 2002 B, 0 B,
 9|0000 B, 2222 B, 2002 B, 0 B,
10|0000 B, 0011 B, 0000 B, 0 B,
11|0000 B, 0001 B, 1000 B, 0 B,
12|0000 B, 0011 B, 1000 B, 0 B,
13|DECIMAL -->
14|
15|
```

```
  +--------Block    115--------
 0|( LAST ROTATED GALAX2 PATTERN )
 1|DECIMAL DATA GAL2R4 4 B, 8 B, QUAD
 2|0000 B, 0202 B, 0000 B, 0 B,
 3|0000 B, 0202 B, 0000 B, 0 B,
 4|0200 B, 2222 B, 2002 B, 0 B,
 5|0222 B, 2121 B, 2222 B, 0 B,
 6|0000 B, 2222 B, 2000 B, 0 B,
 7|0011 B, 1222 B, 1110 B, 0 B,
 8|0111 B, 0222 B, 0111 B, 0 B,
 9|0110 B, 0020 B, 0011 B, 0 B,
10|DECIMAL -->
11|
12|
13|
14|
15|
  +--------Block    116--------
 0|( FIRST ROTATED GALAX1 PATTERN )
 1|DECIMAL DATA GAL1R1 4 B, 12 B, QUAD
 2|0001 B, 1000 B, 0000 B, 0 B,
 3|0001 B, 0000 B, 0000 B, 0 B,
 4|0001 B, 0010 B, 0000 B, 0 B,
 5|3301 B, 1100 B, 0000 B, 0 B,
 6|3331 B, 3110 B, 1000 B, 0 B,
 7|3031 B, 1111 B, 0000 B, 0 B,
 8|0001 B, 1131 B, 0000 B, 0 B,
 9|0001 B, 1111 B, 0000 B, 0 B,
10|0000 B, 0111 B, 1010 B, 0 B,
11|0000 B, 0111 B, 0110 B, 0 B,
12|0000 B, 0110 B, 0110 B, 0 B,
13|0000 B, 0100 B, 0000 B, 0 B,
14|DECIMAL -->
15|
  +--------Block    117--------
 0|( SECOND ROTATED GALAX1 PATTERN )
 1|DECIMAL DATA GAL1R2 4 B, 12 B, QUAD
 2|0001 B, 0000 B, 0000 B, 0 B,
 3|0010 B, 0000 B, 0000 B, 0 B,
 4|0001 B, 0001 B, 0000 B, 0 B,
 5|0000 B, 1110 B, 0000 B, 0 B,
 6|0330 B, 1311 B, 0100 B, 0 B,
 7|3333 B, 1111 B, 1000 B, 0 B,
 8|0001 B, 1113 B, 0100 B, 0 B,
 9|0001 B, 1111 B, 1000 B, 0 B,
10|0001 B, 1130 B, 0101 B, 0 B,
11|0000 B, 0033 B, 0010 B, 0 B,
12|0000 B, 0033 B, 0000 B, 0 B,
13|0000 B, 0030 B, 0000 B, 0 B,
14|DECIMAL -->
15|
```

```
 +--------Block    118--------
 0|( THIRD ROTATED GALAX1 PATTERN )
 1|DECIMAL DATA GAL1R3 4 B, 11 B, QUAD
 2|0110 B, 0000 B, 0000 B, 0 B,
 3|0100 B, 0000 B, 0000 B, 0 B,
 4|0010 B, 0001 B, 0000 B, 0 B,
 5|0011 B, 1110 B, 0000 B, 0 B,
 6|0331 B, 1311 B, 0100 B, 0 B,
 7|3333 B, 1111 B, 1000 B, 0 B,
 8|0000 B, 1113 B, 1001 B, 0 B,
 9|0000 B, 1111 B, 1111 B, 0 B,
10|0000 B, 0033 B, 0000 B, 0 B,
11|0000 B, 0003 B, 0000 B, 0 B,
12|0000 B, 0033 B, 0000 B, 0 B,
13|DECIMAL -->
14|
15|
 +--------Block    119--------
 0|( LAST ROTATED GALAX1 PATTERN )
 1|DECIMAL DATA GAL1R4 4 B, 8 B, QUAD
 2|0000 B, 0101 B, 0000 B, 0 B,
 3|0000 B, 0101 B, 0000 B, 0 B,
 4|0100 B, 1111 B, 1001 B, 0 B,
 5|0111 B, 1313 B, 1111 B, 0 B,
 6|0000 B, 1111 B, 1000 B, 0 B,
 7|0033 B, 3111 B, 0330 B, 0 B,
 8|0333 B, 0111 B, 0333 B, 0 B,
 9|0330 B, 0010 B, 0033 B, 0 B,
10|DECIMAL -->
11|
12|
13|
14|
15|
 +--------Block    120--------
 0|( FIRST ROTATED GALAXIAN 4 )
 1|DATA GAL4R1 4 B, 11 B, QUAD
 2|0000 B, 2220 B, 0000 B, 0000 B,
 3|0022 B, 2000 B, 0000 B, 0000 B,
 4|0021 B, 1130 B, 0000 B, 0000 B,
 5|0211 B, 1133 B, 3000 B, 0000 B,
 6|0211 B, 1113 B, 3300 B, 0000 B,
 7|0000 B, 1131 B, 3000 B, 0000 B,
 8|0011 B, 1111 B, 3000 B, 0000 B,
 9|0110 B, 0111 B, 3000 B, 0000 B,
10|1000 B, 0111 B, 0020 B, 0000 B,
11|0002 B, 2211 B, 2200 B, 0000 B,
12|0000 B, 0222 B, 0000 B, 0000 B,
13|DECIMAL -->
14|
15|
```

```
 +--------Block    121--------
 0|( SECOND ROTATED GALAXIAN 4 )
 1|DATA GAL4R2 4 B, 11 B, QUAD
 2|0002 B, 0000 B, 0000 B, 0000 B,
 3|0020 B, 0000 B, 0000 B, 0000 B,
 4|0210 B, 0000 B, 0000 B, 0000 B,
 5|2113 B, 3333 B, 0000 B, 0000 B,
 6|2111 B, 1133 B, 0000 B, 0000 B,
 7|2111 B, 1313 B, 0000 B, 0000 B,
 8|2101 B, 0113 B, 0000 B, 0000 B,
 9|2001 B, 1113 B, 0020 B, 0000 B,
10|0010 B, 0111 B, 0200 B, 0000 B,
11|0100 B, 1111 B, 2000 B, 0000 B,
12|1002 B, 2222 B, 0000 B, 0000 B,
13|DECIMAL -->
14|
15|
 +--------Block    122--------
 0|( THIRD ROTATED GALAXIAN 4 )
 1|DATA GAL4R3 4 B, 11 B, QUAD
 2|0020 B, 0000 B, 0000 B, 0000 B,
 3|0200 B, 0030 B, 0000 B, 0000 B,
 4|0203 B, 3333 B, 0000 B, 0000 B,
 5|2111 B, 1133 B, 0000 B, 0000 B,
 6|2111 B, 1313 B, 3020 B, 0000 B,
 7|2211 B, 1111 B, 1020 B, 0000 B,
 8|0200 B, 1111 B, 1220 B, 0000 B,
 9|0200 B, 1011 B, 1200 B, 0000 B,
10|0001 B, 1011 B, 2200 B, 0000 B,
11|0001 B, 0022 B, 0000 B, 0000 B,
12|0010 B, 0000 B, 0000 B, 0000 B,
13|DECIMAL -->
14|
15|
 +--------Block    123--------
 0|( LAST GALAXIAN 4 ROTATED )
 1|DATA GAL4R4 4 B, 11 B, QUAD
 2|0000 B, 0300 B, 0000 B, 0000 B,
 3|2000 B, 3330 B, 0020 B, 0000 B,
 4|2003 B, 3333 B, 0020 B, 0000 B,
 5|2133 B, 1313 B, 2120 B, 0000 B,
 6|2111 B, 1311 B, 1120 B, 0000 B,
 7|2211 B, 1111 B, 1220 B, 0000 B,
 8|0221 B, 0101 B, 2200 B, 0000 B,
 9|0022 B, 0102 B, 2000 B, 0000 B,
10|0002 B, 0102 B, 0000 B, 0000 B,
11|0000 B, 0100 B, 0000 B, 0000 B,
12|0000 B, 0100 B, 0000 B, 0000 B,
13|DECIMAL ;S
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15|
```

```
 +--------Block    150--------
 0|( GALAXIANS ) DECIMAL
 1|DATA GNP GAL1A , GAL1A , GAL2A , GAL3A , GAL4 ,
 2|0 , 0 , 0 , GAL1B , GAL1B , GAL2B , GAL3B , GAL4 ,
 3|5 ARRAY GALAXPAT
 4|46 BARRAY GAL1AB 46 BARRAY GAL2AB 46 BARRAY GAL3AB
 5|60 BARRAY GAL4AB
 6|-->
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 8|
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15|
 +--------Block    151--------
 0|( MORE GOODIES )
 1|HEX : MAKEPATS COCKTAIL B@ COCKTAIL WPBZERO SETLINKS
 2|CL 0 0 GAL4 20 WRITEP 0 200 GAL4 20 WRITEP
 3|C D 0 GAL4AB 0 0 SNAP 0 GAL4AB 4 GALAXPAT !
 4|1000 1000 GAL1A 20 WRITEP 1000 1200 GAL1B
 5|20 WRITEP 6 D 0 GAL1AB 1000 1000 SNAP 0 GAL1AB DUP 0 GALAXPAT !
 6|1 GALAXPAT !
 7|2000 1000 GAL2A 20 WRITEP 2000 1200 GAL2B 20 WRITEP
 8|6 D 0 GAL2AB 2000 1000 SNAP 0 GAL2AB 2 GALAXPAT !
 9|3000 1000 GAL3A 20 WRITEP 3000 1200 GAL3B 20 WRITEP
10|6 D 0 GAL3AB 3000 1000 SNAP 0 GAL3AB 3 GALAXPAT !
11|COCKTAIL WPB! SETLINKS ;
12|-->
13|
14|
15|
 +--------Block    152--------
 0|( BUMP GALAXIAN RACK COORDINATES ) HEX
 1|SUBR GALBUMPER MASTERY LHLD, DMASTERY LDED, 7 D BIT, 0=, IF,
 2|INVUL LBCD, ELSE, INVLL LBCD, THEN, FLIPCHECK CALL,
 3|0=, IF, DMASTERY SDED, ELSE, D DAD, MASTERY SHLD, THEN,
 4|RELMT CALL, RET,
 5|-->
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```
 +--------Block    153--------
 0|( BOMB DROPPING FLIPOVER SUBROUTINES )
 1|HEX
 2|SUBR SETMAG COCKTAIL LDA, A ANA, 0< >, IF, 60 A MVI,
 3|ELSE, 20 A MVI, THEN, MAGIC OUT, RET,
 4|
 5|DECIMAL -->
 6|
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 +--------Block    154--------
 0|( INTERRUPT BOMB DROPPER ) HEX
 1|F= TBBLP F= DROPLP F= NODROP F= OKDROP F= NOBOMB F= NOBOMB1
 2|SUBR BOMBDROPPER <ASSEMBLE
 3|SETMAG CALL, PQTB X A LDX, 0 PQTB X MVIX,
 4|LABEL TBBLP PSW PUSH,
 5| 0 BOMBARRAY H LXI,
 6|NBOMBS A MVI,
 7|LABEL DROPLP PSW PUSH, M C MOV, C A MOV,
 8|A ANA, NOBOMB JRZ, 055 XRI, A M MOV, 5 D LXI, D DAD, M D MOV,
 9|H DCX, M E MOV, C A MOV, D STAX,
10|05 CPI, 0=, IF, 050 A MVI, D STAX,
11|H INX, H INX, NOBOMB1 JMPR, THEN,
12|H DCX, M B MOV, H DCX, M C MOV, XCHG,
13|COCKTAIL LDA, A ANA, 0=, IF, B DAD, ELSE, B DSBC, THEN,
14|XCHG, H DCX, M DCR, M A MOV, 3 CPI,
15|NODROP JRC, 6 D BIT, OKDROP JRZ, -->
 +--------Block    155--------
 0|( INTERRUPT BOMB DROPPER CONTINUED )
 1|LABEL NODROP H DCX, 0 M MVI, NOBOMB JMPR,
 2|LABEL OKDROP H INX, H INX, H INX, 05 A MVI, D STAX,
 3|E M MOV, H INX, D M MOV, H INX, NOBOMB1 JMPR,
 4|LABEL NOBOMB BOMBASIZE D LXI, D DAD,
 5|LABEL NOBOMB1 PSW POP, A DCR, DROPLP JRNZ,
 6|PSW POP, A DCR, TBBLP JRNZ,
 7|RET,
 8|ASSEMBLE>
 9|DECIMAL -->
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```

```
  +--------Block    156--------
 0|( START A BOMB DROPPING ) HEX
 1|F= BSL F= BFD
 2|SUBR BOMBADIER <ASSEMBLE PQSFRZ PQS X BITX, RNZ,
 3|H PUSH, 0 BOMBARRAY H LXI, NBOMBS B MVI, BOMBASIZE D LXI,
 4|LABEL BSL M A MOV, A ANA, BFD JRZ, D DAD, BSL DJNZ, H POP, RET,
 5|LABEL BFD 05 M MVI, H INX, VXH X A LDX, A M MOV, H INX,
 6|VYH X A LDX, A SRLR, A SRLR, A C MOV, VYH FBVECTOR LDA,
 7|A SRLR, A SRLR, C SUB, 0<, IF, 0FD CPI, CY~, IF,
 8|-1 D LXI, ELSE, -51 D LXI, THEN,
 9|ELSE, 3 CPI, CY, IF, -1 D LXI, ELSE, 4F D LXI,
10|THEN, THEN, E M MOV, H INX, D M MOV, H INX, XCHG,
11|VSAL X L LDX, VSAH X H LDX, 1E0 B LXI, COCKTAIL LDA, RRC,
12|VMAGIC X XRAX,
13|0>=, IF, B DAD, ELSE, A XRA, B DSBC, THEN, SETMAG CALL,
14|05 M MVI, XCHG, E M MOV, H INX, D M MOV,
15|H POP, RET, ASSEMBLE> DECIMAL -->
  +--------Block    157--------
 0|( ANIMATION LISTS TO ACTIVATE FIREBASE AND BOMBING )
 1|SUBR GLI CKATRS CALL, EXPLODEFB CALL, RET,
 2|HEX
 3|DATA GALFBA ASM GLI SETI 1805 B005 SETDDC PLAYERANIM AJMP
 4|( BOMB GOODIES )
 5|DATA INITBOMBS ASM BOMBDROPPER SETR NULPAT SETP 2 SWAIT
 6|DECIMAL
 7|DATA BOMBR ASM 10 SWAIT BOMBADIER ASMCALL 20 SWAIT BOMBADIER
 8|ASMCALL ARET -->
 9|
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  +--------Block    158--------
 0|( SPACE MISSIONS GALAXIAN ATTACK SOUND- GA ) HEX
 1|DATA GASCORE ASM
 2| #FS3 #E3 #G2 TONES 1 -2 3F MOVESOUND
 3| 10 MASTER 3 -1 20 8 RAMBLE 1 COUNTLIMITS
 4| 18 NOISE 0 VIBS AA ABVOLS 2A MCVOLS
 5| PLAY 42 VIBS RERAMBLE 1 COUNTLIMITS
 6| PLAY 3 1 30 20 RAMBLE 44 VIBS 1 COUNTLIMITS
 7| PLAY 3 1 40 1C RAMBLE 4A VIBS 2 COUNTLIMITS
 8| PLAY 4 -1 1C 18 RAMBLE PLAY
 9|-->
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```

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 +--------Block    159--------
 0|( SPACE MISSIONS BMUSIC BLOCK cont. )
 1|SUBR GA GASCORE H LXI, 0 MUSIC-BARRAY-2 Y LXIX, bmusic JMP,
 2|DECIMAL -->
 3|
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 +--------Block    160--------
 0|( SUBROUTINE TO START AN ATTACKER VECTOR ) DECIMAL
 1|F= DBT
 2|SUBR ATSTART <ASSEMBLE DI, PINTERFLAG LDA, A ANA, DBT JRNZ,
 3|H PUSH, B PUSH, 418 D LXI, D PUSH,
 4|getnode CALL, H PUSH,
 5|FRAME 2 Y L LDX, 3 Y H LDX, H PUSH, X POPX,
 6|CLRVEC CALL, 7 Y A LDX, A VFYBH X STX, 6 Y C LDX,
 7|XRACKBITS CALL, M XRA, A M MOV, EI, Y PUSHX, GETASTATE CALL,
 8|Y POPX, L VYL X STX, H VYH X STX, E VXL X STX, D VXH X STX,
 9|SETSTDW CALL, STARTVEC CALL,
10|UNFRAME B POP, B POP, B POP, H POP,
11|TOGGLEMEMBER CALL, GA JMP,
12|LABEL DBT EI, RET, ASSEMBLE>
13|CODE ATT X PUSHX, H POP, Y PUSHX, D POP, EXX,
14|B POP, H POP, ATSTART CALL,
15|EXX, D PUSH, Y POPX, H PUSH, X POPX, NEXT -->
 +--------Block    161--------
 0|( ROUTINE TO RETARGET AN ATTACKER )
 1|HEX
 2|SUBR TARGET H PUSH, VYH X A LDX, VFYBH X SUBX,
 3|A SRLR, A SRLR, A C MOV, VYH FBVECTOR LDA, A SRLR, A SRLR,
 4|C SUB, A SRAR, A SRAR, A E MOV, VDYH X B LDX, B SUB, A C MOV,
 5|E A MOV, B XRA, C A MOV, 0<, IF, A SRAR, C ADD, THEN,
 6|A VDDYL X STX, 7 A BIT, 0 A MVI,
 7|0< >, IF, CMA, THEN, A VDDYH X STX,
 8|VDDYL X A LDX, AABS CALL, 0E ANI, 6 CPI, CY~, IF, 6 A MVI,
 9|THEN, A C MOV, 0 B MVI, VPTBL X L LDX, VPTBH X H LDX,
10|B DAD, M E MOV, H INX, M D MOV, E VPATL X STX,
11|D VPATH X STX, H POP, RET,
12|DECIMAL -->
13|
14|
15|
```

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 +--------Block    162--------
 0|( PATTERN TABLE FOR GAL3 )
 1|DATA GAL3TBL GAL3A , GAL3R1 , GAL3R2 , GAL3R3 , GAL3R4 ,
 2|( PATTERN TABLE FOR GAL2 )
 3|DATA GAL2TBL GAL2A , GAL2R1 , GAL2R2 , GAL2R3 , GAL2R4 ,
 4|( PATTERN TABLE FOR GAL1 )
 5|DATA GAL1TBL GAL1A , GAL1R1 , GAL1R2 , GAL1R3 , GAL1R4 ,
 6|( PATTERN TABLE FOR GAL4 )
 7|DATA GAL4TBL GAL4 , GAL4R1 , GAL4R2 , GAL4R3 , GAL4R4 ,
 8|-->
 9|
10|
11|
12|
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14|
15|
 +--------Block    163--------
 0|( REENTER GALAXIAN 4 )
 1|DECIMAL
 2|DATA REENTER4 ASM 19200 SETXC NULPAT SETP 0 0 SETDC 0 0 SETDDC
 3|25 SWAIT RENTGAL SETR 2 SWAIT 0 PATI 4 SWAIT FLIPOVER ACALL
 4|120 SWAIT AHALT
 5|-->
 6|
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 +--------Block    164--------
 0|( LEFT ROLL GAL3 )
 1|DATA DIVE3 ASM TARGET ASMCALL BOMBR ACALL 30 SWAIT TARGET
 2|ASMCALL 40 SWAIT TARGET ASMCALL 56 SWAIT REENTER AJMP
 3|DATA LEFT3 ASM GAL3TBL SETPT LEFTROLL ACALL DIVE3 AJMP
 4|DATA RIGHT3 ASM GAL3TBL SETPT RIGHTROLL ACALL DIVE3 AJMP
 5|-->
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 +--------Block    165--------
 0|( LEFT ROLL GAL2 )
 1|DATA DIVE2 ASM TARGET ASMCALL BOMBR ACALL 30 SWAIT TARGET
 2|ASMCALL 10 SWAIT BOMBADIER ASMCALL 70 SWAIT
 3|REENTER AJMP
 4|DATA LEFT2 ASM GAL2TBL SETPT LEFTROLL ACALL DIVE2 AJMP
 5|DATA RIGHT2 ASM GAL2TBL SETPT RIGHTROLL ACALL DIVE2 AJMP
 6|-->
 7|
 8|
 9|
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11|
12|
13|
14|
15|
 +--------Block    166--------
 0|( ROLL GAL1 LEFT AND RIGHT )
 1|DATA DIVE1 ASM TARGET ASMCALL BOMBR ACALL 10 SWAIT TARGET
 2|ASMCALL 76 SWAIT 10 SWAIT REENTER AJMP
 3|DATA LEFT1 ASM GAL1TBL SETPT LEFTROLL ACALL DIVE1 AJMP
 4|DATA RIGHT1 ASM GAL1TBL SETPT RIGHTROLL ACALL DIVE1 AJMP
 5|-->
 6|
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15|
 +--------Block    167--------
 0|( RANDOM GORF GOODIES )
 1|HEX
 2|DATA GORFEXIT ASM 40 0 SETDC 11 SWAIT REENTER AJMP
 3|DATA GALGORFR ASM 0 100 SETDC 0A AREPEAT GORF SETP 5 SWAIT
 4|GORFB SETP 5 SWAIT ALOOP GORFEXIT AJMP
 5|DATA GALGORF ASM 4800 SETXC NULPAT SETP
 6|0 0 SETDC 0 0 SETDDC 28 SWAIT 0FE 0 SETS
 7|RENTGAL SETR 1 SWAIT GORFB SETP 10 SWAIT
 8|XADDWRITE SETR 1 GALGORFR RANDOMDO
 9|0 -100 SETDC
10|0A AREPEAT GORF SETP 5 SWAIT GORFB SETP 5 SWAIT ALOOP
11|GORFEXIT AJMP
12|DECIMAL -->
13|
14|
15|
```

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 +--------Block    168--------
 0|( LEFT PEELOFF FOR GALAXIAN 4 )
 1|DATA DIVE4 ASM TARGET ASMCALL BOMBR ACALL 20 SWAIT TARGET
 2|ASMCALL 40 SWAIT TARGET ASMCALL 66 SWAIT 3 GALGORF RANDOMDO
 3|REENTER4 AJMP
 4|DATA LEFT4 ASM GAL4TBL SETPT LEFTROLL ACALL DIVE4 AJMP
 5|DATA RIGHT4 ASM GAL4TBL SETPT RIGHTROLL ACALL DIVE4 AJMP
 6|-->
 7|
 8|
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14|
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 +--------Block    169--------
 0|( ATTACK PATH TABLES )
 1|DECIMAL
 2|DATA LEFTATBL LEFT1 , LEFT1 , LEFT2 ,
 3|DATA RIGHTATBL RIGHT1 , RIGHT1 , RIGHT2 ,
 4|DATA ATG1 32 B, 255 B, 11 B, 240 B, LEFT3 , 19 B, 0 B, LEFT3 ,
 5|20 B, 0 B, LEFT4 , 255 B,
 6|DATA ATG2 0 B, 144 B, 19 B, 0 B, RIGHT3 , 27 B, 16 B, RIGHT3 ,
 7|20 B, 0 B, RIGHT4 , 255 B,
 8|DATA ATG3 32 B, 255 B, 35 B, 240 B, LEFT3 , 43 B, 0 B, LEFT3 ,
 9|44 B, 0 B, LEFT4 , 255 B,
10|DATA ATG4 0 B, 144 B, 43 B, 0 B, RIGHT3 , 51 B, 16 B, RIGHT3 ,
11|44 B, 0 B, RIGHT4 , 255 B,
12|DATA ATGTBL ATG1 , ATG2 , ATG3 , ATG4 ,
13|-->
14|
15|
 +--------Block    170--------
 0|( SUBROUTINE TO RESET THE ATTACK TIMER )
 1|HEX SUBR SETATMR B PUSH, A C MOV, INVADERSLEFT LDA, 5 CPI,
 2|CY~, IF, SKILLFACTOR LDA, A ANA,
 3|0=, IF, LDAR, 3F ANI, ELSE, A DCR, 0=, IF, 0 C MVI, LDAR,
 4|1F ANI, ELSE, 0 C MVI, A XRA, THEN, THEN,
 5|A B MOV, INVADERSLEFT LDA, B ADD, C ADD, ATTACKTIMER STA,
 6|THEN, B POP, RET,
 7|( SUBROUTINE TO ABORT IF INVADER TOO CLOSE TO EDGES )
 8|F= NOGO
 9|SUBR CKPATH <ASSEMBLE H PUSH,
10|C A MOV, CALCINVY CALL, MASTERY LDED, D DAD, H A MOV,
11|H POP, 1E CPI, NOGO JRC, 094 CPI, NOGO JRNC,
12|M E MOV, H INX, M D MOV, XCHG, A ORA, RET,
13|LABEL NOGO A XRA, RET, ASSEMBLE>
14|DECIMAL -->
15|
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 +--------Block    171--------
 0|( ATTACK ROUTINE FOR CODES 1 THRU 6 ) HEX
 1|SUBR AT1T6
 2|C A MOV, 4 CPI, CY, IF, LEFTINVN LDA, A DCR, LEFTATBL H LXI,
 3|ELSE, RIGHTINVN LDA, 4 SUI, RIGHTATBL H LXI,
 4|THEN, C ADD, A C MOV, 3 ANI,
 5|RLC, A E MOV, 0 D MVI, D DAD,
 6|H PUSH, XRACKBITS CALL, H POP, RZ,
 7|CKPATH CALL, RZ, 0 B MVI,
 8|ATSTART CALL, 10 A MVI, SETATMR JMP,
 9|DECIMAL -->
10|
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 +--------Block    172--------
 0|( ATTACK ROUTINE FOR CODES 7-10 )
 1|HEX F= ATSL F= PTL F= NOPE
 2|SUBR ATG7T10 <ASSEMBLE
 3|C A MOV, RLC, A C MOV, 0 B MVI, ATGTBL H LXI, B DAD,
 4|M E MOV, H INX, M D MOV, XCHG, MASTERY 1 + LDA, M CMP,
 5|RC, H INX, M CMP, RNC, H INX, H PUSH, 0 B MVI,
 6|LABEL  PTL M C MOV, H PUSH, XALIVEBITS CALL, 0<>, IF,
 7|XRACKBITS CALL, 0<>, IF, B INR, ELSE, H POP, H POP, RET,
 8|THEN, THEN, H POP, H INX, H INX, H INX, H INX, M A MOV, A INR,
 9|PTL JRNZ, H POP, B ORA, RZ,
10|50 A MVI, SETATMR CALL,
11|LABEL ATSL M C MOV, H INX, M B MOV, H INX, M E MOV, H INX,
12|M D MOV, H INX,
13|C A MOV, A INR, RZ, H PUSH, D PUSH, B PUSH, XRACKBITS CALL,
14|B POP, H POP, NOPE JRZ, ATSTART CALL,
15|LABEL NOPE H POP, ATSL JMPR, ASSEMBLE> DECIMAL -->
 +--------Block    173--------
 0|( CHECK FOR ATTACK ROUTINE ) HEX
 1|F= NOAT
 2|CODE CHECKATTACK <ASSEMBLE X PUSHX, Y PUSHX, EXX,
 3|ATTACKTIMER LHLD, H A MOV, L ORA, NOAT JRNZ,
 4| LDAR, 0F ANI, A INR,
 5|0D CPI, CY, IF, RRC, 7 ANI, A C MOV, AT1T6 CALL,
 6| ELSE, 0D SUI, A C MOV, ATG7T10 CALL, THEN,
 7|LABEL NOAT EXX, Y POPX, X POPX, NEXT
 8|ASSEMBLE>
 9|DECIMAL -->
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 +--------Block    174--------
 0|( PHASOR INTERCEPT CHECK ROUTINE )
 1|F= INTLOG
 2|SUBR PINTER <ASSEMBLE
 3|PINTERFLAG LDA, A ANA, RNZ,
 4|1 C MVI, CHECKALL CALL, 0<>, IF,
 5|PQSRH PQS Y RESX, PQSDW PQS Y SETX,
 6|VYL Y L LDX, VYH Y H LDX, PINTERY SHLD,
 7|VXL Y L LDX, VXH Y H LDX, PINTERX SHLD,
 8|VRACK Y C LDX, C C BIT, 0=, IF, XALIVEBITS CALL, M XRA,
 9|A M MOV, THEN, 1 A MVI, INTLOG JMPR,
10|THEN, RACKCHECK CALL, RZ, 2 A MVI,
11|LABEL INTLOG PINTERFLAG STA, C A MOV, PINTERN STA,
12|verase CALL, PQSRH PQS X RESX,
13|RET, ASSEMBLE>
14|-->
15|
 +--------Block    175--------
 0|( GALAXIAN COLORS AND WAIT ROUTINE )
 1|HEX
 2|DATA GALCOLORS 7 B, 7D B, 0B B, 5A B, 7 B, 7D B, 0B B, 5A B,
 3|DATA INRK 7 B, 0F B, 1F B, 0F B, 0F B, 1F B, 0F B, 7 B,
 4|
 5|( WAIT FOR ATTACK TO END ROUTINE )
 6|
 7|: RACKWAIT 1 8 0 DO I RACKBITS B@ I ALIVEBITS B@
 8|<> IF DROP 0 THEN LOOP ;
 9|: WOA BEGIN BARK BMS RACKWAIT END SHUTUP ;
10|DECIMAL -->
11|
12|
13|
14|
15|
 +--------Block    176--------
 0|( INITIALIZE GALAXIAN GAME )
 1|HEX : INITGAL 0 FLOOD INITMISSIONRAM
 2|RESETRACK MAKEPATS DRAWMISSIONSCREEN
 3|100 5000 408 23 INXMSG COUNT SPOST
 4|GALBUMPER BUMPMASTERROUTINE ! 0 GALAXPAT INVPATAB !
 5|GNP NORMLP1 ! 3000 MASTERX ! PINTER PHASINTR !
 6|80 0 DO MASTERY @ I ANIMSTATE ! MASTERX @ I 1+ ANIMSTATE !
 7|2 +LOOP ' WOA REINIT !
 8|INRK 0 ALIVEBITS 8 BMOVE
 9|20 INVADERSLEFT ! 0 LEFTINVN ! 38 RIGHTINVN !
10|0 PINTERFLAG ! BATOTAL 0 DO 0 I BOMBARRAY B! LOOP
11|GALFBA FRANIM ! ACTFB
12|GETNODE DUP PV1 ! 0 SWAP ! INITBOMBS 0 A2 VSTART ;
13|DECIMAL -->
14|
15|
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23 GNAME

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 +--------Block    177--------
 0|( SCAN LOOP AND WAIT ROUTINE )
 1|: GALSCAN WRTINV CHECKATTACK FIRECHECK PHASORINTERCEPTCHECK
 2|PLAYERHITCHECK BARK BMS ;
 3|: GSWAIT WTIMER ! BEGIN WRTINV FIRECHECK PHASORINTERCEPTCHECK
 4|BARK BMS WTIMER @ 0= END ;
 5|: GSW1 WTIMER ! BEGIN FIRECHECK PHASORINTERCEPTCHECK BARK BMS
 6|WTIMER @ 0= END ;
 7|DECIMAL
 8|-->
 9|
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 +--------Block    178--------
 0|( ANIMATION STUFF TO DUMP OUT GALAXIANS )
 1|DATA DRE ASM 19200 SETXC NULPAT SETP RENTGAL SETR
 2|1 SWAIT 0 PATI 20 SWAIT FLIPOVER ACALL 120 SWAIT AHALT
 3|DATA DUMPGAL1 ASM GAL1TBL SETPT DRE AJMP
 4|DATA DUMPGAL2 ASM GAL2TBL SETPT DRE AJMP
 5|DATA DUMPGAL3 ASM GAL3TBL SETPT DRE AJMP
 6|DATA DUMPGAL4 ASM GAL4TBL SETPT 19200 SETXC NULPAT SETP
 7|RENTGAL SETR 1 SWAIT 0 PATI 4 SWAIT FLIPOVER ACALL 120 SWAIT
 8|AHALT
 9|-->
10|
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 +--------Block    179--------
 0|( DUMPOUT ROUTINE )
 1|HEX 1A2 C= DUMPST DECIMAL
 2|: PLYGA GASCORE B2MUSIC ;
 3|: DUMPGALS 5 GALCOLORS FUC SHUTUP PLYGA WRTINV
 4|57 0 DO DUMPGAL1 I DUMPST VSTART 8 +LOOP 120 GSW1
 5|PLYGA 58 1 DO DUMPGAL1 I DUMPST VSTART 8 +LOOP 110 GSWAIT
 6|PLYGA 59 2 DO DUMPGAL2 I DUMPST VSTART 8 +LOOP 100 GSWAIT
 7|PLYGA 52 11 DO DUMPGAL3 I DUMPST VSTART 8 +LOOP 100 GSWAIT
 8|PLYGA DUMPGAL4 20 DUMPST VSTART DUMPGAL4 44 DUMPST VSTART
 9|180 ATTACKTIMER ! ;
10|-->
11|
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 +--------Block    180--------
 0|( SCAN LOOP AND STARTUP )
 1|HEX
 2|: GALAXIANS INITGAL DUMPGALS BEGIN GALSCAN
 3|ENDOFFRAME @ END GALCOLORS SC 3 FDB ;
 4|HEX A5 GSAB U! ' GALAXIANS GSAB 1+ U!
 5|: GALGO INITGAL
 6|8 0 DO I ALIVEBITS B@ I RACKBITS B! LOOP
 7|REPAINTRACK 1 GALCOLORS FUC
 8|400 0 DO [illegible]URTINV CHECKATTACK LOOP 1 FDB ;
 9|' GALGO GSAB 5 + U!
10|DECIMAL
11|;S
12|
13|
14|
15|
```

CREDITS? BMS