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SQUARE - A Graphics Program

SQUARE is a simple graphics program which generates squares on the display screen. The square fills the screen, then smoothly reduces its size down to a single point. The cycle then repeats, but the rate of change of the square is increased after each cycle. The result is a set of shrinking squares, accelerating in speed until the program resets. With the 8080 running with one wait state, the period is 50 seconds. The effects can be varied by changing timing loops in the program.

8-bit digital-to-analog converters are used, and only simple graphics circuitry is required. The "Beer Budget Graphics Interface" [Byte, November 1976, page 26] is suitable. The output ports are at HORIZ and VERT.

SQUARE is a fun program, but don't hypnotize yourself with it.

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0001 0000 ;SQUARE
0002 0000 ;
0003 0000 ;GENERATES SHRINKING SQUARES
0004 0000 ;ON OSCILLOSCOPE FROM TWO D/A'S
0005 0000 ;
0006 0000 ;
0007 0000 ;ROBERT GLASER N3IC
0008 0000 ;
0009 0000 ;OCTOBER, 1977
0010 0000 ;
0011 0000 ;
0012 0000 ;
0013 0000
0014 5000 01 00 00          ORG      5000H
0015 5003 16 00          LXI      B,0
0016 5005 26 FE          MVI      D,0
0017 5007 1E FF          MVI      H,0FEH
                                START:  MVI      E,0PFH
0018 5009 25          DCR      H
0019 500A 25          DCR      H
0020 500B 25          DCR      H
0021 500C 25          DCR      H
0022 500D 25          DCR      H
0023 500E 25          DCR      H
0024 500F 25          DCR      H
0025 5010 2C          CNT:     INR      L
0026 5011 7C          MOV      A,H
0027 5012 BD          CMP      L
0028 5013 C2 1F 50      JNZ     LP1
0029 5016 2E 00          MVI      L,0
0030 5018 1D          DCR      E
0031 5019 3E 81          MVI      A,81H
0032 501B BB          CMP      E
0033 501C CA 07 50      JZ      START
                                LP1:   MOV      A,B
0034 501F 78          OUT     HORIZ
0035 5020 D3 FE          MOV      A,C
0036 5022 79          OUT     VERT
0037 5023 D3 FF          MOV      A,D
0038 5025 7A          CPI     3
0039 5026 FE 03          JZ      SIDE3
0040 5028 CA 57 50      CPI     2
0041 502B FE 02          JZ      SIDE2
0042 502D CA 4B 50      CPI     1
0043 5030 FE 01          JZ      SIDE1
0044 5032 CA 40 50      INR      B
0045 5035 04          MOV      A,E
0046 5036 7B          CMP      B
0047 5037 B8          JNZ     CNT
0048 5038 C2 10 50      MVI      D,1
0049 503B 16 01          JMP     CNT
0050 503D C3 10 50      SIDE1:  INR      C
0051 5040 0C          MOV      A,E
0052 5041 7B          CMP      C
0053 5042 B9          JNZ     CNT
0054 5043 C2 10 50      MVI      D,2
0055 5046 16 02          JMP     CNT
0056 5048 C3 10 50      SIDE2:  DCR      B
0057 504B 05          MOV      A,E
0058 504C 7B          CMA
0059 504D 2F          CMP      B
0060 504E B8          JNZ     CNT
0061 504F C2 10 50      MVI      D,3
0062 5052 16 03          JMP     CNT
0063 5054 C3 10 50      SIDE3:  DCR      C
0064 5057 0D          MOV      A,E
0065 5058 7B          CMA
0066 5059 2F          CMP      C
0067 505A B9          JNZ     CNT
0068 505B C2 10 50      MVI      D,0
0069 505E 16 00          JMP     CNT
0070 5060 C3 10 50
0071 5063 ;
0072 5063 ;
0073 5063 ;
0074 5063 HORIZ: EQU 0FEH
0075 5063 VERT:  EQU 0PFH

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