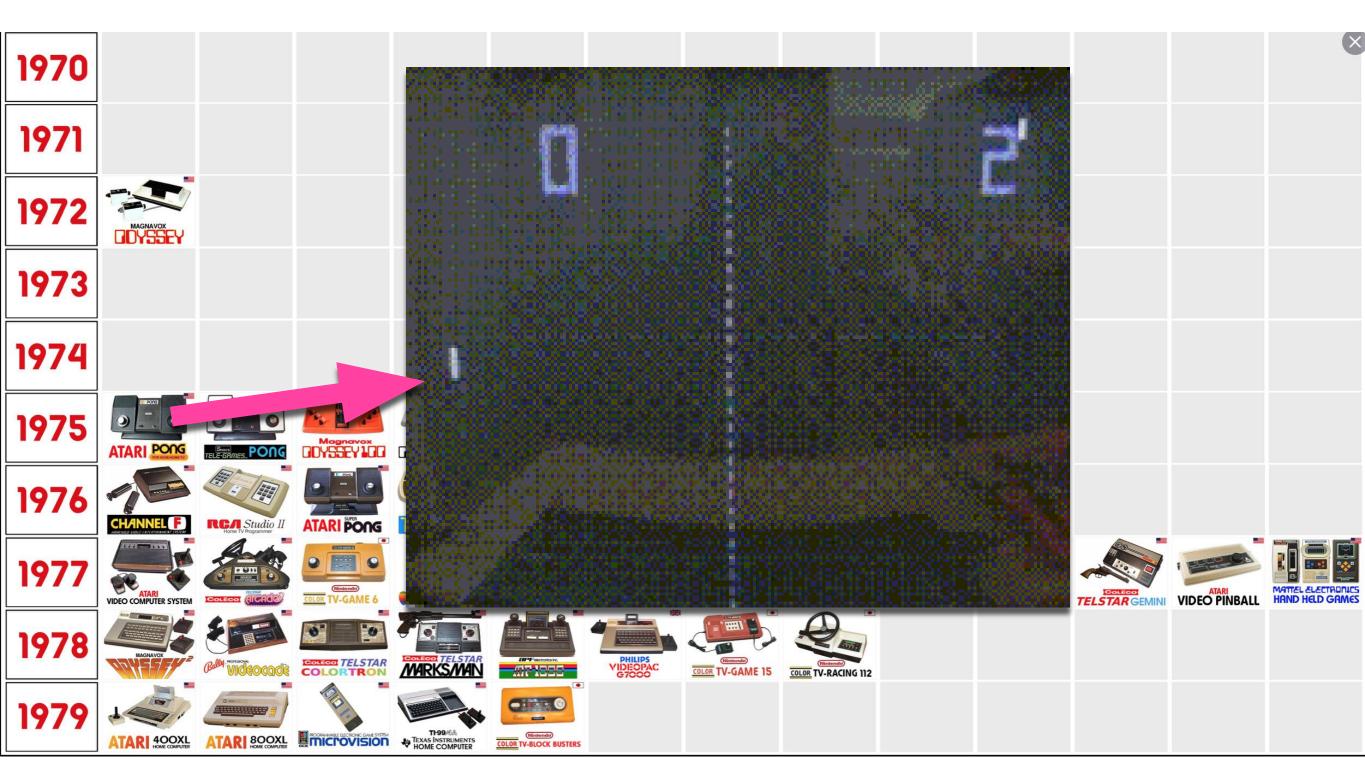
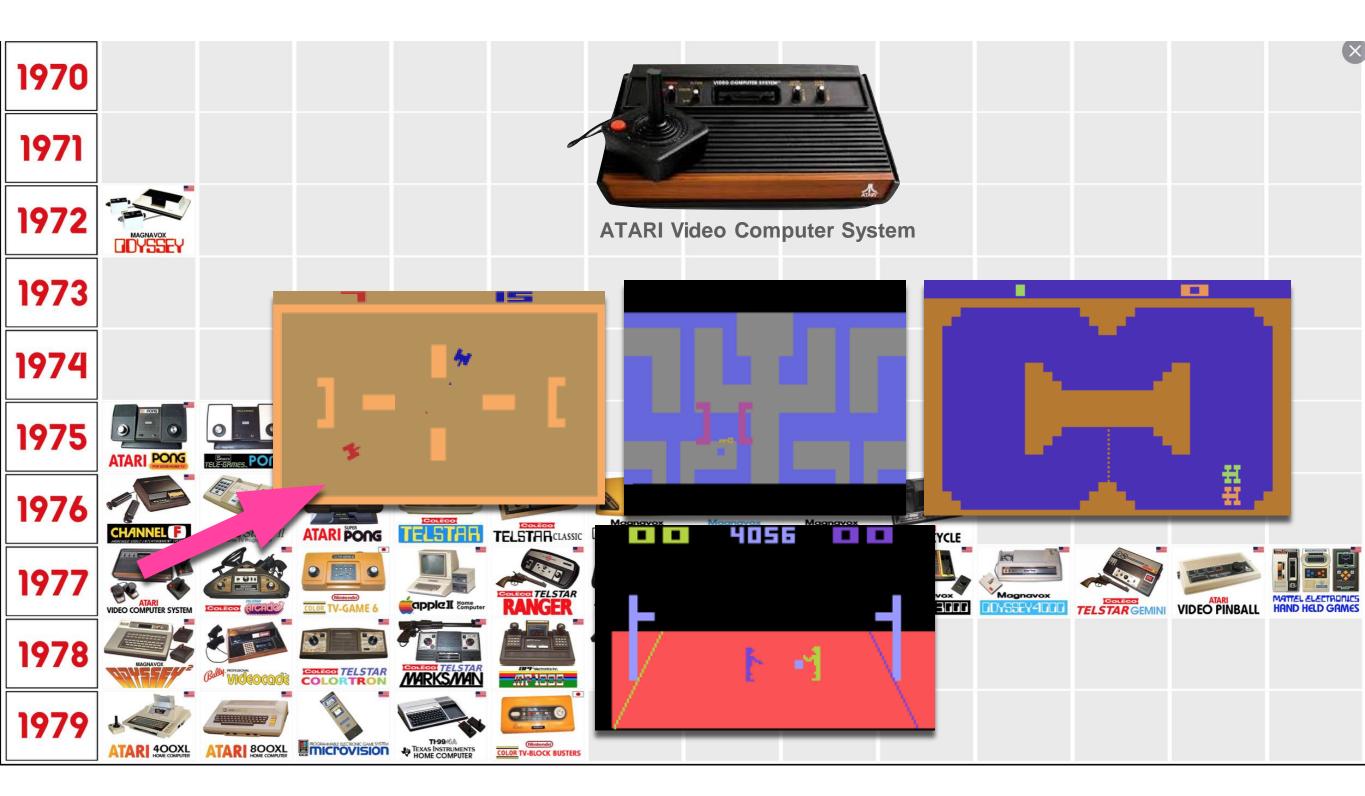
## **Before there were any Video Games**

1970													×
1971													
1972	MAGNAVOX DIDYSSEY												
1973													
1974													
1975	ATARI PONG	Sours PONG	Mesnevex ODYSSEY 100	ODYSŠEY ŽOD									
1976	CHANNEL (F)	REA Studio II Home TV Programmer	ATARI PONG	COLECO TELSTAR	TELSTARCLASSIC	Moonavox DDYSSEY 300	Mosnovox DDYSSEY400	Meanevex ODYSSEY 500	ATARI STUNT CYCLE				
1977	ATARI VIDEO COMPUTER SYSTEM	COLEON (IICAGO)	COLOR TV-GAME 6	apple II tome computer	COLICO TELSTAR RANGER	D Se t O	COLEGO COMBATI	Magnavex DDYSSEY 2000	Magnavox DYSSY2000	Magnavox	TELSTAR GEMINI	VIDEO PINBALL	MATTEL ELECTROPICS HAND HELD GAMES
1978	MAGNAVOX MAGNAVOX	Bolly Portugal Wideocods	COLORTRON	MARKS/MAN	FB*F-metrylahe.	PHILIPS VIDEOPAC G7000	COLOR TV-GAME 15	COLOR TV-RACING 112					
1979	ATARI 400XL	ATARI 800XL	microvision		(Bittende) COLOR TV-BLOCK BUSTERS								

### **Before there were any Video Games**







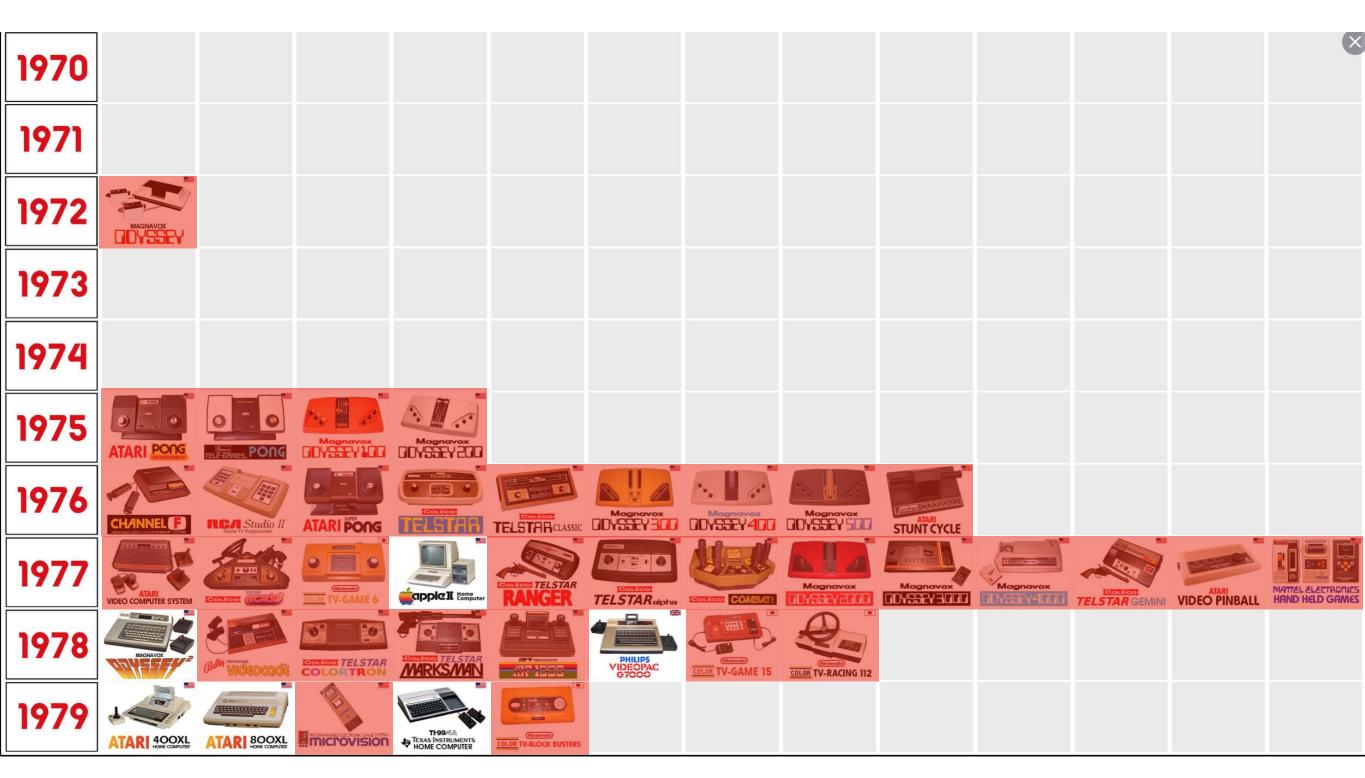






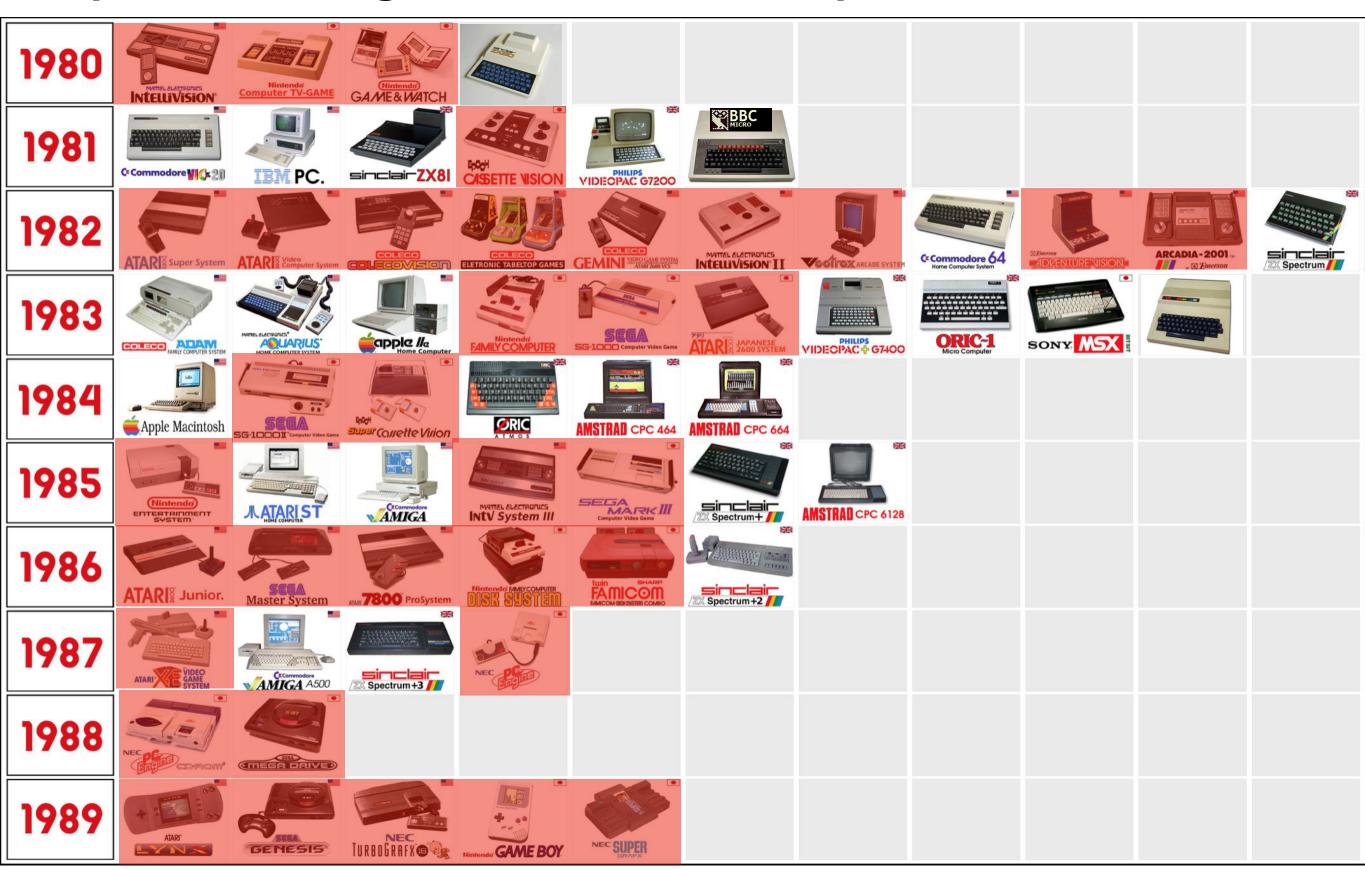


1970													×
1971													
1972	MAGNAVOX DDYSSEY												
1973													
1974													
1975	ATARI PONG	Sours PONG	Mosnevox ODYSSEY 100	Megnavex DDYSSEY200									
1976	CHANNEL F.	REA Studio II Hone IV Programmer	ATARI PONG	COLECO TELETAR	TELSTARCLASSIC	Magnavex DDYSSEY 300	Magnavox DDYSSEY 400	Mognovox ODYSSEY 500	ATARI STUNT CYCLE				
1977	VIDEO COMPUTER SYSTEM	COLECO (IICAGO	COLOR TV-GAME 6	apple II Home Computer	TELSTAR RANGER	TELSTAR alpha	COLECO COMBATA	Magnavex DDYSSEY 2000	Magnavox CDYSEYECC	Magnavox DVSSEV4000	TELSTAR GEMINI	VIDEO PINBALL	MATTEL ELECTRODICS HAND HELD GAMES
1978	MACHANIX	Boll Mideocods	COLORTRON	MARKS/MAN	BF-Frenchicans.	PHILIPS VIDEOPAC G7000	COLOR TV-GAME 15	COLOR TV-RACING 112					
1979	ATARI 400XL	ATARI 800XL	microvision	T199 (A) TEXAS INSTRUMENTS HOME COMPUTER	(Hintende)  COLOR TV-BLOCK BUSTERS								

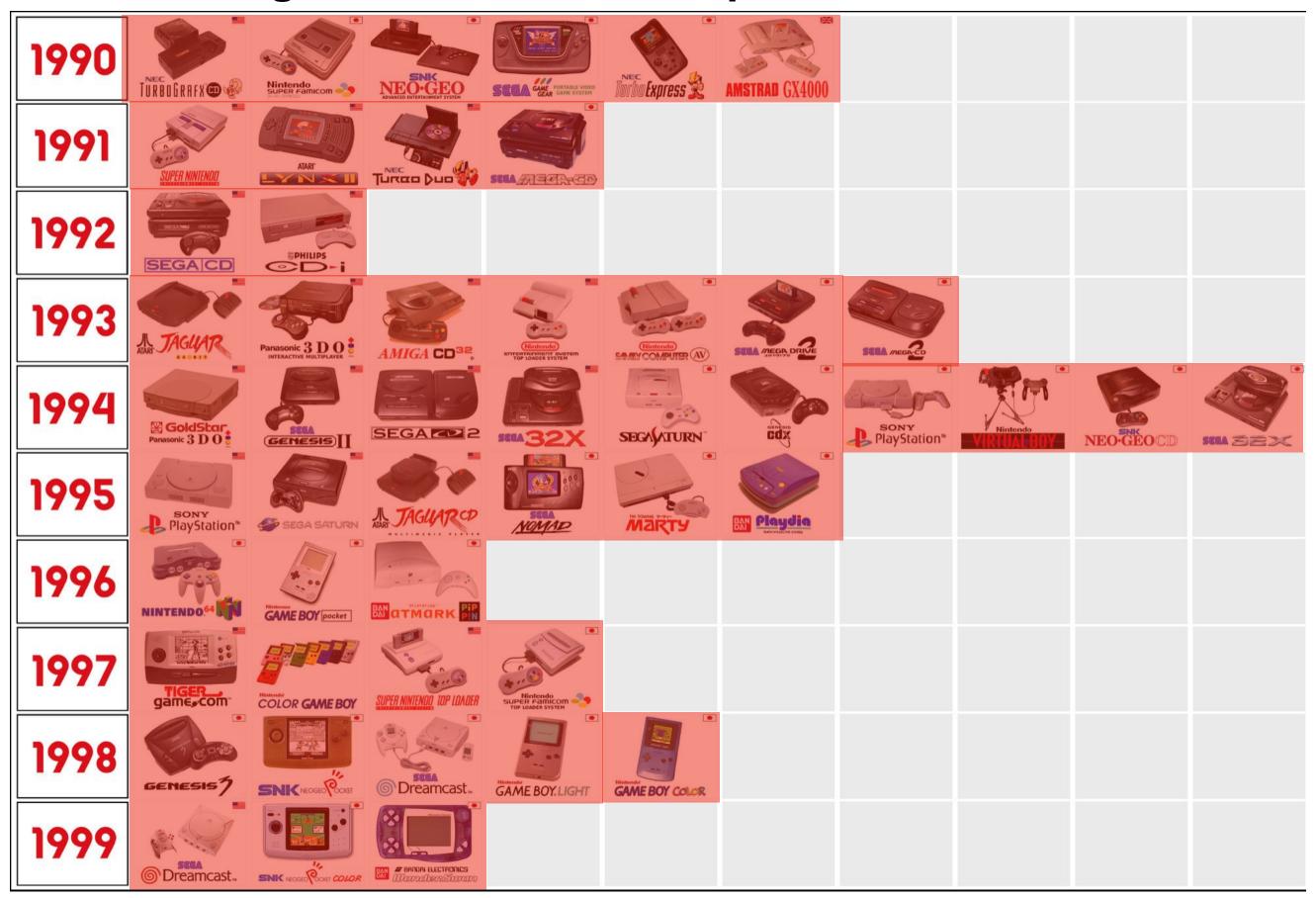




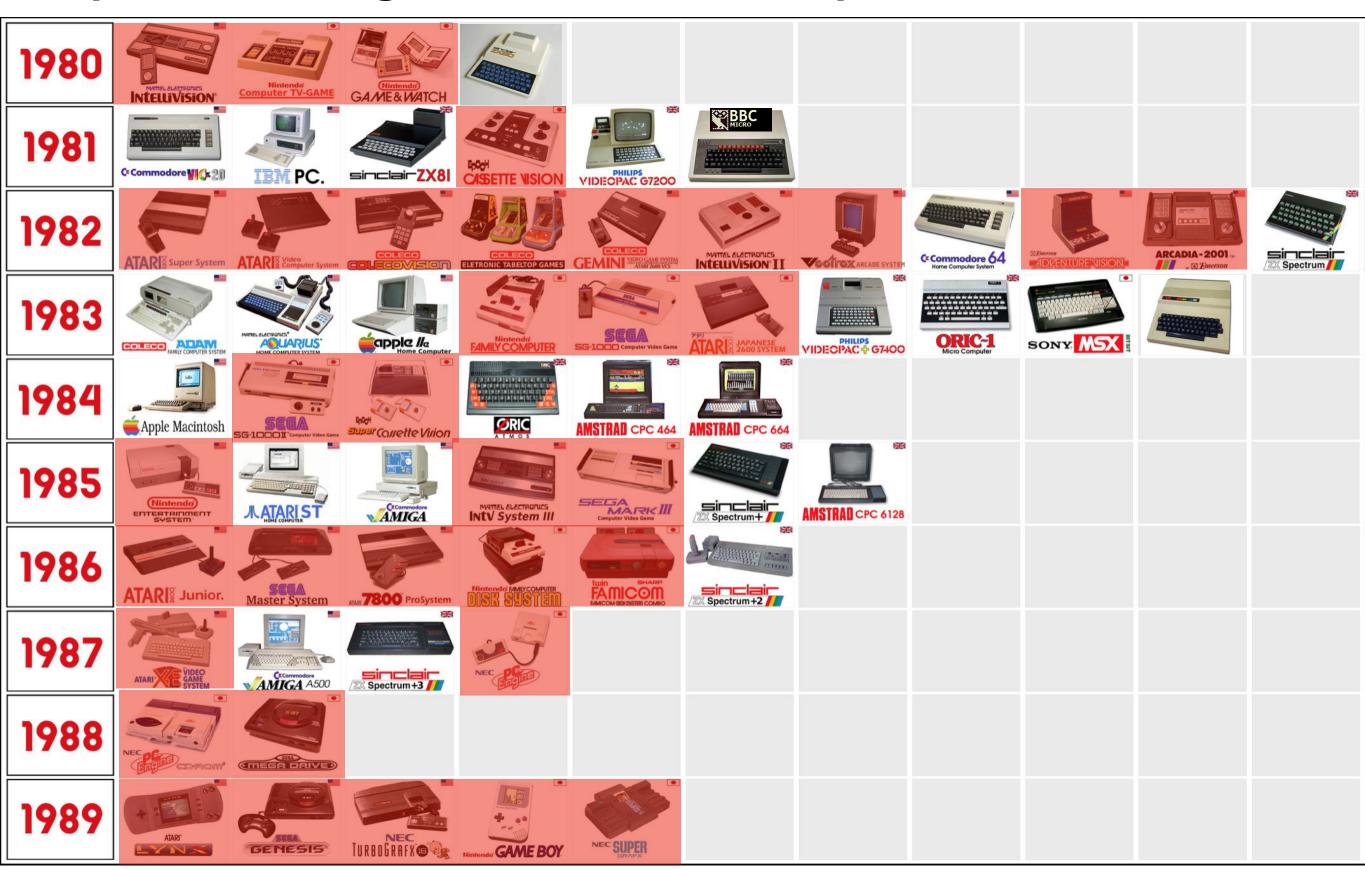
## **Explosion of Programmable Game Computers!**



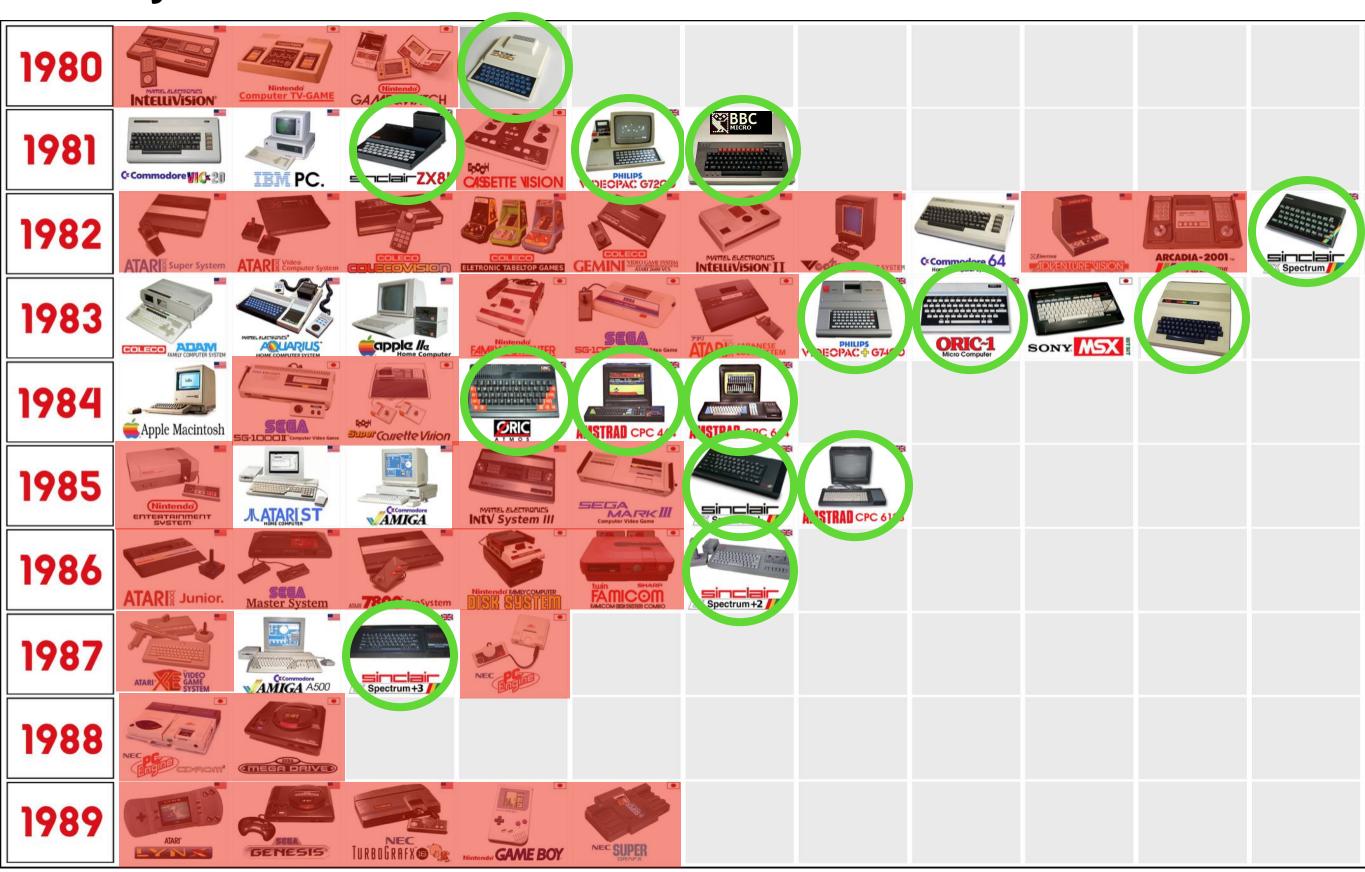
## No More Programmable Game Computers!



## **Explosion of Programmable Game Computers!**



## **Mostly British!**



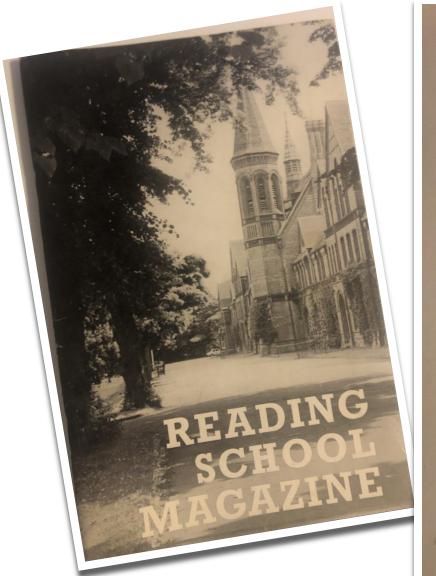
## My first computer WOW Moment



ARCADIA-2001 ... SONY **TAPE** RECORDE R! 



## **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

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 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.

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.

90 For Q = 1 to E

100 Input S \$ (O)

110 Input R (Q) 120 Input P (O)

130 Print S \$ (Q); Tab 10; R (Q); Tab 18; P (Q)

140 Let P(Q) = P(Q)/R(Q)If P(Q) < L then let L = P(Q)150 Print S \$ (F); "("; Int (P (F)/L x 100)/100; ")" 160 Go to (5 and E \$ = "Y") + (230 and E \$

### **School Yard Craze**



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#### SPECTRUM CLUB

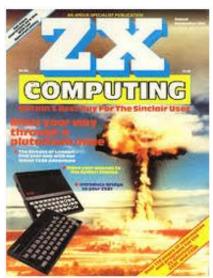
The summer term saw membership soaring to over thirty, although meetings were sporadic due to the combined intrusions of examinations and remission. A rota has been established and five people take it in turns to bring in their computers, allowing us to demonstrate programs and games on the lecture room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

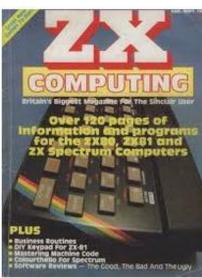
There is still room for increased numbers—all ZX Spectrum owners are invited to attend. We meet in the lecture room, after school on Fridays. Thanks go to Mr. Toone and Mr. Bacon for their invaluable help.

James Reid, Chris Gibbs

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

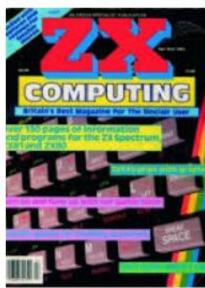
```
140 Let P(Q) = P(Q)/R(Q)
150 If P(Q) < L then let L = P(Q)
      For F = 1 70 E
Print S $ (F); "("; Int (P (F)/L x 100)/100; ")"
160 Next Q
200 Input E $ 210 Go to (5 and E $ = "Y") + (230 and E $ =
                          COLLECTOR'S CLU
```

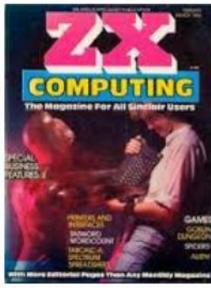


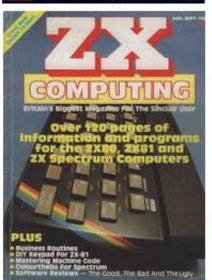




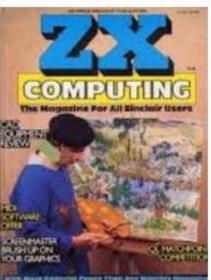
















**Would be Lumberjack Christopher Gibbs** sent us this challenging program from Reading Forest.

A program which is as addictive opher has created a game which is not only fast but fits in-16K with room for titles as

well! As can be inferred from the sthis and yet written in BASIC title, the game involves jumping a rare thing indeed, 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

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 ability type in this relatively short program — go on, hop to it!

#### **Program structure**

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

> 1 REM \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* \*Underlined characters\* \*are entered in \*GRAPHICS mode. \*\*\*\*\*\*\* 2 POKE 23658.8 3 PAPER Ø: INK 7: BORDER Ø: C

5 LET HOLE=0: LET game=0: DIM z(10): DIM ##(10,3) 10 GO SUB BOOD 12 LET SCORE=1000: LET dead=0

13 LET game=1 15 LET x=19: LET y=10 20 LET es-"8"

30 FOR m=31 TO 1 STEP -1

31 IF SCORE>1 THEN LET SCORE= SCORE-2

32 IF dead>Ø THEN LET dead=de ad-1: BEEP Ø. Ø5, -1Ø

40 PRINT INK 6; AT 5,0; a\$ (32-m TO );a\$( TO 32-m);AT 10,0; INK 3;6\$(m TO );6\$( TO m);AT 15,0; I

107

ZX COMPUTING OCTOBER/NOVEMBER 1984

16K SPECTRU NK 4;c\$(32-m TO );c\$( TO 32-m); INK 7;AT 28,8;d\$(m TO );d\$( TO m 43 IF dead>Ø THEN GO TO 55 45 IF m/2=INT (m/2) THEN LET 46 IF m/3=INT (m/3) THEN LET e\$=" @" 50 PRINT INK 6:AT x,y;" ";e#; 53 IF m/3=INT (m/3) THEN GO T 55 IF SCREEN\$ (x+1,y+1) = " TH 57 IF dead>0 THEN GO TO 100 EN 60 SUB 200 68 LET y=y+(INKEY\$=\*8\*)-(INKEY 85 IF y(Ø THEN LET y=29: PRIN 86 IF y>29 THEN LET y=g: PRIN TAT x, 291 " 98 IF INKEYS="8" THEN GO SUB 1000 100 INK 7: NEXT m: GO TO 30 288 REM FALL 218 IF x=19 THEN GO TO 300 228 FOR n=x+1 TO x+5: PRINT AT 220 FUK n=x+1 1U x+3; PKINI MI n,y+1; "H"; AT n-1,y+1; ": BEEP Ø .05,20-n: NEXT n 238 LET es="E": LET x=n-1; PRIN

T AT x,y+1;es: LET dead=D\*2: 240 IF SCREENS (x+1,y+1)=" EN GO TO 218

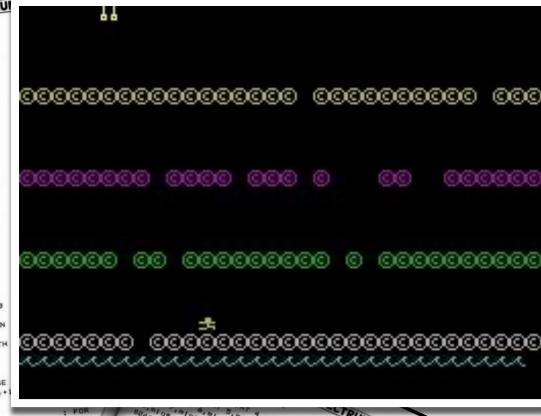
250 RETURN 300 PRINT AT 19, y+11 "H": PAUSE 2: PRINT AT 28, y+11 "H"; AT 19, y+1

305 BEEP 0.1,0 318 PRINT AT 28, y+11" 328 FOR n=y+1 TO 38: PRINT INK 51AT 21, n1 "E"1 INK 61 "E"; BEEP 8.85,38-n: NEXT n: PRINT INK 5; BRIGHT 11AT 21,311"E"

SCORE=Ø: GO TO 330 325 LET SCORE-INT (188\*(SCORE/1

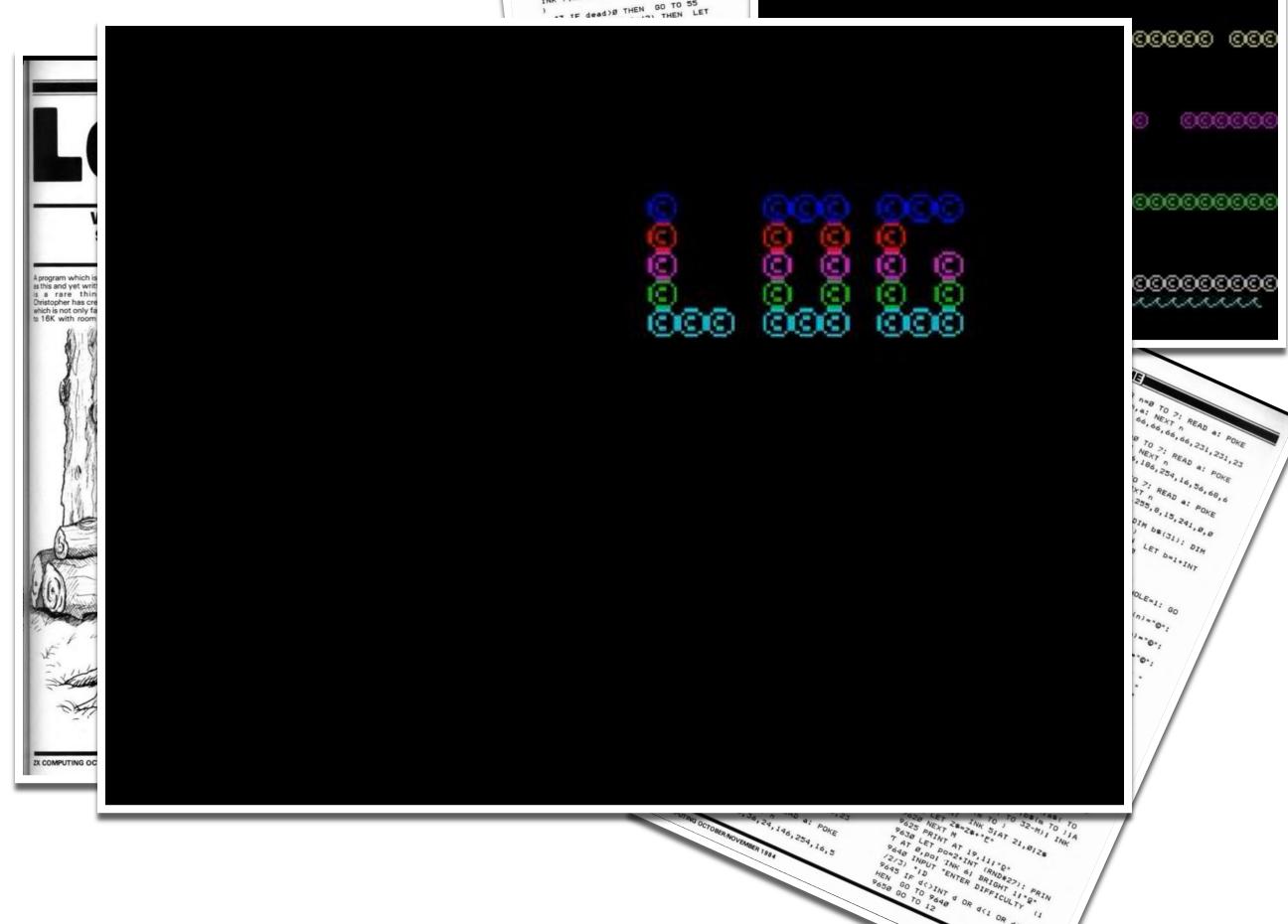
99911 AT 3,181" SCORE - 1SCORE

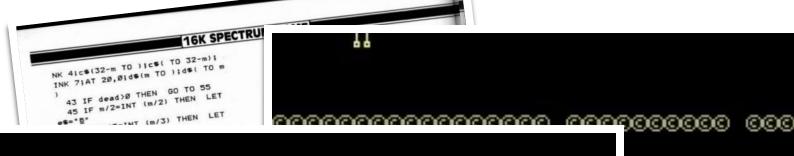
NKEYS (>13 THEN GO TO 348



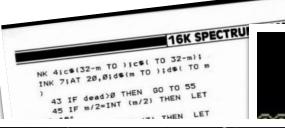




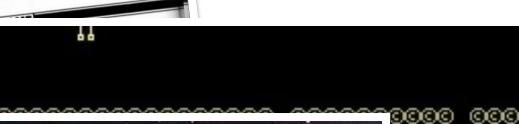








**Bios Files** 



000000000

90000000

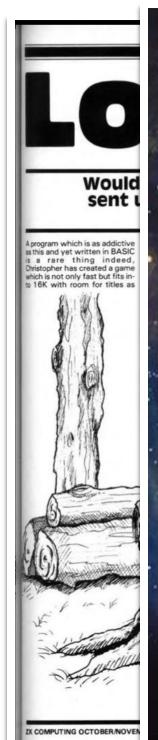
mm

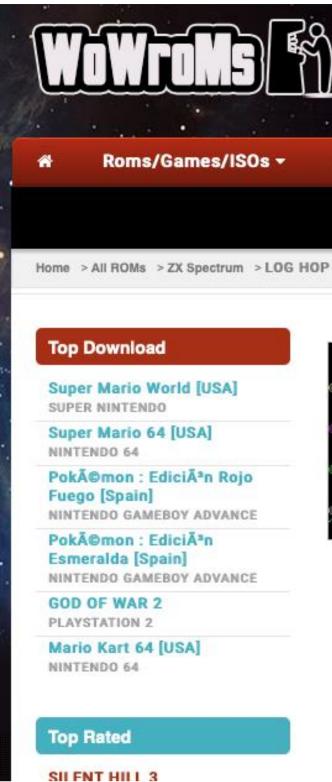
6,66,66,231,231,23

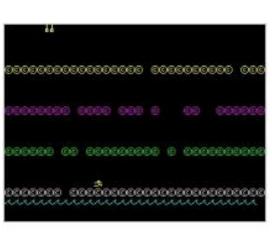
8,15,291,8,8

ET Dal+INT

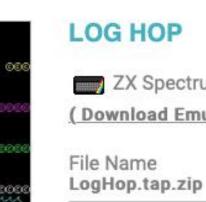
1: 60







Emulators ▼





File Size: 2,8 kb Similar Games Year: 1984

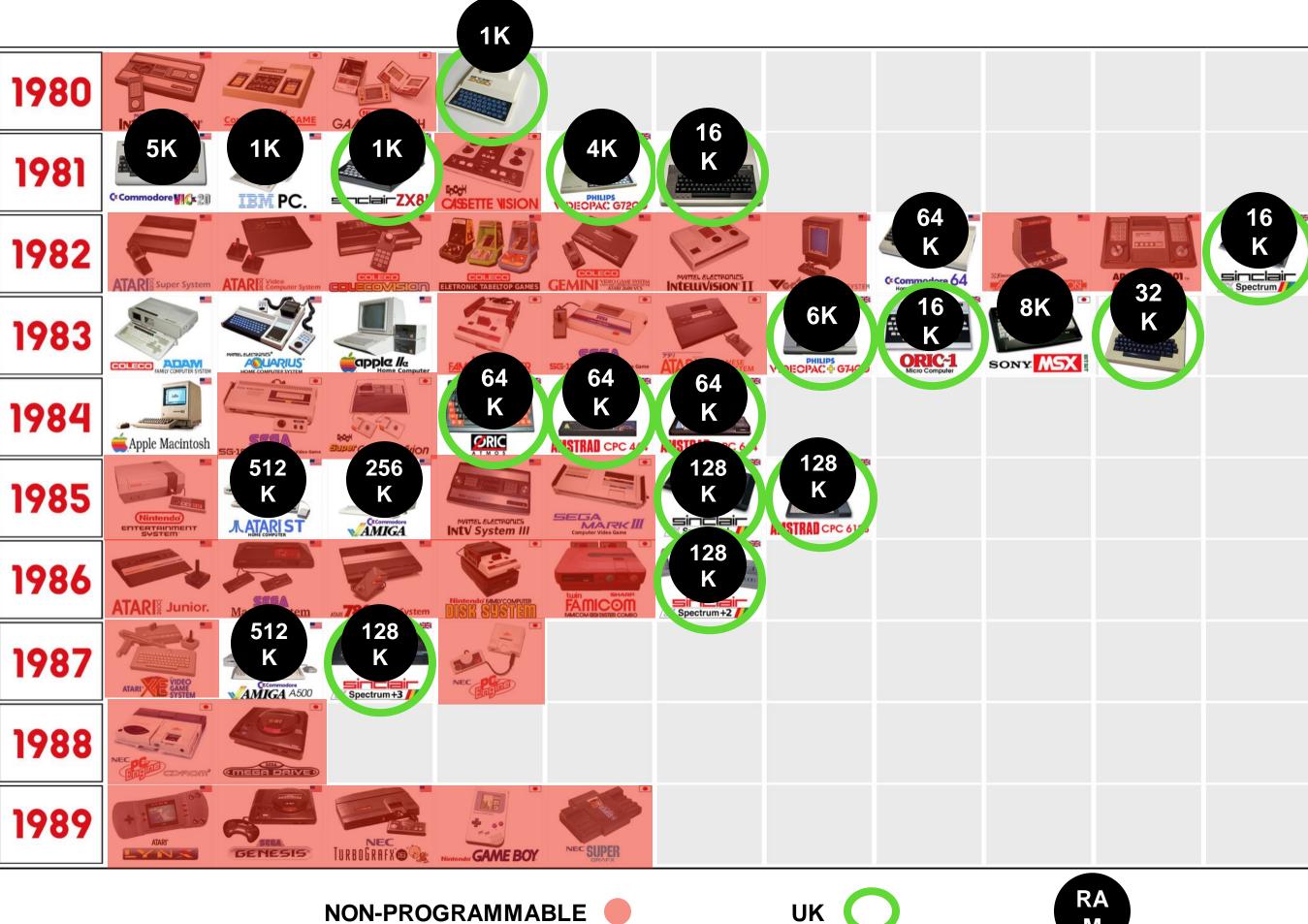
Region: Unknown

Genre:

Download: 20



**DOWNLOAD ROM** 





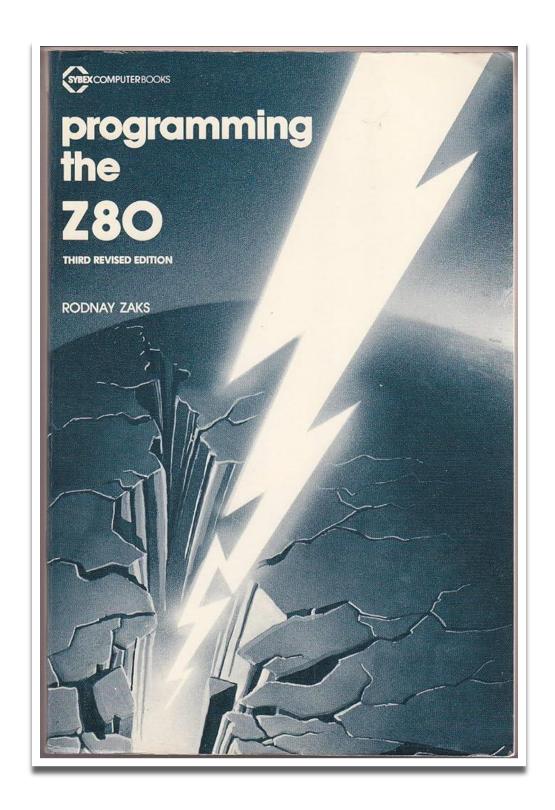




### **Pixel Movement ???**



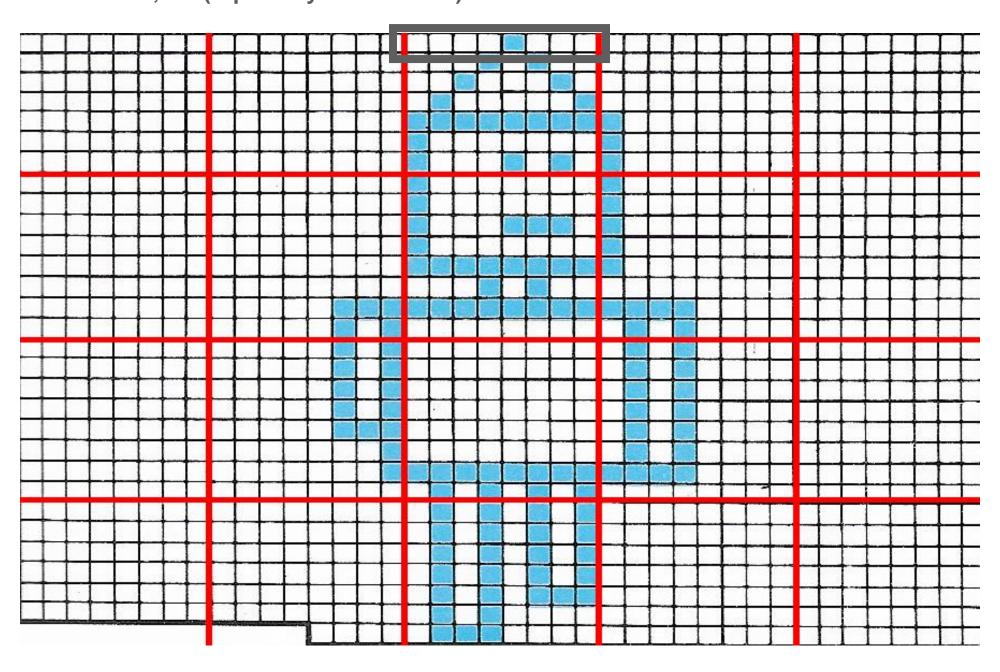
## **Z80 Machine Code**



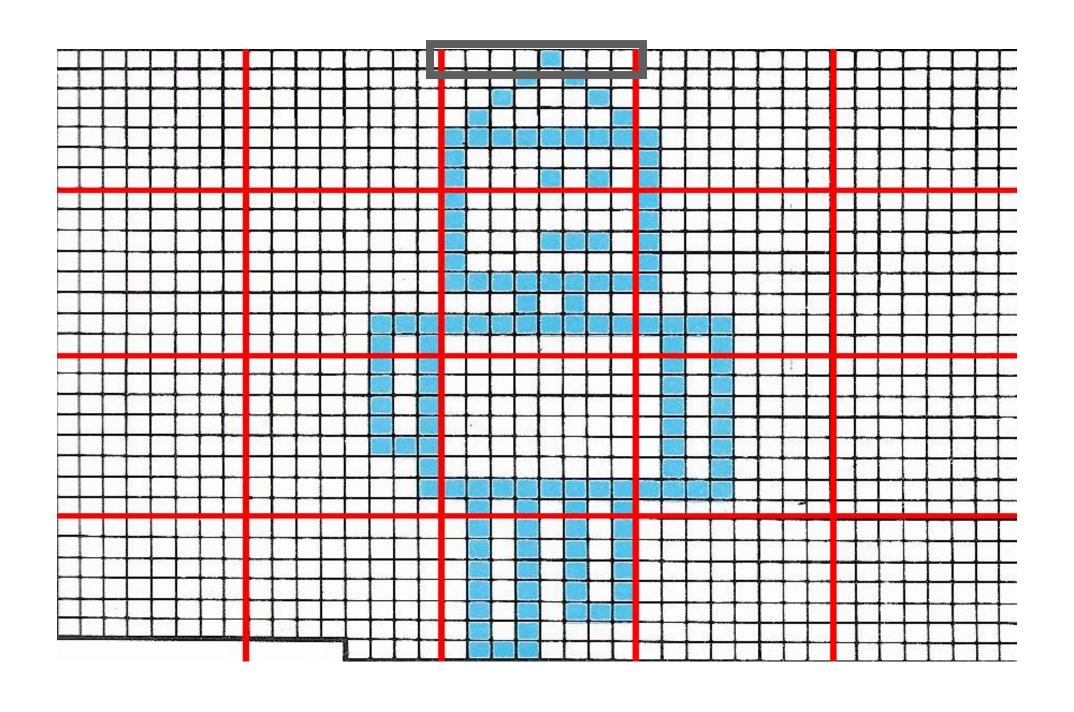
ORG	0000H
LD	A,55H
LD	IX,2000H
LD	BC,01FFH
ORG	0009H
LD	(IX+00),A
INC	IX
DEC	BC
EX	AF,AF'
LD	A,00H
CP	B
JP	NZ,0026H
CP JP LD LD LD LDIR HALT	C NZ,0026H HL,2000H DE,3000H BC,01FFh
ORG EX JP END	0026H AF, AF' 0009H

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

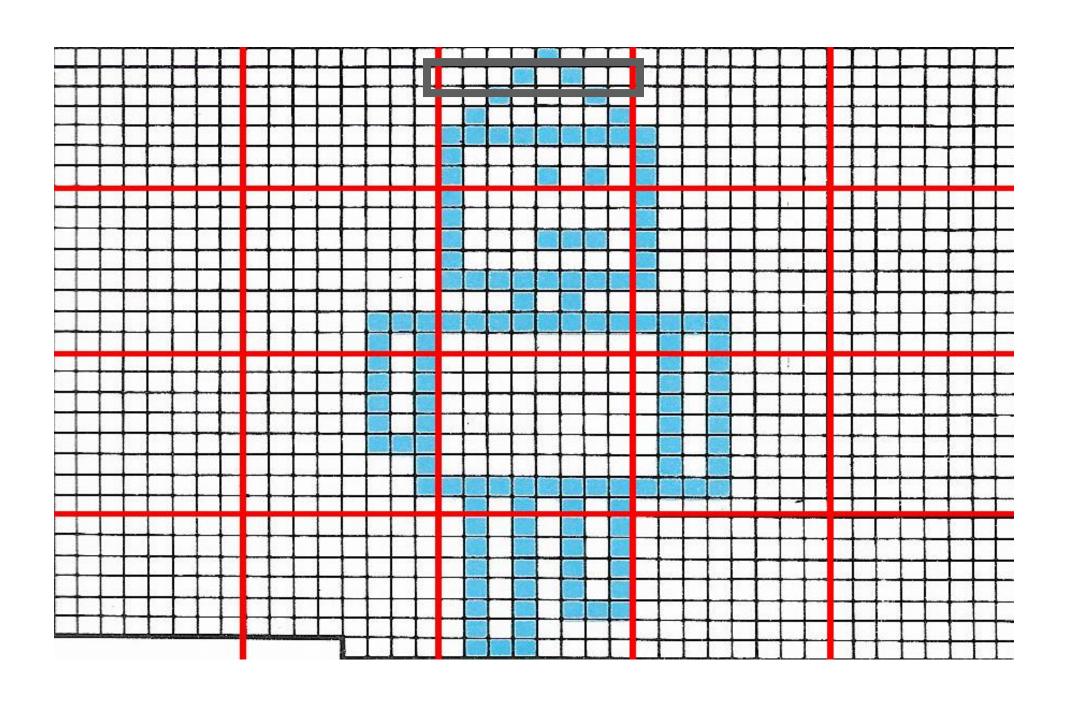
#### VALUE STORED AT THAT ADDRESS 00001000 = 8



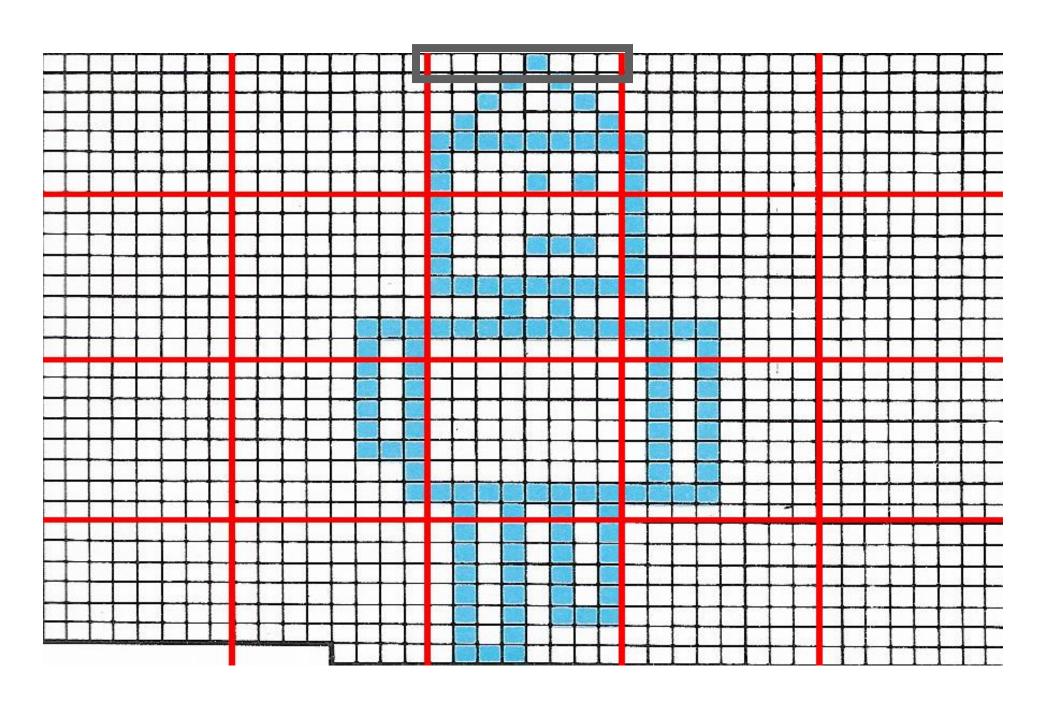
#### SCROLLING UP/DOWN = COPYING BYTES TO ADDRESSES ABOVE/BELOW



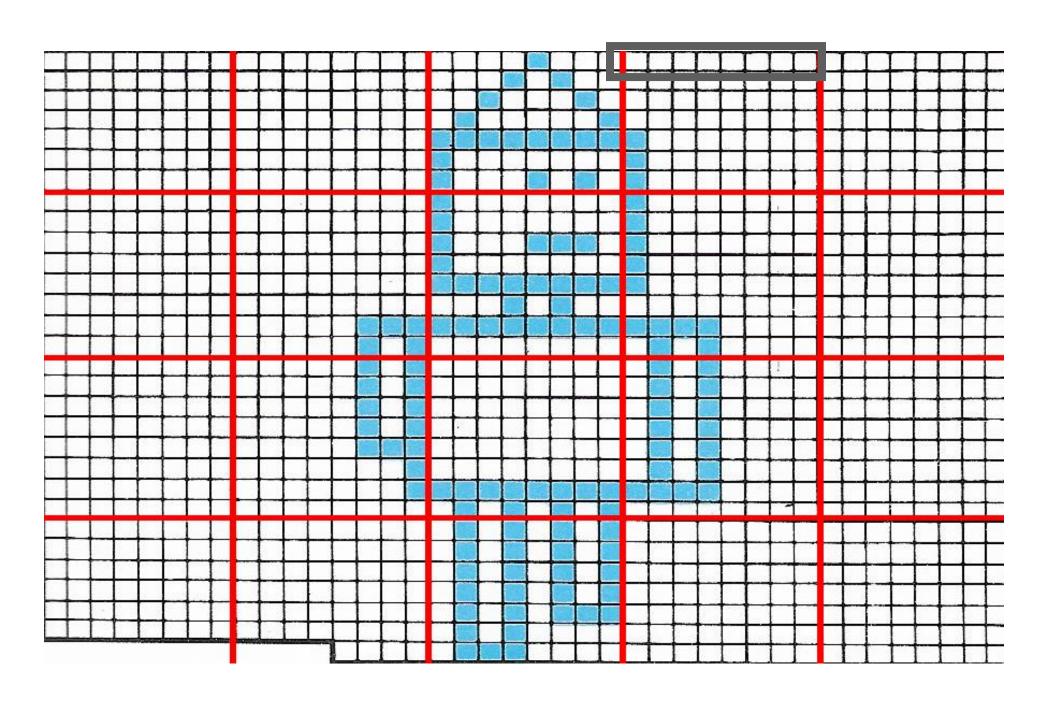
#### SCROLLING UP/DOWN = COPYING BYTES TO ADDRESSES ABOVE/BELOW



#### 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) ADC A,n	19
ADC A,n	7
ADC A,r	4
ADC A,IXp	8
ADC A,IYq	8
ADC HL,BC ADC HL,DE	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,(IX+0)	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 E 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 0	8
IM 1 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 INC HL	4
	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
	10
אר חח	
JP nn JP (HL)	4
JP (HL) JP (IX)	

# T-States = Speed!

#### **First Paid Game!**







# **Attention To Detail is founded**



## Rise of US / JAPAN Decline of UK



US



UK















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...



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 spe-

see that for the price, it's technical spe-ofication 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 Billter 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 flex-ible from the programmers' point of

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 synth Or course you can issen 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 microswitched 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 mo-

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 control-ler, 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

### NOT THE COMFY CHAIR

Other hardware add-ons on the horizon include a light gun with recoil ac-tion 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 fitnessconscious gamers to ride into the sun-set. Who says computer games are bad for your health?



lecornine.

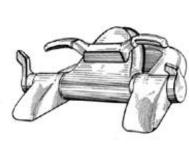
machine when it is released. Here we have pictures of Last Ninja II from System 3 and Star Ray from Logotron -two conversions, both of which easily match their home computer counter parts in quality.
At the moment there's no news of

any arcade conversions for the ma-chine - strange really, considering its specifications it sounds an ideal machine to convert coin-ops to.

Konix software will come on pirateproof 3.5" 880K disks which just slot









into the built-in drive, as well as car-tridge, and will cost between £15 and £20. If the Multisystem gets the soft-





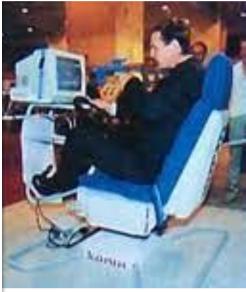


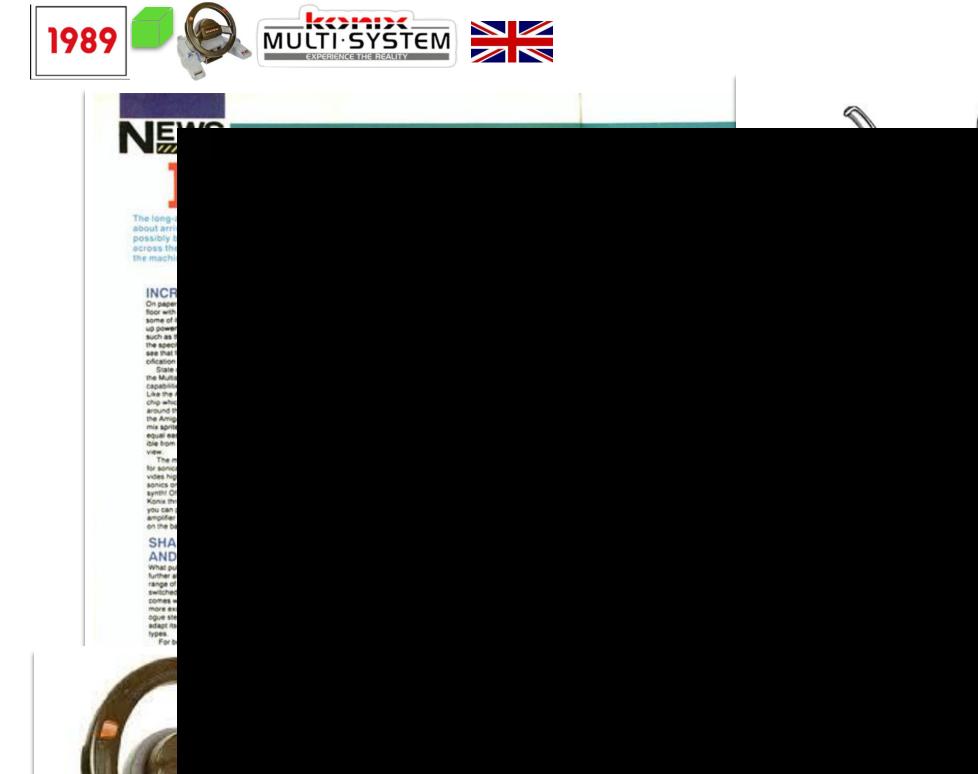
ON-BOARD MEMORY 256K
GRAPHICS RESOLUTION OF 512X200 PIXELS
COLOUR PALETTE 4,096 COLOURS
SOUND 25-CHANNEL STEREO CD QUALITY SOUND
DISPLAY OUTPUT STANDARD TY OR RIGB COMPOSITE VIDEO
SOUND OUTPUT VIA TY OR THROUGH STEREO HEADPHONE SI HONE SOCKET



























lees mi



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 spe-

see that for the price, it's technical spe-ofication 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 Billter 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 flex-ible from the programmers' point of

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 synth Or course you can issen 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 microswitched 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 mo-

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 control-ler, 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

### NOT THE COMFY CHAIR

Other hardware add-ons on the horizon include a light gun with recoil ac-tion 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?



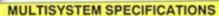
parts in quality.
At the momen any arcade for the masounds an ideal ma-

ix software will come on pirate of 3.5" 880K disks which









ON-BOARD MEMORY 256K
GRAPHICS RESOLUTION OF 512X200 PIXELS
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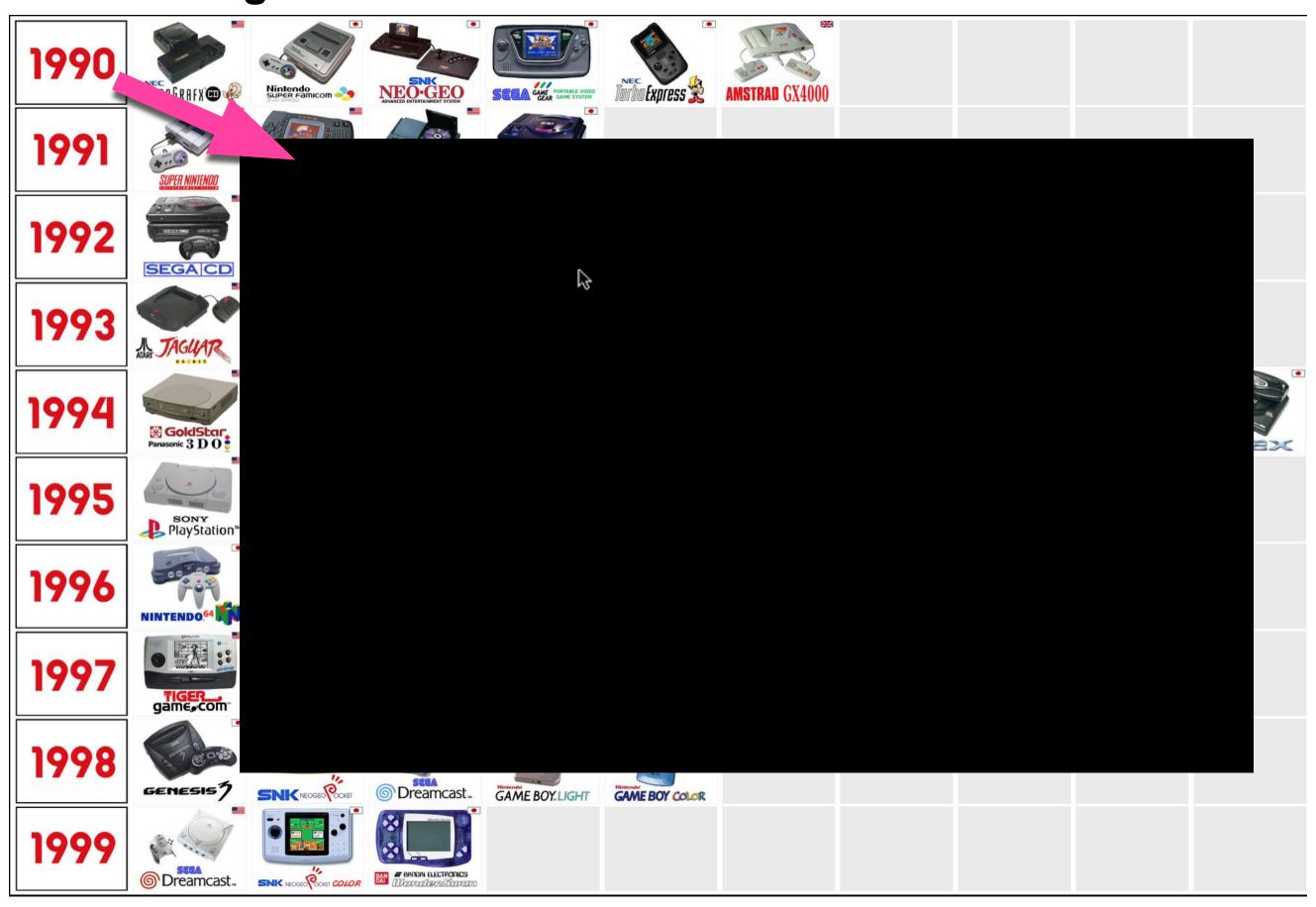




# ATD's first published game!



# ATD's first game!































SNK NEOGEO OCKET COLOR





it's time for









## 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

Source:

SCART

Input:

NTSC

Output:

1920x1080@60Hz

EN, JOE SOUSA FARAN THOMASON

H, SEAN PATTEN





