Before there were any Video Games

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Before there were any Video Games

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MAGNAVOX ODYSSEY

ATARI PONG

Sears TELE-GAMES PONG

Magnavox ODYSSEY 100

Magnavox ODYSSEY 200

CHANNEL F

RCA Studio II Home TV Programmer

ATARI SUPER PONG

COLECO TELSTAR

COLECO TELSTAR CLASSIC

Magnavox ODYSSEY 300

Magnavox ODYSSEY 400

Magnavox ODYSSEY 500

ATARI STUNT CYCLE

ATARI VIDEO COMPUTER SYSTEM

COLECO TELSTAR ARCADE

Nintendo COLOR TV-GAME 6

Apple II Home Computer

COLECO TELSTAR RANGER

COLECO TELSTAR alpha

COLECO COMBAT!

Magnavox ODYSSEY 2000

Magnavox ODYSSEY 3000

Magnavox ODYSSEY 4000

COLECO TELSTAR GEMINI

ATARI VIDEO PINBALL

MATTEL ELECTRONICS HAND HELD GAMES

MAGNAVOX ODYSSEY 2

Bally PROFESSIONAL VIDEOCADE

COLECO TELSTAR COLORTRON

COLECO TELSTAR MARKSMAN

APF electronics inc. MP-1000

PHILIPS VIDEOPAC G7000

Nintendo COLOR TV-GAME 15

Nintendo COLOR TV-RACING 112

ATARI 400XL HOME COMPUTER

ATARI 800XL HOME COMPUTER

PROGRAMMABLE ELECTRONIC GAME SYSTEM MICROVISION

TI-99/4A TEXAS INSTRUMENTS HOME COMPUTER

Nintendo COLOR TV-BLOCK BUSTERS

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ATARI Video Computer System

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ATARI PONG

Sears TELE-GAMES PONG

CHANNEL F

RCA Studio II

ATARI VIDEO COMPUTER

COLOR TV-GAME 6

MAGNAVOX ODYSSEY²

Bally PROFESSIONAL videocade

COLECO TELSTAR COLORTRON

COLECO TELSTAR MARKSMAN

atari electronics inc. ATARI 3600

PHILIPS VIDEOPAC G7000

COLOR TV-GAME 15

COLOR TV-RACING 112

COLECO TELSTAR GEMINI

ATARI VIDEO PINBALL

MATTEL ELECTRONICS HAND HELD GAMES

ATARI 400XL HOME COMPUTER

ATARI 800XL HOME COMPUTER

PROGRAMMABLE ELECTRONIC GAME SYSTEM microvision

TI 99/4A TEXAS INSTRUMENTS HOME COMPUTER

COLOR TV-BLOCK BUSTERS

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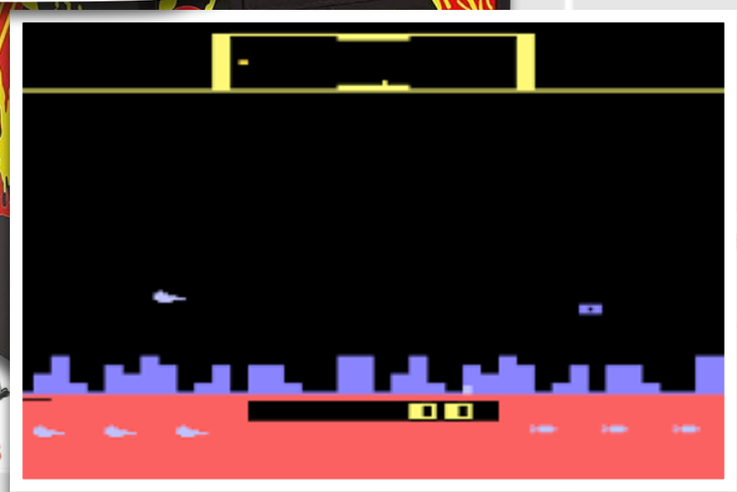

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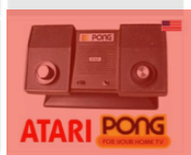
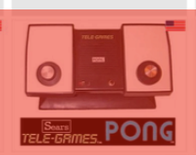
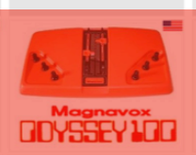
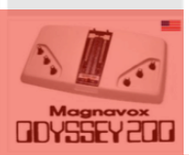
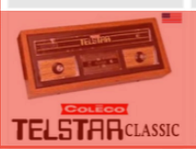
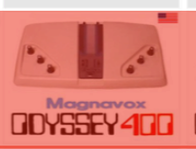
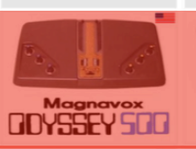
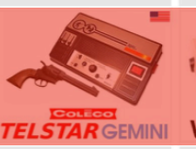
1975														
1976														
1977														
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NON-PROGRAMMABLE

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Explosion of Programmable Game Computers!

1980	Mattel Electronics Intellivision	Nintendo Computer TV-Game	Nintendo Game & Watch	Milton Bradley Microvision							
1981	Commodore VIC-20	IBM PC.	Sinclair ZX81	Epoch Cassette Vision	Philips Videopac G7200	BBC Micro					
1982	Atari 2600 Super System	Atari 2600 Video Computer System	Coleco ColecoVision	Coleco Eletronic Tabletop Games	Coleco Gemini Video Game System Atari 2600 VCS	Mattel Electronics Intellivision II	Vectrex Arcade System	Commodore 64 Home Computer System	Emerson Adventure Vision	Emerson Arcadia-2001	Sinclair ZX Spectrum
1983	Coleco Adam Family Computer System	Mattel Electronics Aquarius Home Computer System	Apple IIe Home Computer	Nintendo Family Computer	Sega SG-1000 Computer Video Game	Atari 2600 Japanese 2600 System	Philips Videopac+ G7400	Oric-1 Micro Computer	Sony MSX	Dragon 32	
1984	Apple Macintosh	Sega SG-1000 II Computer Video Game	Epoch Super Cassette Vision	Oric Atmos	Amstrad CPC 464	Amstrad CPC 664					
1985	Nintendo Entertainment System	Atari ST Home Computer	Commodore Amiga	Mattel Electronics Intv System III	Sega Mark III Computer Video Game	Sinclair ZX Spectrum+	Amstrad CPC 6128				
1986	Atari 2600 Junior.	Sega Master System	Atari 7800 ProSystem	Nintendo Family Computer Disk System	Sharp Twin Famicom Famicom Disk System Combo	Sinclair ZX Spectrum+2					
1987	Atari XE Video Game System	Commodore Amiga A500	Sinclair ZX Spectrum+3	NEC PC Engine							
1988	NEC PC Engine CD-ROM	Sega Mega Drive									
1989	Atari Lynx	Sega Genesis	NEC TurboGrafx 16	Nintendo Game Boy	NEC Super Grafx						

NON-PROGRAMMABLE

No More Programmable Game Computers!

1990	NEC TurboGrafx CD	Nintendo Super Famicom	SNK Neo·Geo Advanced Entertainment System	Sega Game Gear Portable Video Game System	NEC TurboExpress	Amstrad GX4000				
1991	Super Nintendo	Atari Lynx II	NEC Turbo Duo	Sega Mega-CD						
1992	Sega CD	Philips CD-i								
1993	Atari Jaguar	Panasonic 3DO Interactive Multiplayer	Amiga CD32	Nintendo Entertainment System Top Loader System	Nintendo Family Computer AV	Sega Mega Drive 2	Sega Mega-CD 2			
1994	GoldStar Panasonic 3DO	Sega Genesis II	Sega CD 2	Sega 32X	Sega Saturn	Genesis CDX	Sony PlayStation	Nintendo Virtual Boy	SNK Neo·Geo CD	Sega 32X
1995	Sony PlayStation	Sega Saturn	Atari Jaguar CD Multimedia Player	Sega Nomad	FM Towns Marty	Bandai Playdia Quick Interactive System				
1996	Nintendo 64	Nintendo Game Boy Pocket	Bandai Pippin Atmark							
1997	Tiger game.com	Nintendo Color Game Boy	Super Nintendo Top Loader	Nintendo Super Famicom Top Loader System						
1998	Genesis 3	SNK Neo Geo Pocket	Sega Dreamcast	Nintendo Game Boy Light	Nintendo Game Boy Color					
1999	Sega Dreamcast	SNK Neo Geo Pocket Color	Bandai Electronics WonderSwan							

NON-PROGRAMMABLE

Explosion of Programmable Game Computers!

1980	Mattel Electronics Intellivision	Nintendo Computer TV-Game	Nintendo Game & Watch	Milton Bradley Microvision							
1981	Commodore VIC-20	IBM PC.	Sinclair ZX81	Epoch Cassette Vision	Philips Videopac G7200	BBC Micro					
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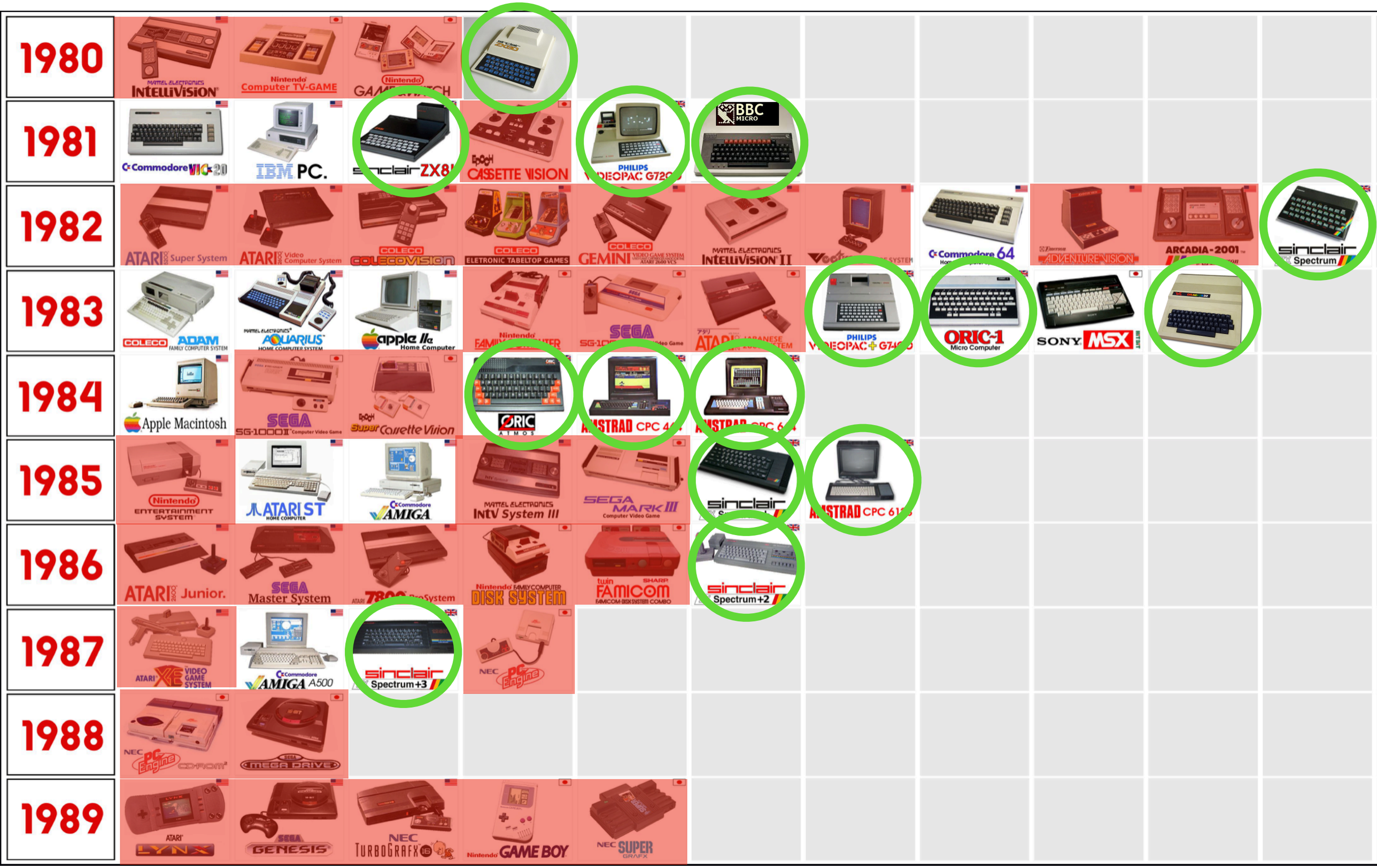
1988	NEC PC Engine CD-ROM	Sega Mega Drive									
1989	Atari Lynx	Sega Genesis	NEC TurboGrafx 16	Nintendo Game Boy	NEC Super Grafx						

NON-PROGRAMMABLE

Mostly British!



My first computer WOW Moment

1980
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sinclair ZX80

WHAT IS YOUR NAME?

"CHRIS"

WHAT YEAR WERE YOU BORN?

"1966"

HI CHRIS, YOU ARE 14 YEARS OLD, HOW ARE YOU DOING?

NON-PROGRAMMABLE

UK

1980

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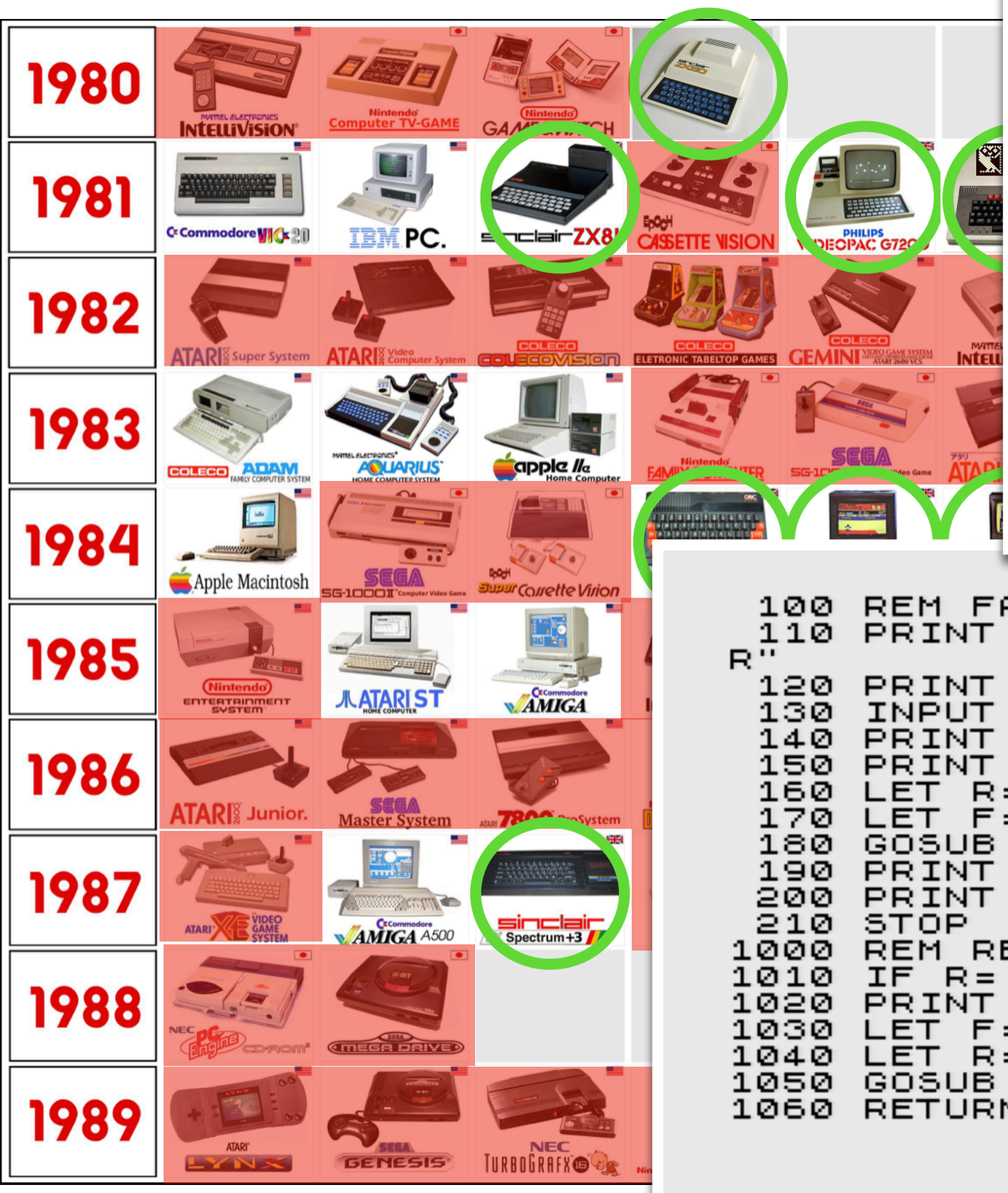
NON-PROGRAMMABLE

UK



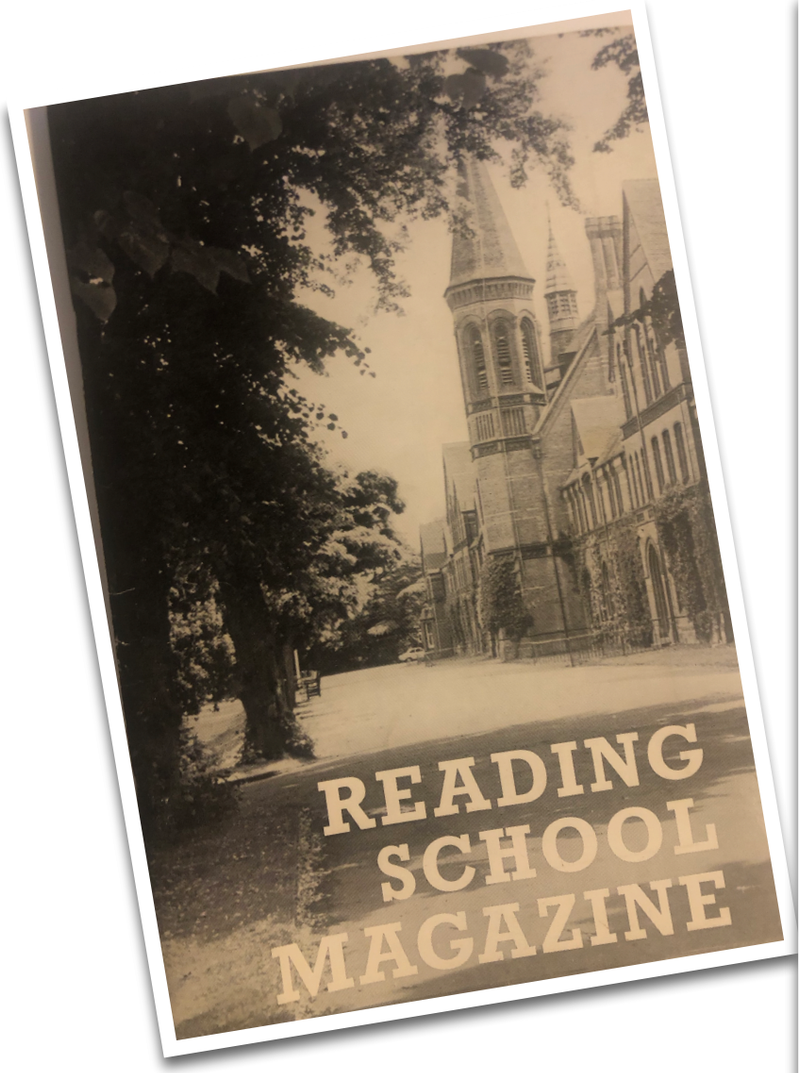
```
  100 REM FACTORIAL 0.2
  110 PRINT "PLEASE ENTER A NUMBE
R"
  120 PRINT "LESS THAN 16"
  130 INPUT I
  140 PRINT I;" FACTORIAL ="
  150 PRINT "1";
  160 LET R=2
  170 LET F=1
  180 GOSUB 1000
  190 PRINT
  200 PRINT "= ";F
  210 STOP
 1000 REM RECURSIVE SUBROUTINE
 1010 IF R=(I+1) THEN RETURN
 1020 PRINT " X ";R;
 1030 LET F=F*R
 1040 LET R=R+1
 1050 GOSUB 1000
 1060 RETURN



 0/0
```

NON-PROG

School Yard Craze



It has been a busy term for all involved—there has been hardly a minute when the machines have not been in use. All computer activities outside normal lessons come under the general aegis of the club. Whilst it is not possible to please all of the people all of the time, N.R.F. has tried to organise things to suit most demands:

Beginners meet on Wednesday lunchtime and after School.
Accomplished programmers (Years 1-5) meet on Monday after School.
Senior programmers may book time during Private Study periods and at other times.

All are welcome to join in activities and should ask if uncertain. It is surprising how quickly you can get started.

The new keyboard for the 3K ZX81 is now working well and a similar one has been purchased for the 16K ZX81. The 380Z will have been serviced over Christmas. We have just acquired "Cos" and "Machine Language" manuals which are available on request.

We would like to express our thanks for the money made available to keep this club running and look forward to further expansion during the year.

A. Schofield, M. N. Rutter, N.R.F.

CHEMISTRY COMPUTING COMPETITION

Although the number of entries was small, the quality of the programs submitted was high. The winner was A. McKecknie (6 J.B.) for a most original program to determine the nature of an unknown compound from the results of certain experiments asked for by the computer. It was closely related to the "O"-level practical syllabus and designed to run on the 380Z machine. A special prize was awarded to J. A. W. Reid (5 S.H.) for the program reproduced below, which runs on an unexpanded 1K ZX81 machine.

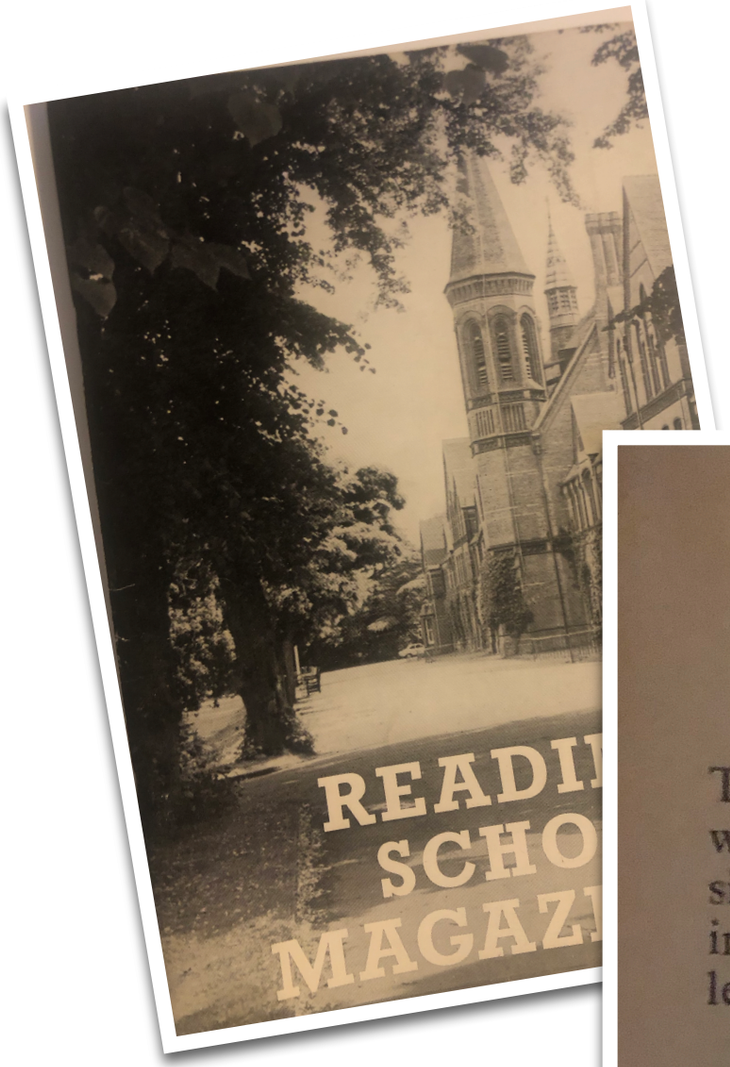
J.M.H.

Program to determine the empirical formula of a compound from its percentage composition, for a 1K ZX81, by J. A. W. Reid.

```
  5  Let L = 999
 10  CLS
 20  Print "How many elements"
 30  Input E
 40  Print "Enter data"
 50  Dim R (E)
 60  Dim P (E)
 70  Dim S $ (E, 2)
 80  Print "Element"; Tab 10; "R.A.M."; Tab 18; "Perc. Comp."
 90  For Q = 1 to E
100  Input S $ (Q)
110  Input R (Q)
120  Input P (Q)
130  Print S $ (Q); Tab 10; R (Q); Tab 18; P (Q)
140  Let P (Q) = P (Q)/R (Q)
150  If P (Q) < L then let L = P (Q)
160  Next Q
170  For F = 1 70 E
180  Print S $ (F); "("; Int (P (F)/L x 100)/100; ")"
190  Next F
200  Input E $
210  Go to (5 and E $ = "Y") + (230 and E $ = "N")
220  Copy
```

J.M.H.

School Yard Craze



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SPECTRUM CLUB

The summer term saw membership soaring to over thirty, although meetings were sporadic due to the combined intrusions of examinations and remission. A rota has been established and five people take it in turns to bring in their computers, allowing us to demonstrate programs and games on the lecture room television.

There is still room for increased numbers—all ZX Spectrum owners are invited to attend. We meet in the lecture room, after school on Fridays.

Thanks go to Mr. Toone and Mr. Bacon for their invaluable help.

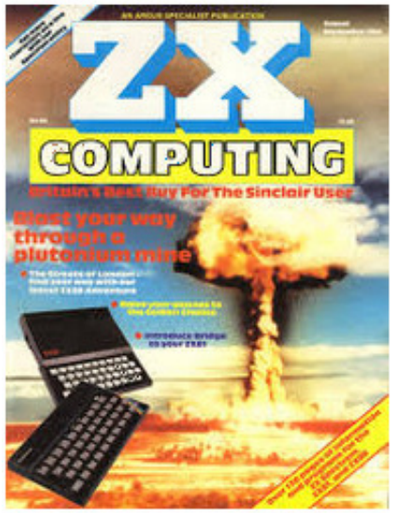
James Reid, Chris Gibbs

```
110  Input R (Q)
120  Input P (Q)
130  Print S $ (Q); Tab 10; R (Q); Tab 18; P (Q)
```

28

```
140  Let P (Q) = P (Q)/R (Q)
150  If P (Q) < L then let L = P (Q)
160  Next Q
170  For F = 1 70 E
180  Print S $ (F); "("; Int (P (F)/L x 100)/100; ")"
190  Next F
200  Input E $
210  Go to (5 and E $ = "Y") + (230 and E $ = "N")
220  Copy
```

J.M.H.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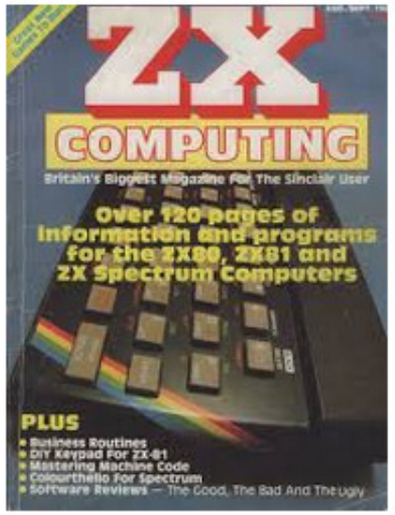
Blast your way through a plutonium mine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PLUS
Business Routines
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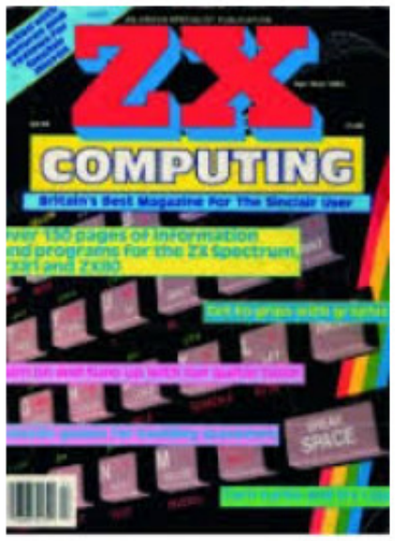
FREE ENTRY COMPETITION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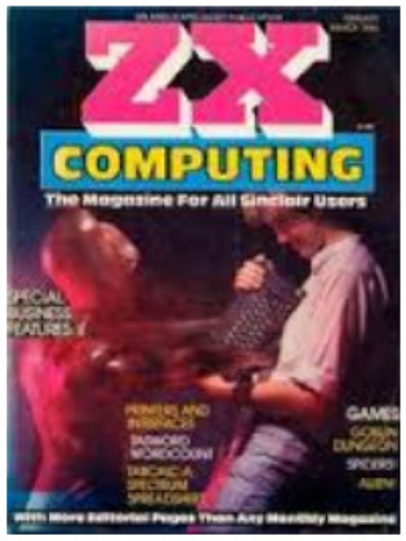
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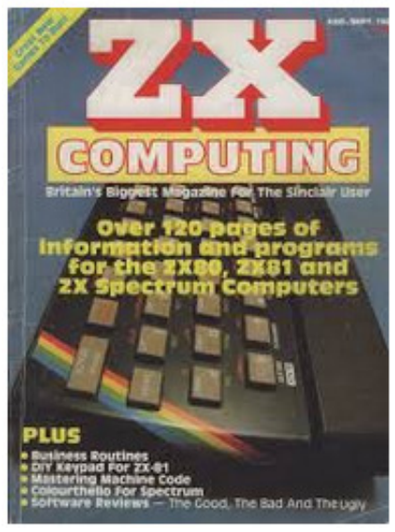
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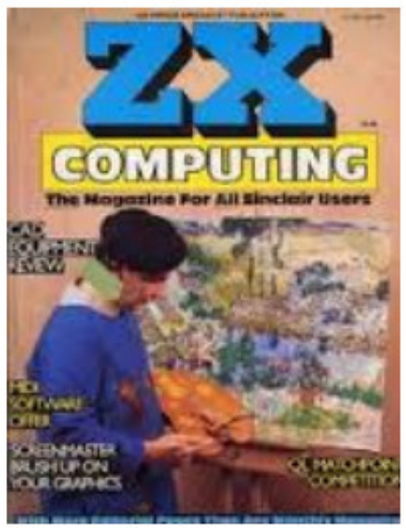
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SINCLAIR user
HUMAN KILLING MACHINE
ON TAPE 13:
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SPACE DRAGON SPACESHIP!

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CRASH
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4 FULL GAMES TO MELT YOUR SPECCY!
SINCLAIR SPECTRUM GAMES

First Published Game!

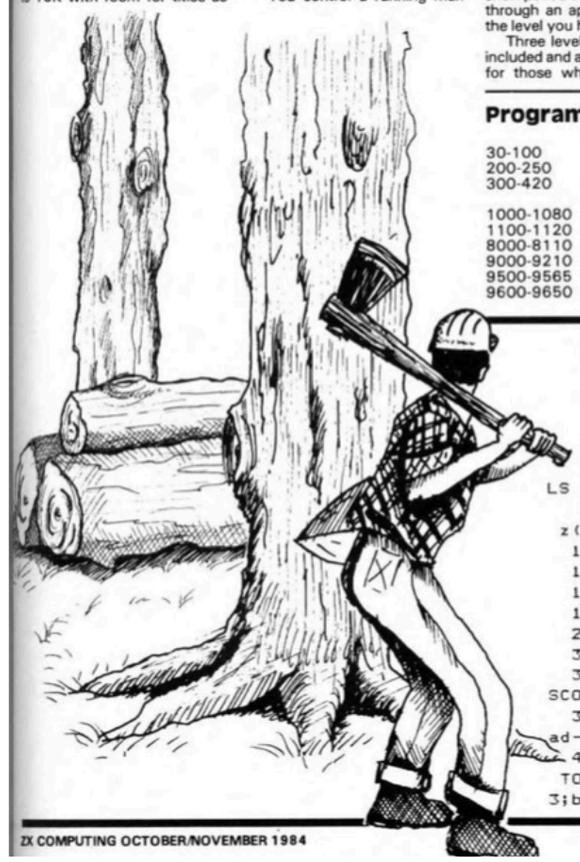
Log Hop

Would be Lumberjack Christopher Gibbs sent us this challenging program from Reading Forest.

A program which is as addictive as this and yet written in BASIC is a rare thing indeed, Christopher has created a game which is not only fast but fits into 16K with room for titles as well! As can be inferred from the title, the game involves jumping over logs and up through gaps to reach the rings at the top of the screen.

You control a running man with keys 5 and 8 for left and right movement and key 0 to jump. If you jump and miss the hole above you, you will be rendered unconscious for a short period of time and may fall through an approaching gap in the level you have reached.

Three levels of difficulty are included and a hall of fame chart for those who become adept enough to reach a good score. Christopher says his highest score so far is 93%, I admit to not getting any score at all — mind you, I wasn't feeling too well. The score is worked out on the time you take to reach the rings. So for a real test of your ability type in this relatively short program — go on, hop to it!



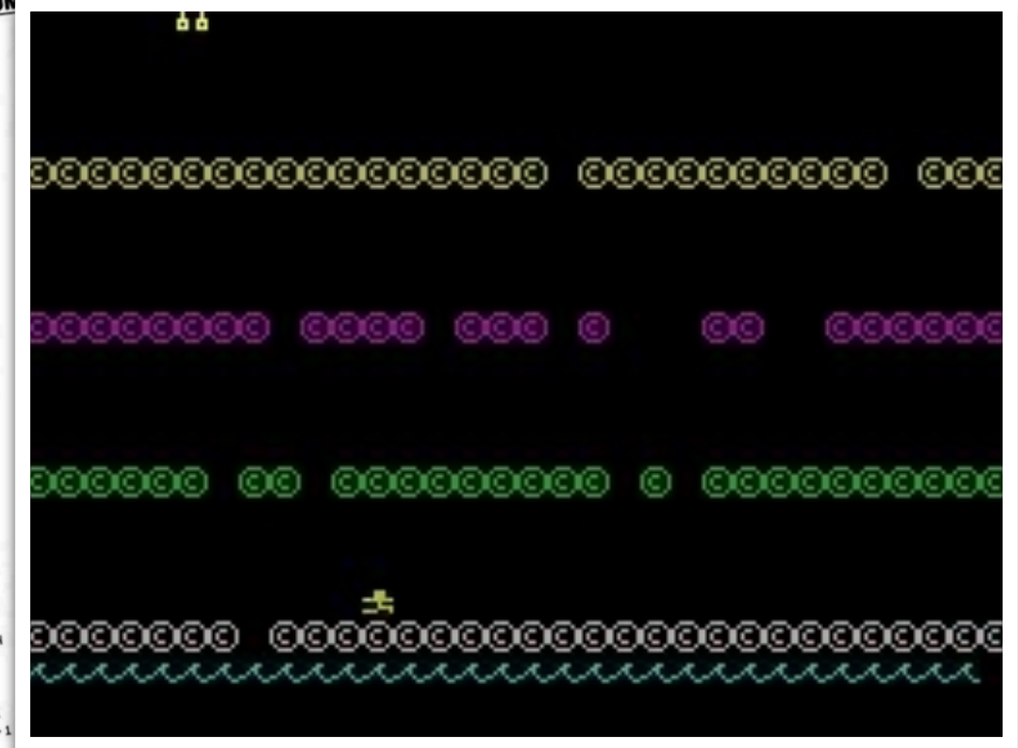
Program structure

30-100	Main loop
200-250	Fall down hole routine
300-420	Death routine, score assessment and hall of fame update
1000-1080	Jump routine
1100-1120	'Reached the rings' routine
8000-8110	Presentation and instructions
9000-9210	Graphics
9500-9565	Random set up of logs
9600-9650	Screen set up at start of game

```
  1 REM ************************
        *Underlined characters*
        *are entered in       *
        *GRAPHICS mode.       *
        ************************
  2 POKE 23658,8
  3 PAPER 0: INK 7: BORDER 0: C
LS
  5 LET HOLE=0: LET game=0: DIM
 z(10): DIM f$(10,3)
 10 GO SUB 8000
 12 LET SCORE=1000: LET dead=0
 13 LET game=1
 15 LET x=19: LET y=10
 20 LET e$="8"
 30 FOR m=31 TO 1 STEP -1
 31 IF SCORE>1 THEN  LET SCORE=
SCORE-2
 32 IF dead>0 THEN  LET dead=de
ad-1: BEEP 0.05,-10
 40 PRINT  INK 6;AT 5,0;a$(32-m
 TO );a$( TO 32-m);AT 10,0; INK
 3;b$(m TO );b$( TO m);AT 15,0; I
```

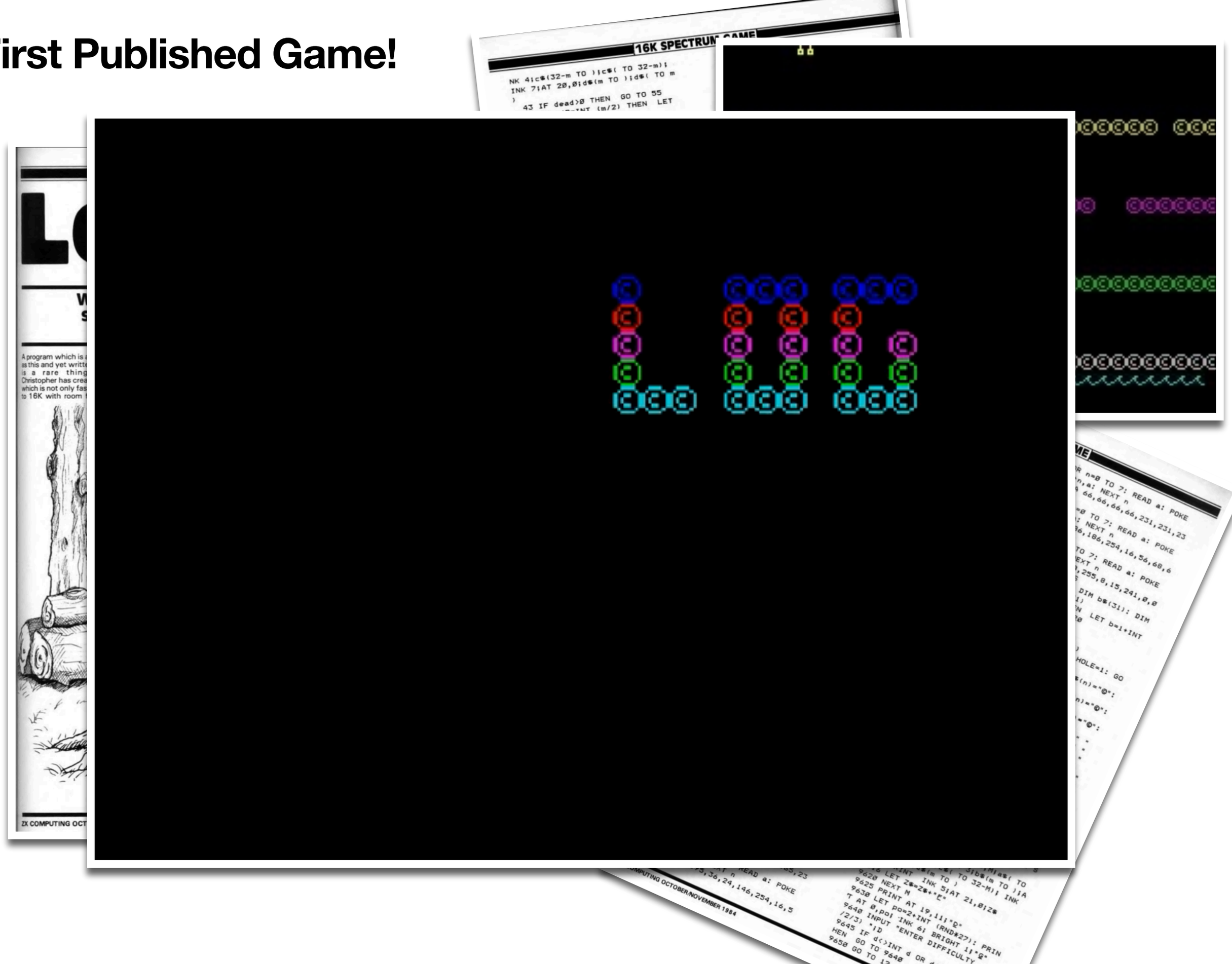


```
NK 4;c$(32-m TO );c$( TO 32-m);
INK 7;AT 20,0;d$(m TO );d$( TO m
)
  43 IF dead>0 THEN  GO TO 55
  45 IF m/2=INT (m/2) THEN  LET
e$="8"
  46 IF m/3=INT (m/3) THEN  LET
e$="5"
  50 PRINT  INK 6;AT x,y;" ";e$;
" "
  53 IF m/3=INT (m/3) THEN  GO T
O 57
  55 IF SCREEN$ (x+1,y+1)=" " TH
EN  GO SUB 200
  57 IF dead>0 THEN  GO TO 100
  60 LET y=y+(INKEY$="8")-(INKEY
$="5")
  85 IF y<0 THEN  LET y=29: PRIN
T AT x,0;"  "
  86 IF y>29 THEN  LET y=0: PRIN
T AT x,29;"  "
  90 IF INKEY$="0" THEN  GO SUB
1000
  95 LET e$="8"
 100 INK 7: NEXT m: GO TO 30
 200 REM FALL
 205 INK 6
 210 IF x=19 THEN  GO TO 300
 220 FOR n=x+1 TO x+5: PRINT AT
n,y+1;"U";AT n-1,y+1;" ": BEEP 0
.05,20-n: NEXT n
 230 LET e$="E": LET x=n-1: PRIN
T AT x,y+1;e$: LET dead=D*2:
 240 IF SCREEN$ (x+1,y+1)=" " TH
EN  GO TO 210
 250 RETURN
 290 REM DEATH
 300 PRINT AT 19,y+1;"U": PAUSE
2: PRINT AT 20,y+1;"U";AT 19,y+1
;" "
 305 BEEP 0.1,0
 310 PRINT AT 20,y+1;" "
 320 FOR n=y+1 TO 30: PRINT  INK
 5;AT 21,n;"E"; INK 6;"E": BEEP
0.05,30-n: NEXT n: PRINT  INK 5;
 BRIGHT 1;AT 21,31;"E"
 321 FOR n=1 TO 10: NEXT n: LET
SCORE=0: GO TO 330
 325 LET SCORE=INT (100*(SCORE/1
00))
 330 PRINT AT 2,10;"          "
AT 3,10;"          ";AT 4,10;"
          ";AT 3,10;"SCORE=";SCORE
;"%"
 340 PRINT AT 17,3; FLASH 1;"PRE
SS ENTER TO CONTINUE": IF CODE I
NKEY$<>13 THEN  GO TO 340
 345 CLS
 350 FOR n=1 TO 10: IF SCORE>
```

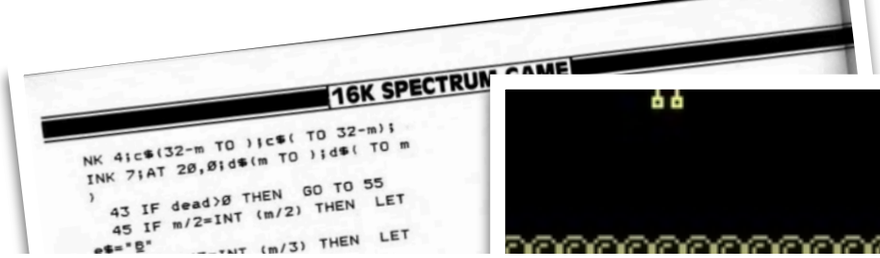
```
9160 FOR n=0 TO 7: READ a: POKE
USR "I"+n,a: NEXT n
9170 DATA 66,66,66,66,231,231,23
1,130
9180 FOR n=0 TO 7: READ a: POKE
USR "J"+n,a: NEXT n
9190 DATA 186,186,254,16,56,68,6
8,198
9200 FOR n=0 TO 7: READ a: POKE
USR "K"+n,a: NEXT n
9210 DATA 28,28,255,8,15,241,0,0
9500 REM STRINGS
9510 DIM a$(31): DIM d$(31): DIM
 c$(31): DIM b$(31): DIM b
9515 IF game=1 THEN  LET b=1+INT
 (RND*3): GO TO 9520
9517 FOR b=1 TO 3
9520 LET r=INT (RND*6)
9530 IF r=2 THEN  LET HOLE=1: GO
 TO 9548
9540 LET r=INT (RND*6)
9545 IF b=1 THEN  LET a$(n)="@":
 GO TO 9551
9546 IF b=2 THEN  LET b$(n)="@":
 GO TO 9551
9547 IF b=3 THEN  LET c$(n)="@":
 GO TO 9551
9548 IF b=1 THEN  LET a$(n)=" "
9549 IF b=2 THEN  LET b$(n)=" "
9550 IF b=3 THEN  LET c$(n)=" "
9551 NEXT n
9552 IF HOLE=0 THEN  LET A$(i)="
  ": LET B$(i)="  ": LET C$(i)="
  "
9553 LET HOLE=0
9555 IF game=1 THEN  CLS : GO TO
 9600
9560 NEXT b
9565 LET d$="@@@@@@@@@@@@@@@@@@@@
@@@@@@@@@@@@@@@@"
9570 PRINT AT 21,3; FLASH 0;"
                PRESS ANY KEY
                ": PAUSE 0
9575 CLS
9600 LET Z$="E": FOR M=31 TO 1 S
TEP -1
9610 PRINT  INK 6;AT 5,M;a$( TO
32-M);AT 10,0; INK 4;c$( TO 32-M);
 INK 7;AT 20,0;d$(m TO );A
T 15,M; INK 4;b$(m TO );AT 21,0;z$
9615 PRINT  INK 5;AT 21,0;z$
9616 LET Z$=Z$+"E"
9620 NEXT M
9625 PRINT AT 19,11;"Q"
9630 LET po=2+INT (RND*27): PRIN
T AT 0,po; INK 6; BRIGHT 1;"Q"
9640 INPUT "ENTER DIFFICULTY (1
/2/3) ";D
9645 IF d<>INT d OR d<1 OR d>3 T
HEN  GO TO 9640
9650 GO TO 12
```

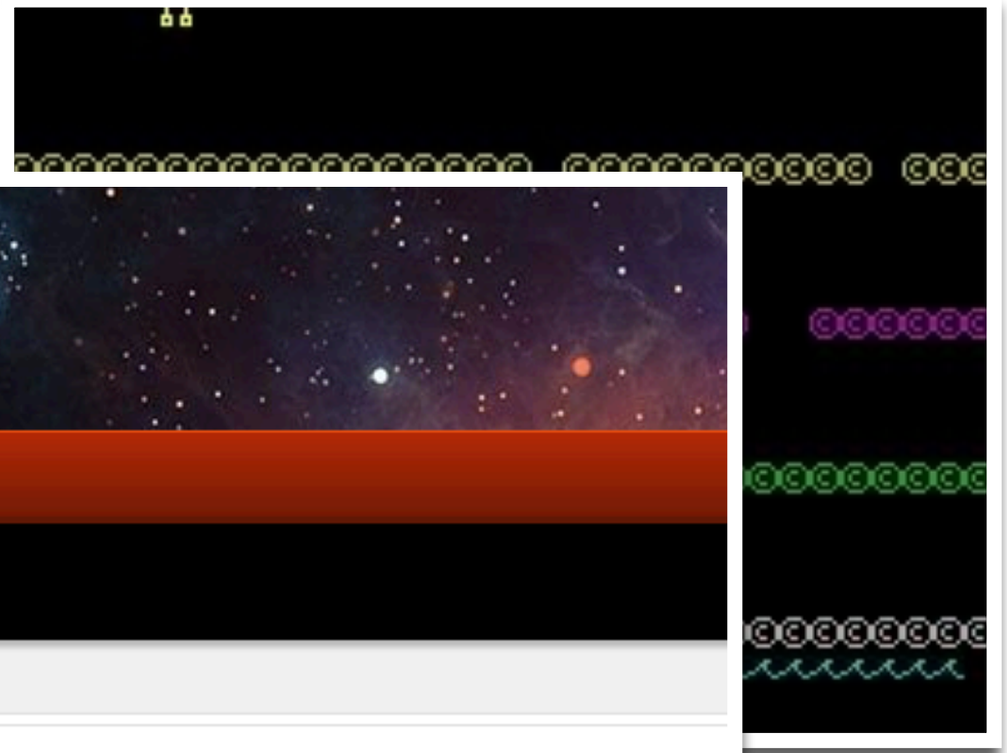
First Published Game!

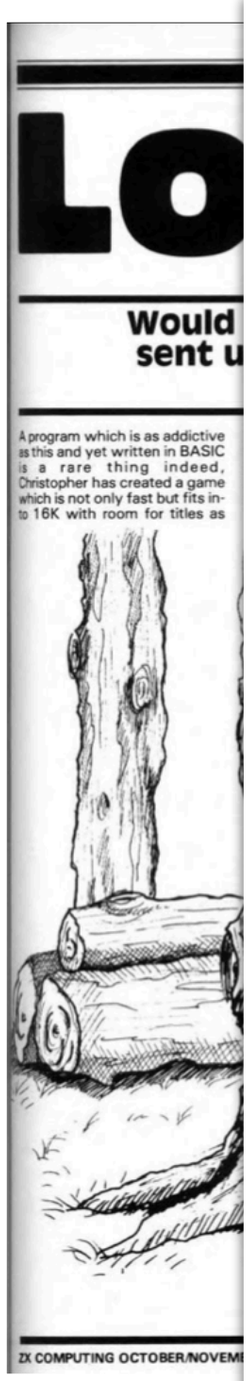


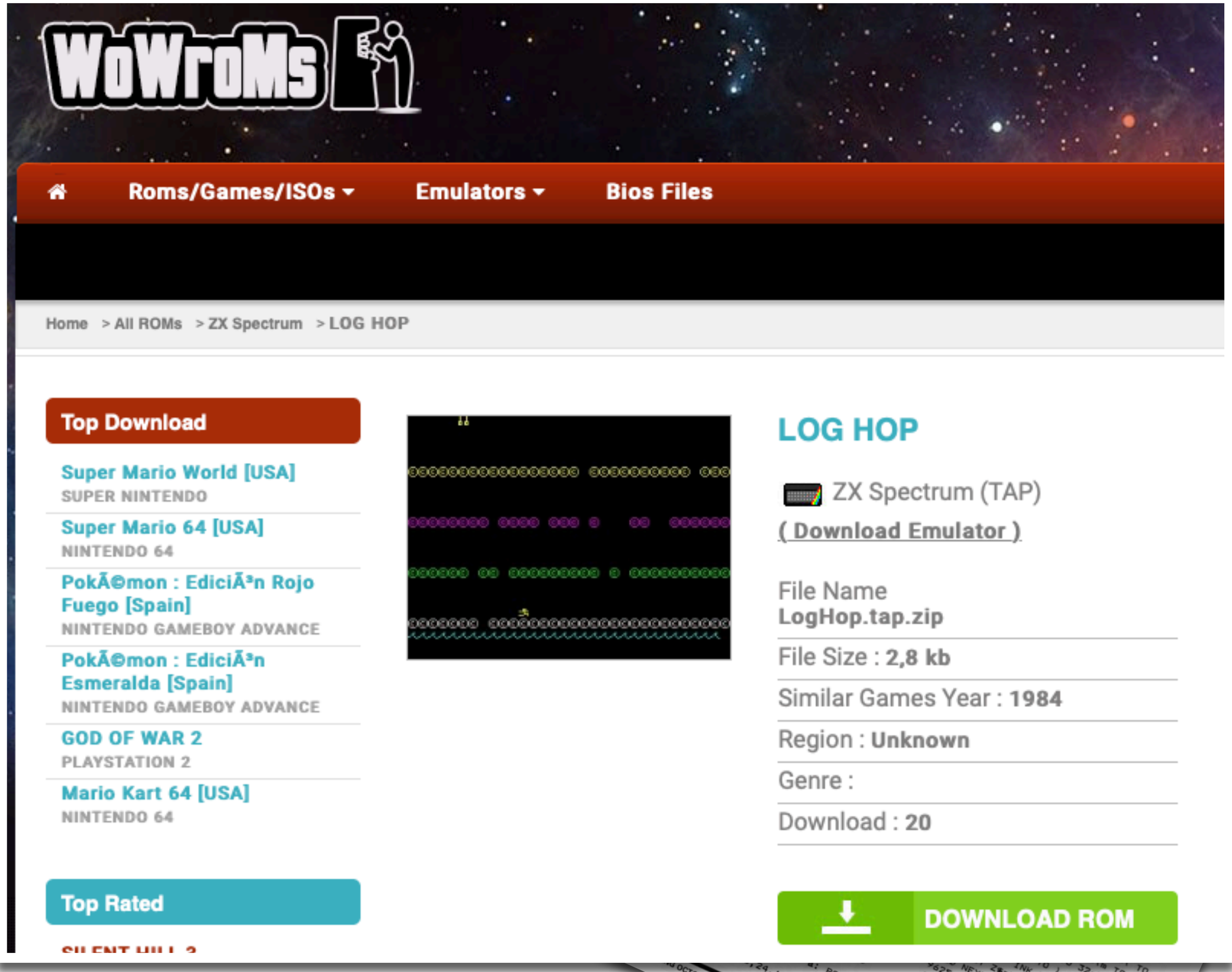
First Published Game!

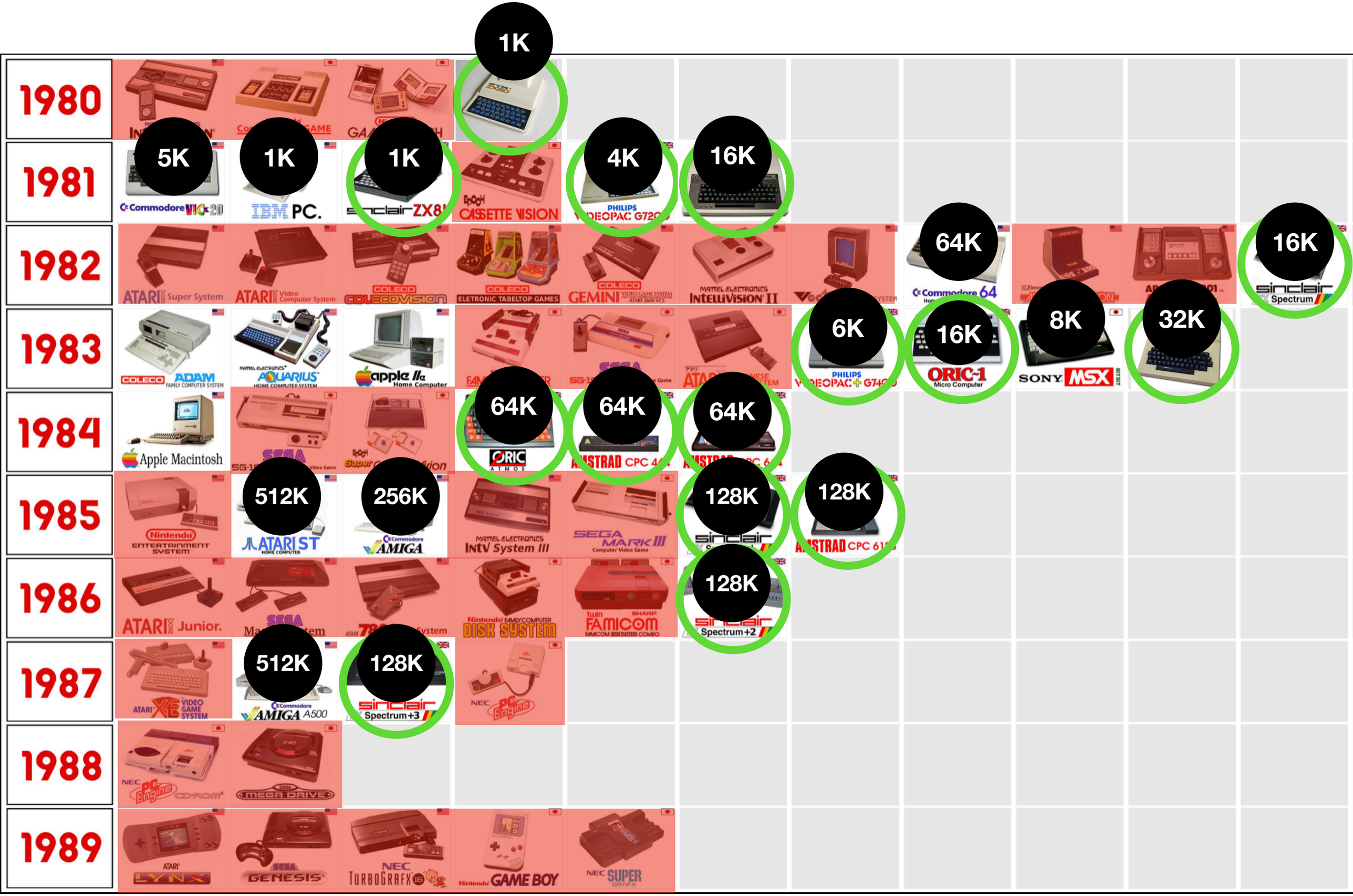
First Published Game!





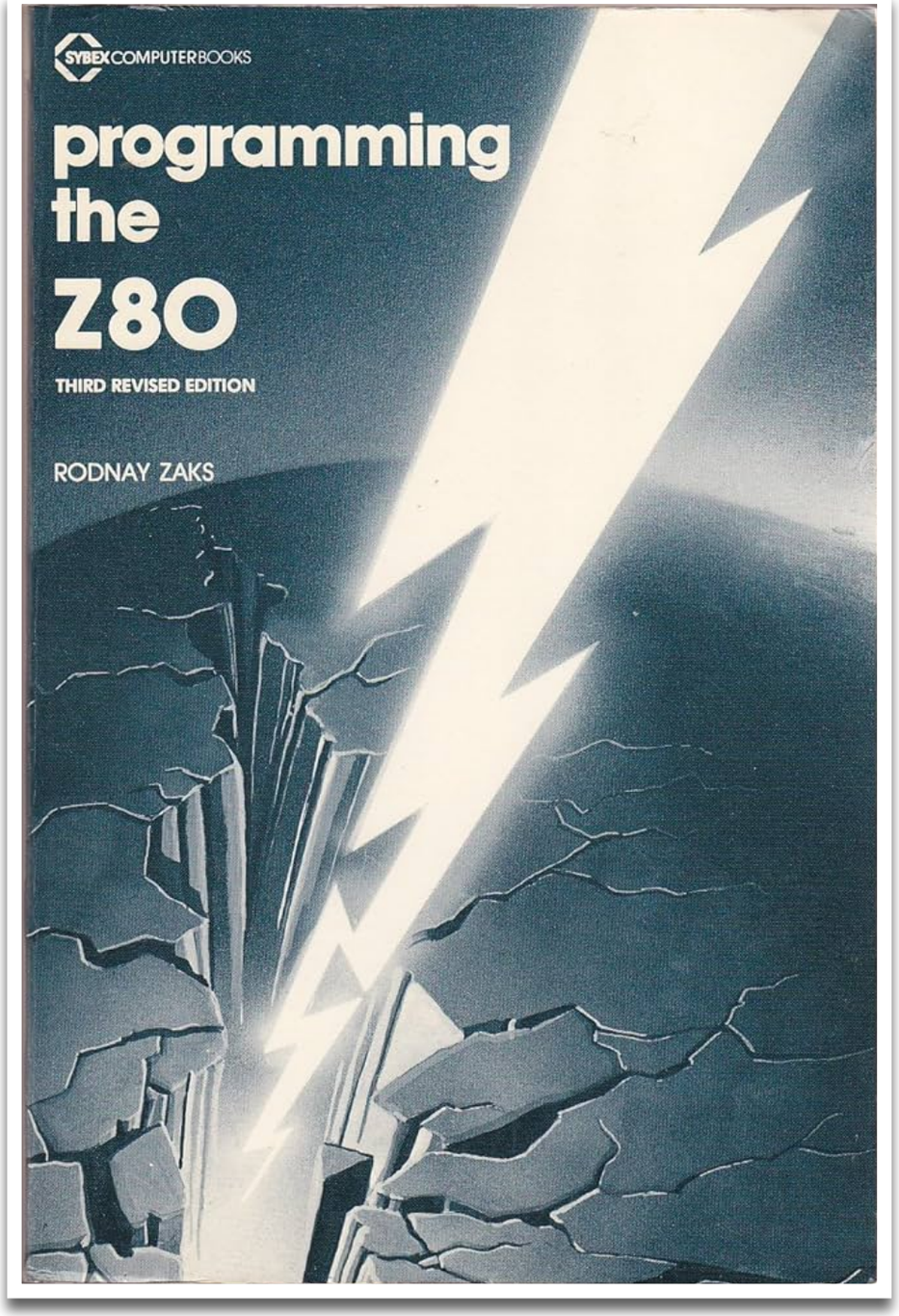





1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1K
5K
1K
1K
4K
16K
64K
16K
16K
6K
16K
8K
32K
64K
64K
64K
512K
256K
128K
128K
512K
128K
Commodore VIC-20
IBM PC.
sinclair ZX81
EPOCH CASSETTE VISION
PHILIPS VIDEOPAC G7200
ATARI 2600 Super System
ATARI 2600 Video Computer System
COLECO COLECOVISION
COLECO ELETRONIC TABELTOP GAMES
COLECO GEMINI
MATTEL ELECTRONICS INTELLIVISION II
Commodore 64
sinclair ZX Spectrum
COLECO ADAM FAMILY COMPUTER SYSTEM
MATTEL ELECTRONICS AQUARIUS HOME COMPUTER SYSTEM
apple IIe Home Computer
PHILIPS VIDEOPAC+ G7400
ORIC-1 Micro Computer
SONY MSX
Apple Macintosh
ORIC ATMOS
AMSTRAD CPC 464
AMSTRAD CPC 664
AMSTRAD CPC 6128
Nintendo ENTERTAINMENT SYSTEM
ATARI ST HOME COMPUTER
Commodore AMIGA
MATTEL ELECTRONICS INTV System III
SEGA MARK III Computer Video Game
sinclair Spectrum+
ATARI 2600 Junior.
Nintendo FAMILY COMPUTER DISK SYSTEM
twin SHARP FAMICOM FAMICOM DISK SYSTEM COMBO
sinclair Spectrum+2
ATARI XE VIDEO GAME SYSTEM
Commodore AMIGA A500
sinclair Spectrum+3
NEC PC Engine
NEC PC Engine CD-ROM
SEGA MEGA DRIVE
ATARI LYNX
SEGA GENESIS
NEC TURBOGRAFX 16
Nintendo GAME BOY
NEC SUPER GRAFX
NON-PROGRAMMABLE
UK
RAM

Pixel Movement ???

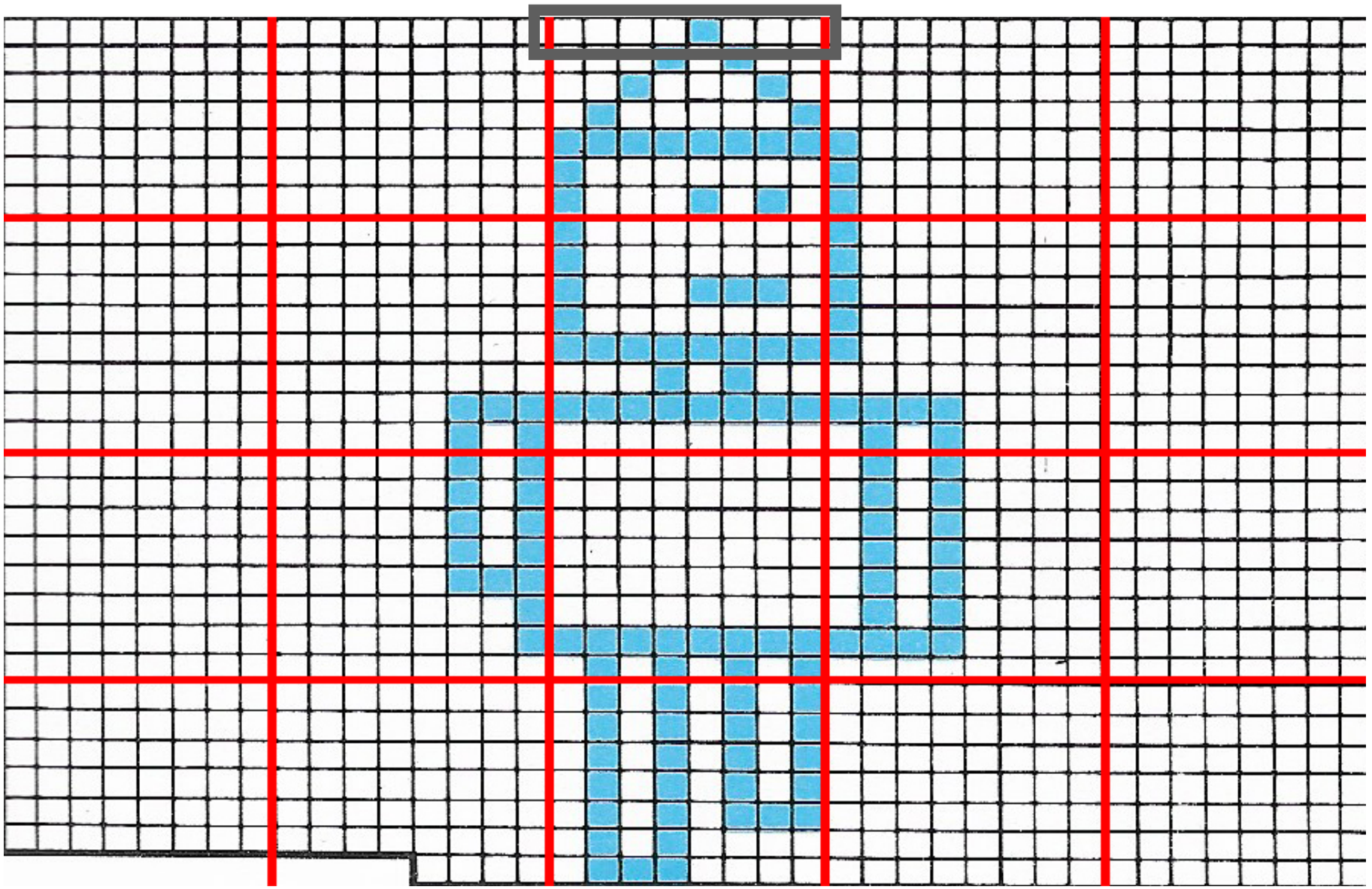
Z80 Machine Code



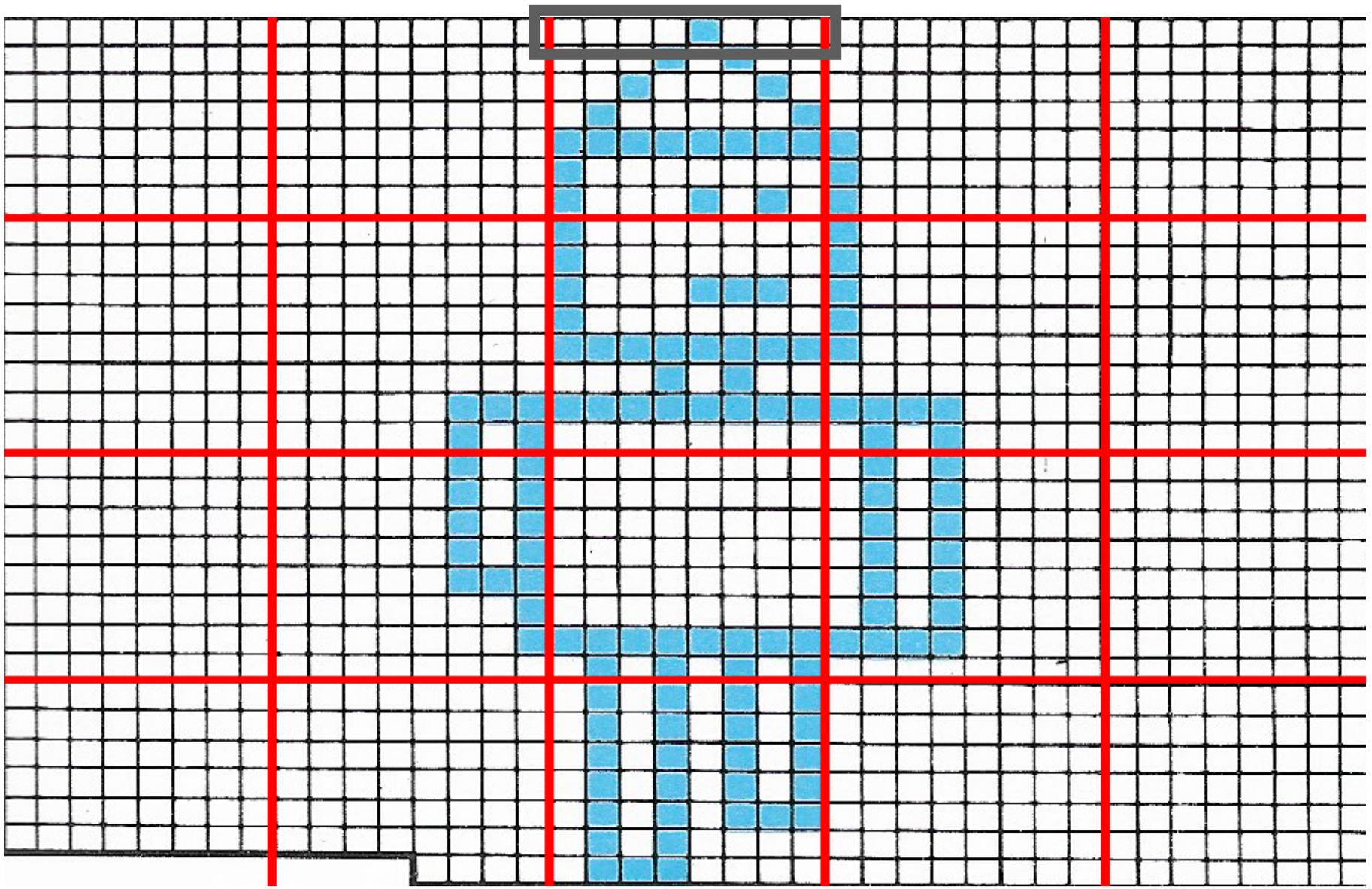

```
ORG     0000H
LD      A,55H
LD      IX,2000H
LD      BC,01FFH

ORG     0009H
LD      (IX+00),A
INC     IX
DEC     BC
EX      AF,AF'
LD      A,00H
CP      B
JP      NZ,0026H

CP      C
JP      NZ,0026H
LD      HL,2000H
LD      DE,3000H
LD      BC,01FFh
LDIR
HALT

ORG     0026H
EX      AF,AF'
JP      0009H
END
```

SCREEN MEMORY ADDRESSES
16,384 (top left byte on screen)

VALUE STORED AT THAT ADDRESS
00001000 = 8



SCROLLING UP/DOWN = COPYING BYTES TO ADDRESSES ABOVE/BELOW



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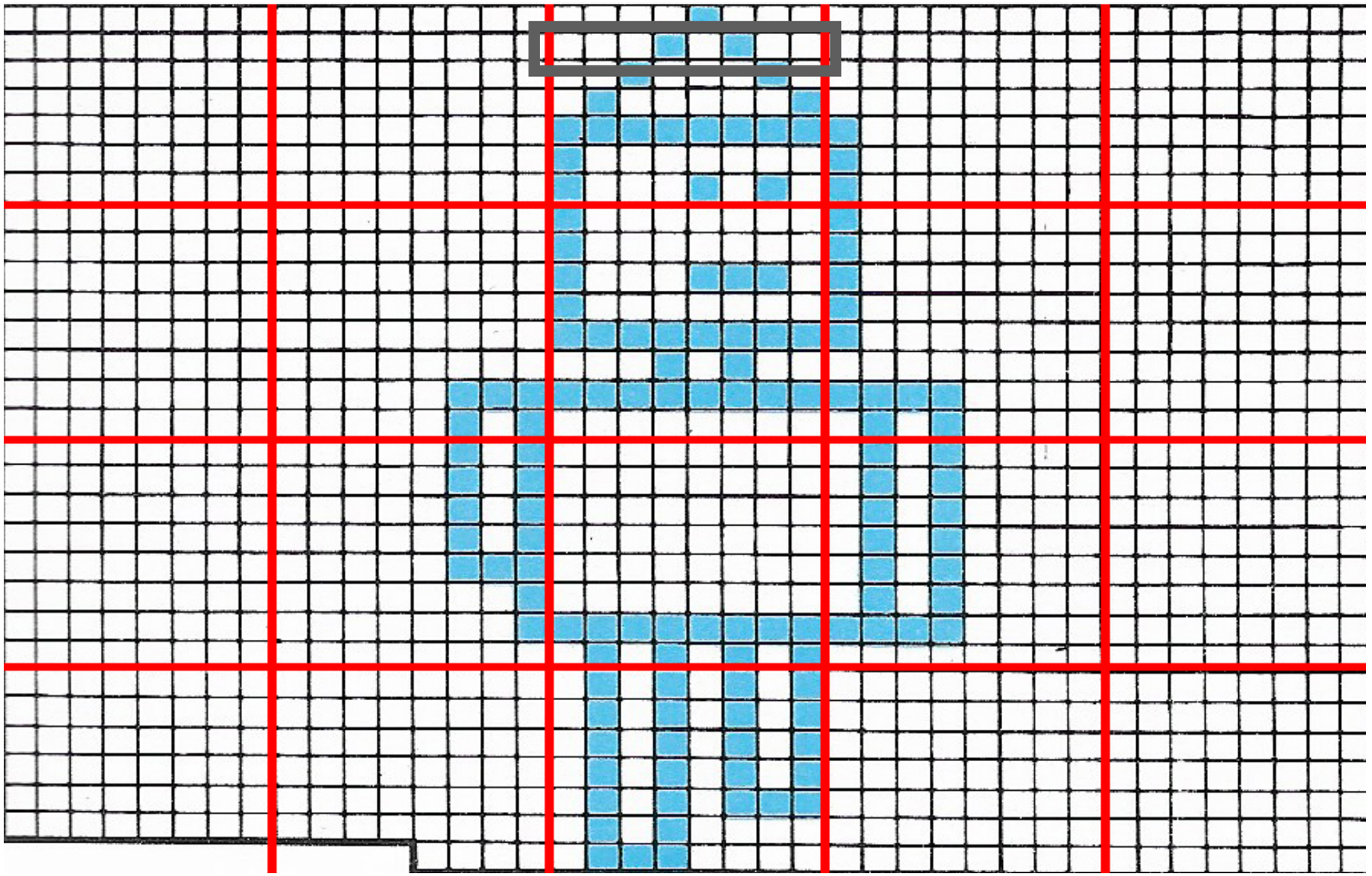
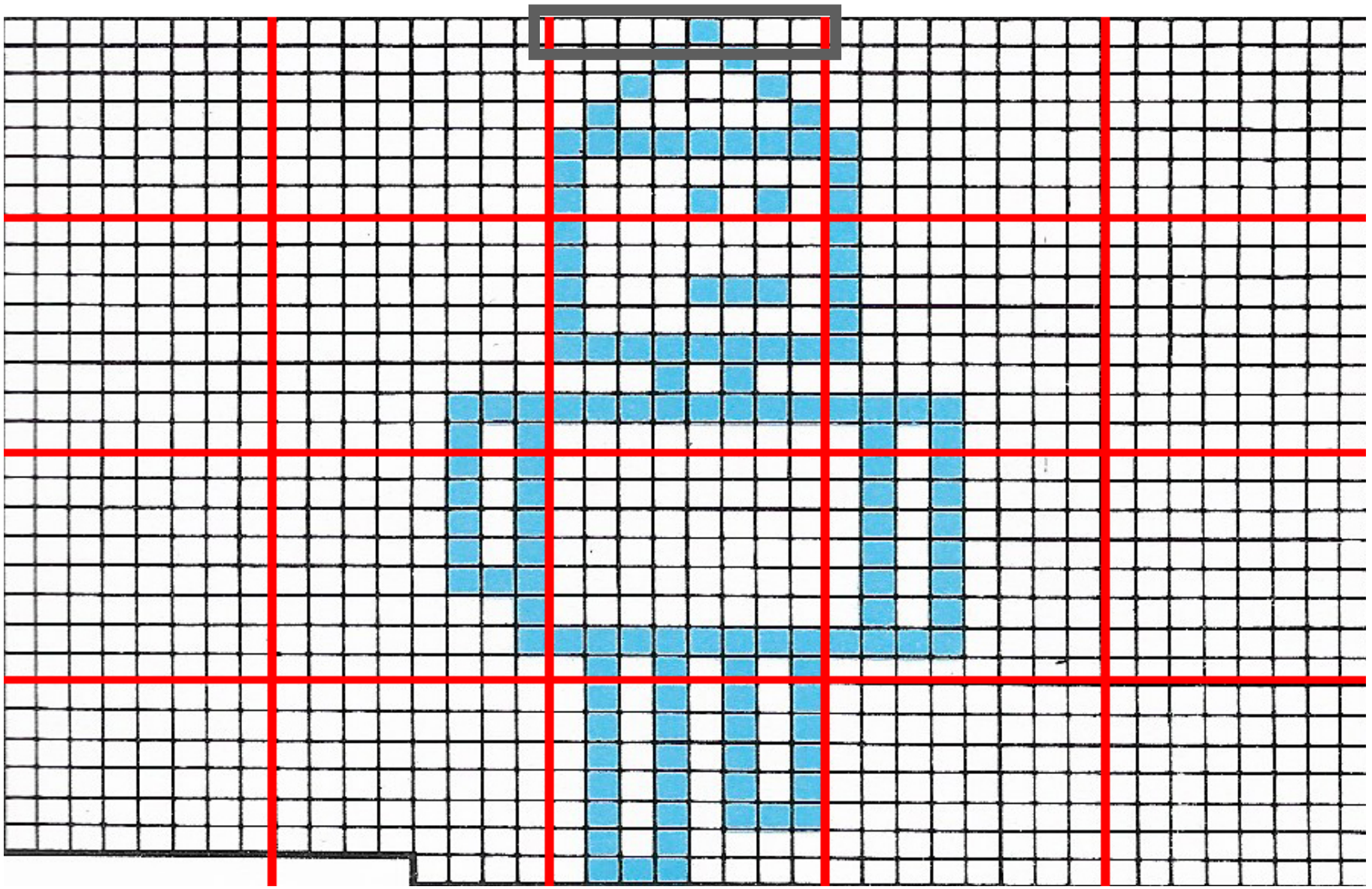
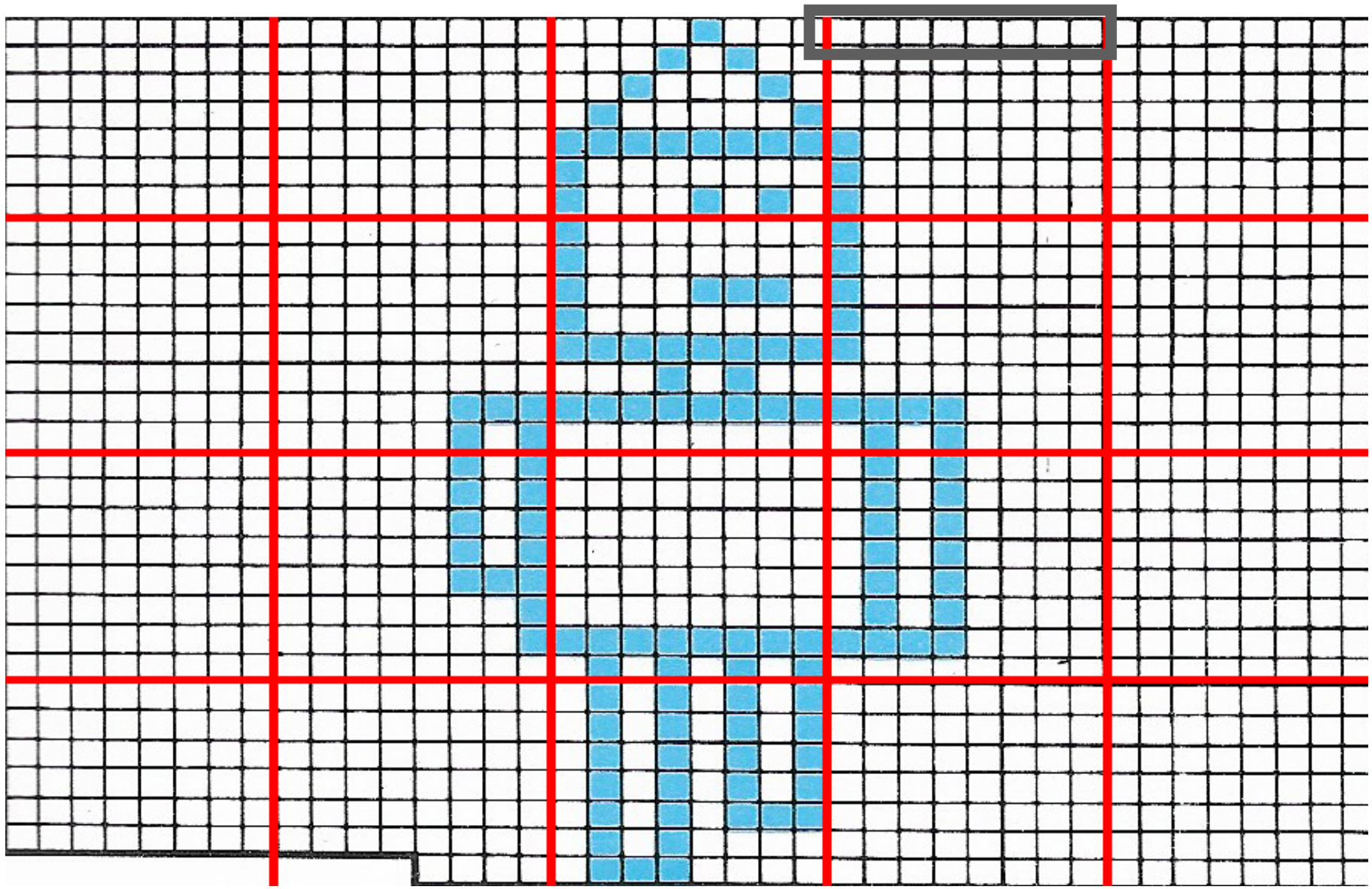


SCROLLING LEFT/RIGHT = ROTATING BITS & CARRYING OVER



SCROLLING LEFT/RIGHT = ROTATING BITS & CARRYING OVER



Instruction	Timing Z80
ADC A,(HL)	7
ADC A,(IX+o)	19
ADC A,(IY+o)	19
ADC A,n	7
ADC A,r	4
ADC A,IXp	8
ADC A,IYq	8
ADC HL,BC	15
ADC HL,DE	15
ADC HL,HL	15
ADC HL,SP	15
ADD A,(HL)	7
ADD A,(IX+o)	19
ADD A,(IY+o)	19
ADD A,n	7
ADD A,r	4
ADD A,IXp	8
ADD A,IYq	8
ADD HL,BC	11
ADD HL,DE	11
ADD HL,HL	11
ADD HL,SP	11
ADD IX,BC	15
ADD IX,DE	15
ADD IX,IX	15
ADD IX,SP	15
ADD IY,BC	15
ADD IY,DE	15
ADD IY,IY	15
ADD IY,SP	15
AND (HL)	7
AND (IX+o)	19
AND (IY+o)	19
AND n	7
AND r	4
AND IXp	8
AND IYq	8
BIT b,(HL)	12
BIT b,(IX+o)	20
BIT b,(IY+o)	20
BIT b,r	8
CALL nn	17
CALL C,nn	17/10
CALL M,nn	17/10
CALL NC,nn	17/10
CALL NZ,nn	17/10
CALL P,nn	17/10
CALL PE,nn	17/10
CALL PO,nn	17/10
CALL Z,nn	17/10
CCF	4
CP (HL)	7
CP (IX+o)	19
CP (IY+o)	19
CP n	7
CP r	4
CP IXp	8
CP IYq	8
CPD	16
CPDR	21/16

Instruction	Timing Z80
LD (nn),A	13
LD (nn),BC	20
LD (nn),DE	20
LD (nn),HL	16
LD (nn),IX	20
LD (nn),IY	20
LD (nn),SP	20
LD A,(BC)	7
LD A,(DE)	7
LD A,(HL)	7
LD A,(IX+o)	19
LD A,(IY+o)	19
LD A,(nn)	13
LD A,n	7
LD A,r	4
LD A,IXp	8
LD A,IYq	8
LD A,I	9
LD A,R	9
LD B,(HL)	7
LD B,(IX+o)	19
LD B,(IY+o)	19
LD B,n	7
LD B,r	4
LD B,IXp	8
LD B,IYq	8
LD BC,(nn)	20
LD BC,nn	10
LD C,(HL)	7
LD C,(IX+o)	19
LD C,(IY+o)	19
LD C,n	7
LD C,r	4
LD C,IXp	8
LD C,IYq	8
LD D,(HL)	7
LD D,(IX+o)	19
LD D,(IY+o)	19
LD D,n	7
LD D,r	4
LD D,IXp	8
LD D,IYq	8
LD DE,(nn)	20
LD DE,nn	10
LD E,(HL)	7
LD E,(IX+o)	19
LD E,(IY+o)	19
LD E,n	7
LD E,r	4
LD E,IXp	8
LD E,IYq	8
LD H,(HL)	7
LD H,(IX+o)	19
LD H,(IY+o)	19
LD H,n	7
LD H,r	4
LD HL,(nn)	16
LD HL,nn	10
LD I,A	9

Instruction	Timing Z80
DEC D	4
DEC DE	6
DEC E	4
DEC H	4
DEC HL	6
DEC IX	10
DEC IY	10
DEC IXp	8
DEC IYq	8
DEC L	4
DEC SP	6
DI	4
DJNZ o	13/8
EI	4
EX (SP),HL	19
EX (SP),IX	23
EX (SP),IY	23
EX AF,AF'	4
EX DE,HL	4
EXX	4
HALT	4
IM 0	8
IM 1	8
IM 2	8
IN A,(C)	12
IN A,(n)	11
IN B,(C)	12
IN C,(C)	12
IN D,(C)	12
IN E,(C)	12
IN H,(C)	12
IN L,(C)	12
IN F,(C)	12
INC (HL)	11
INC (IX+o)	23
INC (IY+o)	23
INC A	4
INC B	4
INC BC	6
INC C	4
INC D	4
INC DE	6
INC E	4
INC H	4
INC HL	6
INC IX	10
INC IY	10
INC IXp	8
INC IYq	8
INC L	4
INC SP	6
IND	16
INDR	21/16
INI	16
INIR	21/16
JP nn	10
JP (HL)	4
JP (IX)	8
JP (IY)	8

T-States = Speed!

First Paid Game!

1980

1981

1982

1983

1984

1985

1986

1987

1988

1989

512K

1980

1981

1982

1983

1984

1985

1986

1987

1988

1989

Attention To Detail is founded

Rise of US / JAPAN Decline of UK

1990	TurboGrafx CD	Super Famicom	Neo-Geo	Game Gear	TurboExpress	Amstrad GX4000				
1991	Super Nintendo	Lynx II	Turbo Duo	Mega-CD						
1992	Sega CD	Philips CD-i								
1993	Jaguar	3DO	Amiga CD32	Super Famicom	Famicom AV	Mega Drive 2	Mega-CD 2			
1994	GoldStar 3DO	Genesis II	Sega CD 2	32X	Saturn	CDX	PlayStation	Virtual Boy	Neo-Geo CD	Saturn
1995	PlayStation	Sega Saturn	Jaguar CD	Nomad	Marty	Playdia				
1996	Nintendo 64	Game Boy Pocket	Pippin Atmark							
1997	Tiger game.com	Color Game Boy	Super Nintendo Top Loader	Super Famicom						
1998	Genesis 3	Neo-Geo Pocket	Dreamcast	Game Boy Light	Game Boy Color					
1999	Dreamcast	Neo-Geo Pocket Color	Wonderswan							

US UK JAPAN

1990	NEC TurboGrafx CD	Nintendo Super Famicom	SNK Neo·Geo Advanced Entertainment System	Sega Game Gear Portable Video Game System	NEC TurboExpress	Amstrad GX4000				
1991	Super Nintendo	Atari Lynx II	NEC Turbo Duo	Sega Mega-CD						
1992	Sega CD	Philips CD-i								
1993	Atari Jaguar	Panasonic 3DO Interactive Multiplayer	Amiga CD32	Nintendo Entertainment System Top Loader System	Nintendo Family Computer AV	Sega Mega Drive 2	Sega Mega-CD 2			
1994	GoldStar Panasonic 3DO	Sega Genesis II	Sega CD 2	Sega 32X	Sega Saturn	Genesis CDX	Sony PlayStation	Nintendo Virtual Boy	SNK Neo·Geo CD	Sega 32X
1995	Sony PlayStation	Sega Saturn	Atari Jaguar CD Multimedia Player	Sega Nomad	FM Towns Marty	Bandai Playdia				
1996	Nintendo 64	Nintendo Game Boy Pocket	Bandai Pippin atmark							
1997	Tiger game.com	Nintendo Color Game Boy	Super Nintendo Top Loader	Nintendo Super Famicom Top Loader System						
1998	Genesis 3	SNK Neo Geo Pocket	Sega Dreamcast	Nintendo Game Boy Light	Nintendo Game Boy Color					
1999	Sega Dreamcast	SNK Neo Geo Pocket Color	Bandai Electronics WonderSwan							

3D

1989										
1990										
1991										
1992										
1993										
1994										
1995										
1996										
1997										
1998										
1999										

3D

1989

konix MULTI·SYSTEM
EXPERIENCE THE REALITY

NEWS

KONIX HERE AT LA

The long-awaited addition to the swelling consoles market has just about arrived. From October, the Konix Multisystem, which could possibly be the best home games machine yet, will be in stores across the nation priced at just over £200. Paul had a Glancey at the machine...

INCREDIBLE SPEC

On paper at least, the Konix wipes the floor with every other console, and some of its features even put the wind up powerful 16 bit home computers such as the Amiga and ST. Check out the specifications box below and you'll see that for the price, it's technical specification is outstanding.

State of the art custom circuitry put the Multisystem's graphics and sound capabilities beyond even the Amiga. Like the Amiga, the Konix has a Blitter chip which can shift large graphics around the screen at speed, but unlike the Amiga, the Konix hardware can mix sprites and vector graphics with equal ease making it even more flexible from the programmers' point of view.

The machine is equally well catered for sonically. The audio hardware provides high quality 25 channel stereo sonics on a par with Yamaha's DX-7 synth! Of course you can listen to the Konix through the TV, or, even better, you can plug headphones or a stereo amplifier straight into the jack socket on the back of the machine.

SHAKE, RATTLE AND ROLL

What puts the Konix Multisystem even further ahead of the field are its vast range of control options. A micro-switched Konix Navigator joystick comes with the package, but even more exciting is the innovative analogue steering controller which can adapt itself to suit three different game types.

For burnin' up the highway on a motorbike, the controller can become a ing it the ability to shake in your hands should you drive over rough ground or nose-dive into a runway.

However you configure the controller, two independent fire buttons always fall easily under your thumbs and on the right of the console, there's an analogue lever which can double up as a throttle or a gear shift, or indeed anything else Konix programmers can dream up.

NOT THE COMFY CHAIR

Other hardware add-ons on the horizon include a light gun with recoil action and rapid fire machine gun mode, which will sell for around £40, and the much heralded Space Harrier-style hydraulic chair. This luxury item will cost just over £200, but should be the most fun piece of hardware ever devised for a home system. There are even plans for a plug-in exercise bike for fitness-conscious gamers to ride into the sun- set. Who says computer games are bad for your health?

launch at least 20 titles alongside the machine when it is released. Here we have pictures of Last Ninja II from System 3 and Star Ray from Logotron - two conversions, both of which easily match their home computer counterparts in quality.

At the moment there's no news of any arcade conversions for the machine - strange really, considering its specifications it sounds an ideal machine to convert coin-ops to.

Konix software will come on pirate-proof 3.5" 880K disks which just slot into the built-in drive, as well as cartridge, and will cost between £15 and £20. If the Multisystem gets the soft-

▲ Hammerfist by Visual Images

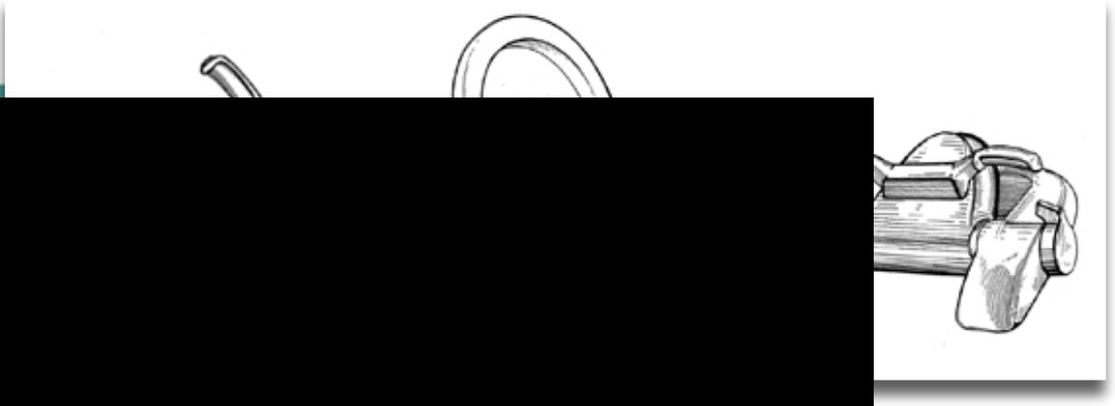
▼ The Multisystem unit in steer 'n' go mode.

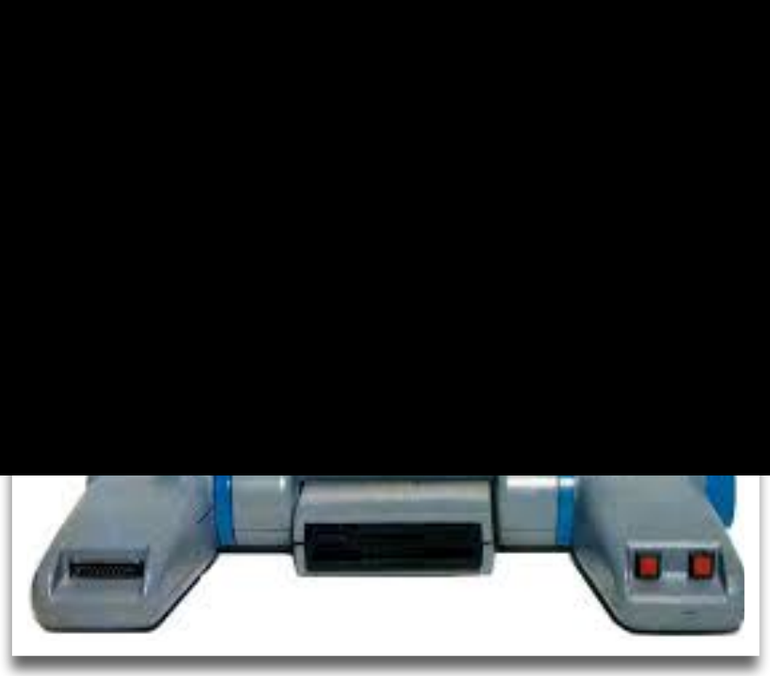
MULTISYSTEM SPECIFICATIONS

ON-BOARD MEMORY 256K
GRAPHICS RESOLUTION OF 512X200 PIXELS
COLOUR PALETTE 4,096 COLOURS
SOUND 25-CHANNEL STEREO CD QUALITY SOUND
DISPLAY OUTPUT STANDARD TV OR RGB COMPOSITE VIDEO
SOUND OUTPUT VIA TV OR THROUGH STEREO HEADPHONE SOCKET
SOFTWARE FORMAT CU
EXPANSION CARTRIDGE

1989

konix MULTI·SYSTEM
EXPERIENCE THE REALITY





1989

konix MULTI·SYSTEM
EXPERIENCE THE REALITY

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The machine is equally well catered for sonically. The audio hardware provides high quality 25 channel stereo sonics on a par with Yamaha's DX-7 synth! Of course you can listen to the Konix through the TV, or, even better, you can plug headphones or a stereo amplifier straight into the jack socket on the back of the machine.

SHAKE, RATTLE AND ROLL

What puts the Konix Multisystem even further ahead of the field are its vast range of control options. A micro-switched Konix Navigator joystick comes with the package, but even more exciting is the innovative analogue steering controller which can adapt itself to suit three different game types.

For burnin' up the highway on a motorbike, the controller can become a ing it the ability to shake in your hands should you drive over rough ground or nose-dive into a runway.

However you configure the controller, two independent fire buttons always fall easily under your thumbs and on the right of the console, there's an analogue lever which can double up as a throttle or a gear shift, or indeed anything else Konix programmers can dream up.

NOT THE COMFY CHAIR

Other hardware add-ons on the horizon include a light gun with recoil action and rapid fire machine gun mode, which will sell for around £40, and the much heralded Space Harrier-style hydraulic chair. This luxury item will cost just over £200, but should be the most fun piece of hardware ever devised for a home system. There are even plans for a plug-in exercise bike for fitness-conscious gamers to ride into the sun- set. Who says computer games are bad for your health?

launch at least 20 titles alongside the machine when it is released. Here we have pictures of Last Ninja II from System 3 and Star Ray from Logotron two conversions, both of which match their home computer parts in quality.

At the moment there's no news of any arcade conversions for the machine - strange really, considering its specifications it sounds an ideal machine to convert coin-ops to.

Konix software will come on pirate-proof 3.5" 880K disks which just slot

into the built-in drive cartridge, and will cost £20. If the

ATD's first published game!

1990

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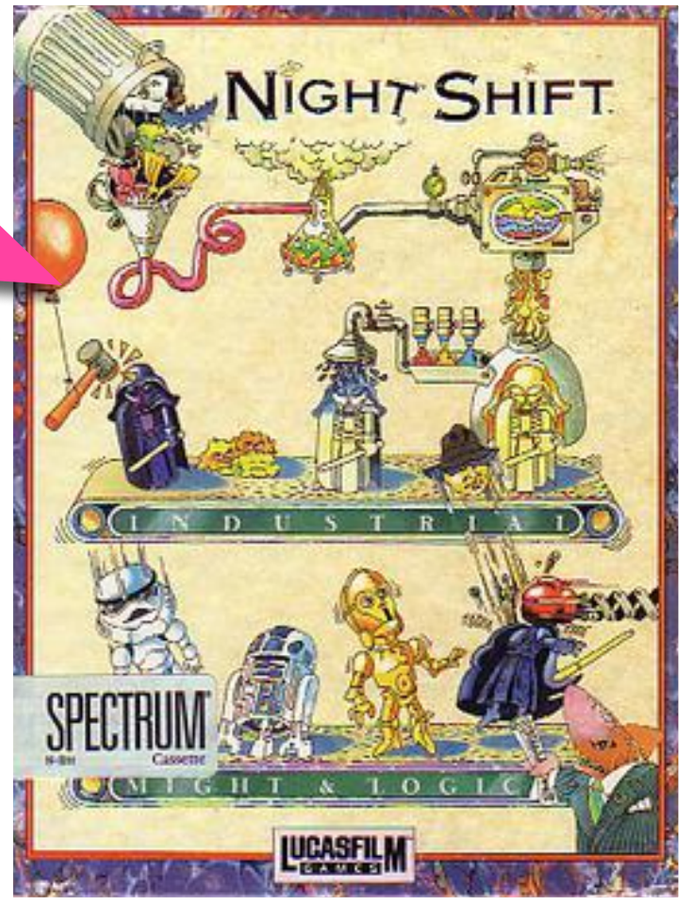

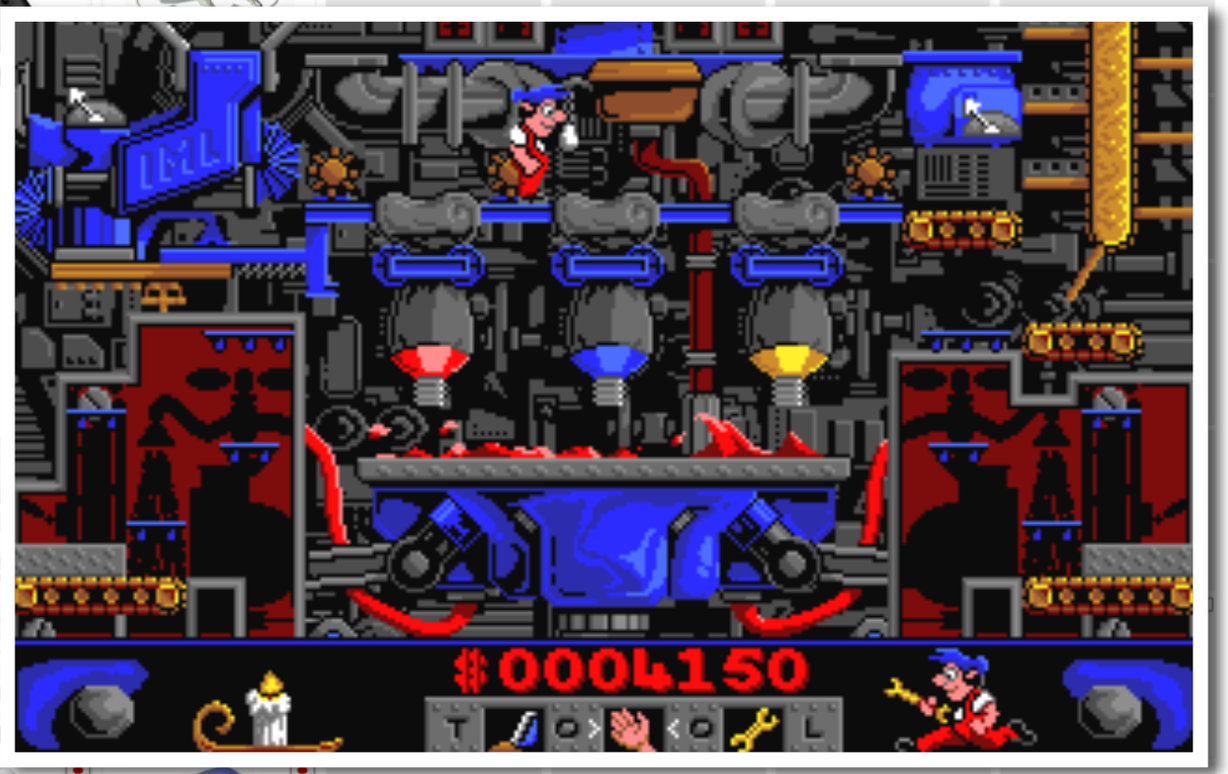

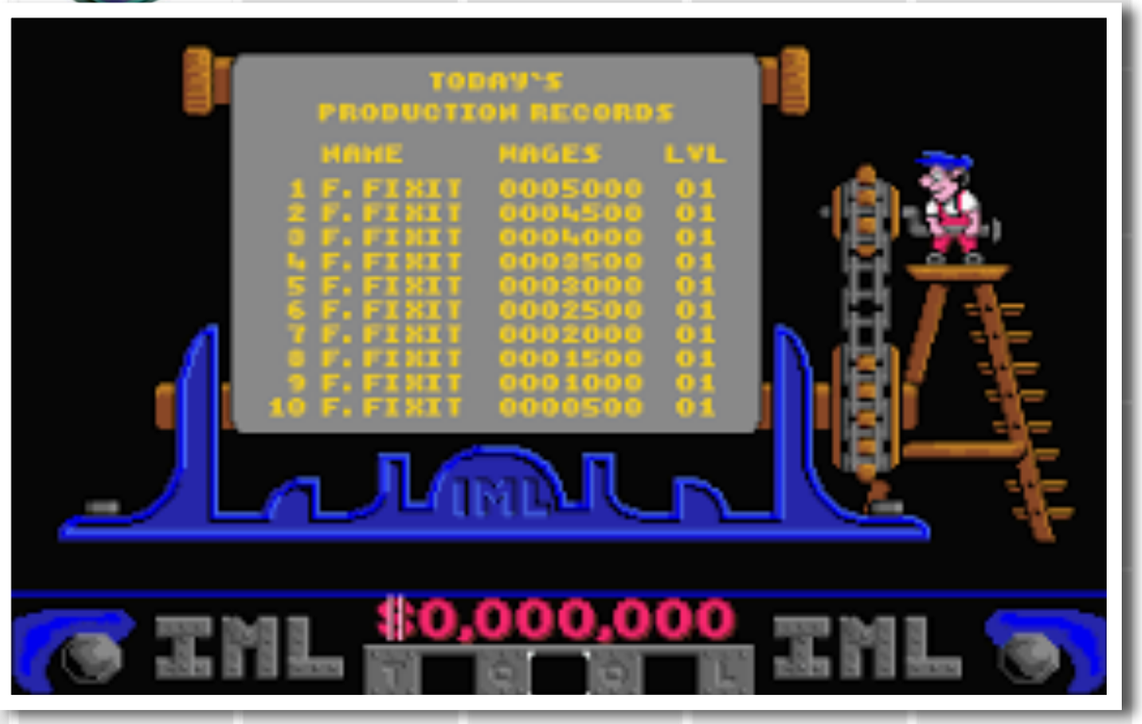

ATD's first game!

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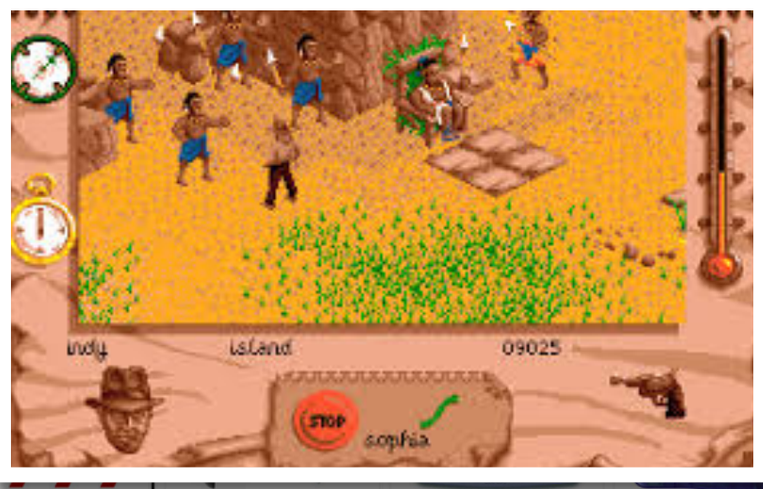

1990	NEC TurboGrafx CD	Nintendo Super Famicom	SNK Neo·Geo Advanced Entertainment System	Sega Game Gear Portable Video Game System	NEC TurboExpress	Amstrad GX4000				
1991	Super Nintendo	Atari Lynx II	NEC Turbo Duo	Sega Mega-CD						
1992	Sega CD	Philips CD-i								
1993	Atari Jaguar	Panasonic 3DO Interactive Multiplayer	Amiga CD32	Nintendo Entertainment System Top Loader System	Nintendo Family Computer AV	Sega Mega Drive 2	Sega Mega-CD 2			
1994	GoldStar Panasonic 3DO	Sega Genesis II	Sega CD 2	Sega 32X	Sega Saturn	Genesis CDX	Sony PlayStation	Nintendo Virtual Boy	SNK Neo·Geo CD	Sega 32X
1995	Sony PlayStation	Sega Saturn	Atari Jaguar CD Multimedia Player	Sega Nomad	FM Towns Marty	Bandai Playdia				
1996	Nintendo 64	Nintendo Game Boy Pocket	Bandai Pippin atmark							
1997	Tiger game.com	Nintendo Color Game Boy	Super Nintendo Top Loader	Nintendo Super Famicom Top Loader System						
1998	Genesis 3	SNK Neo Geo Pocket	Sega Dreamcast	Nintendo Game Boy Light	Nintendo Game Boy Color					
1999	Sega Dreamcast	SNK Neo Geo Pocket Color	Bandai Electronics WonderSwan							

3D

1990
NEC TURBOGRAFX CD
1991
SUPER NINTENDO
1992
SEGA CD
1993
JAGUAR
1994
GoldStar Panasonic 3DO
1995
SONY PlayStation
1996
NINTENDO 64
1997
TIGER game.com
1998
GENESIS 3
SNK NEOGEO POCKET
SEGA Dreamcast
Nintendo GAME BOY LIGHT
Nintendo GAME BOY COLOR
1999
SEGA Dreamcast
SNK NEOGEO POCKET COLOR
BANDAI ELECTRONICS WonderSwan
JAGUAR
64-BIT
INTERACTIVE MULTIMEDIA SYSTEM
OVER 50 NEW 64-BIT GAMES PREVIEWED!!
it's time for
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video games
ATARI
CYBERMORPH
JAGUAR
64-BIT
INTERACTIVE MULTIMEDIA SYSTEM
MEGA-POWER MAXIMUM VALUE
POWER KIT
ATARI

FRED GILL, BRIAN POLLOCK

GRAPHICS BY
CHRIS GIBBS, IAN HARLING, BJ WEST

SOUND BY
ANDREW HOLTOM, DAVE LOWE
TED TAHQUECHI

LEVELS AND TESTING BY
SHIMMY BRANDES, TOM GILLEN
HANS JACOBSEN, ANDREW KEIM
SEAN PATTEN, JOE SOUSA
TED TAHQUECHI, FARAN THOMASON

PRODUCED BY
JOHN SKROCH, SEAN PATTEN

Source: SCART
Input: NTSC
Output: 1920x1080@60Hz

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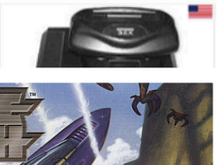
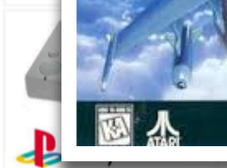
1994										
1995										
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1990	TurboGrafx CD	Super Famicom	NEO·GEO	Game Gear	TurboExpress	AMSTRAD GX4000				
1991	Super Nintendo	Lynx II	Turbo Duo	Mega-CD						
1992	SEGA CD	CD-i								
1993	Jaguar		AMIGA CD32			Mega Drive 2	Mega-CD			
1994							PlayStation	Virtual Boy	NEO·GEO CD	32X
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1996	N64	Game Boy Pocket								
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1999	Dreamcast	NEOGEO Pocket Color								

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