MSX and SPECTRAVIDEO

COMPUTER FORUM

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FREE SOFTWARE CATALOGUE BASIC TUTORIAL Part 2

SPECTRAVIDEO

MSX and SPECTRAVIDEO
COMPUTER
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Magazine

Contents

EDITORIAL

Has another month gone already? The editorial staff of COMPUTER FORUM have been burning the midnight oil putting together this issue, as it seems that the postal system requires items to be posted two weeks before you hope they arrive, the printers need several days to do their thing — they are not impressed with our placing an order for delivery yesterday. Artwork, typesetting and layup account for another few days, which means that the magazine needs to be written, edited and assembled before the last issue has been delivered. Advertisers get very concerned when you ask them for an advert before they have even seen what they paid for last time. And through all of this, the contents must be up-to-date and newsworthy.

This month we would like to welcome Robert Brinkworth to our team. Robert will be handling Hackers Corner and we have been very fortunate in recruiting his talents for this project.

We are constantly asked where certain products are available, so we have decided to do a dealer survey and we need your help. If you have a Spectravideo or MSX dealer in your area, please let us know so that we can compile a dealer directory of products.

Happy computing . . .

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when replying to advertisers.*

M A I L B O X

This page is for your comments and queries. If you have a specific problem or have solved one, we would like to hear about it.

If you require an answer before we publish it, please enclose a stamped self-addressed envelope.

WORD PROCESSOR WANTED

As the owner of a Spectravideo 328 disk system I am delighted to hear of your magazine devoted to SV and MSX computers. I am constantly frustrated by owning what I consider a fine personal computer, but being unable to obtain software and sufficient information about the machine.

As a professional analyst/programmer I am spoiled by the abundance of software available for the micros at my workplace (IBM PC's, NGEN's etc.) and this adds to my frustration at home. Most importantly I want a relatively simple DISK based word processor. I have JUSTWRITE Jr. which is fine for my purposes except that it is cassette based. Any help in this regard would be more than welcome.

I wish you well with your publication ...

Gregg Faulkner
Weston, ACT

Thanks for the kind wishes Gregg, and I am sure there are many SV owners in the same frustrated position.

The only disk based word processors we know of for the SV are CP/M software in the style of Word Star, Perfect Writer etc. but the price tag is considerably more than that of JUSTWRITE Jr. If any of our readers is aware of a simple disk based word processor, or is working on one, PLEASE let us know. This type of software would find great favour among SV and MSX users.

SVI GRAPHICS TABLET

I own a Spectravideo SV328 and some time ago I bought an SVI Graphics Tablet for it. I had a particular application for the tablet, apart from having fun with it, which involved producing simple diagrams on screen and having them print out on my CP80, Epson work-alike printer. The instructions with the tablet indicated that this could be done, and provided the options of

using either the SVI printer or an Epson like centronics printer. My printer, by the way, is connected through the SV901 centronics printer interface.

My problem is that, despite what is written in the instruction booklet for the tablet, there is no way I can send anything from the screen to the printer, not even a one centimetre straight line! In short, I have blown the $150 I paid for the tablet and am not too happy about it. I do not possess anything like the expertise needed to be able to get into the software and try to modify/fix the program so that an effective printer link can be established and none of my computer whizz mates have had any success, either, so I hope that you will see fit to print this letter in the "Mailbox" section of Computer Forum in the hope that SOMEONE out there has come across this problem themselves and developed an effective remedy for it.

By the way, this problem is not peculiar to the particular package I purchased — it is common to ALL Spectravideo Graphics Tablets and software packages that the local dealer had in stock. So it can't even be replaced with one that works, because, in terms of using the printer, none of them do! PLEASE HELP!

Harry Tarasinski
Reservoir, VIC.

We have not had any first-hand experience with the Graphics Tablet, Harry, so we will have to pass this over to any of our readers who can help.

HELP WITH SPECTRAVIDEO 64K RAM

I recently purchased (through a friend of mine) a 64K expansion card for my SV328.

My problem is that the accompanying users manual is not explicit enough to instruct me in the proper use of the card and how one should use the "Dip" switches to properly access the memory.

I would be grateful if you could see your way clear to provide me with the fullest explanation of the procedures and use of the card.

Ron Major
North Rocks, NSW

You are not alone, Ron, in not being able to work out the scant information provided in the SV807 manual. Your query has prompted us to do an article (to be found elsewhere in this issue) on how to access and use the extra memory provided by the 64K RAM card.

PRODUCT NEWS ...

VIATEL MODEM

We have not been made aware of or been able to find out about any new products released during this month. There is supposed to be an RS232/Modem card with Viatel software in ROM released for MSX computers and soon to be available for SV318/328 computers.

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SV318/SV328 ARE NO MORE

It has been rumoured that the Spectravideo 318/328 computers being sold now are the last of the batch. We contacted Bondwell International in Hong Kong and, according to their general manager, Mr Lo, the Spectravideo models SV318 and SV328 are no longer being produced and have been superseded by the MSX models SVI728 and SVI738. We also spoke with Mr Raymond Chang, their marketing manager, who advised that software for these computers was no longer being produced as they are now committed to MSX software.

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WHAT NOW?

What does this mean for owners of non-MSX Spectravideo computers? Well, there are several computers around that are no longer being manufactured — TRS80, Dick Smith System 80, Texas Instruments TI/99, to name but three. Can anybody tell me if the Tandy Color Computer is still being manufactured? — I know it is still on sale.

Anyway we can take heart from the people who own such machines, because it seems that they are still able to obtain hardware items and software which are now manufactured by people other than the original manufacturer. It seems that while a computer is still being manufactured and having software written by the large software houses, the smaller hardware and software manufacturers either can't get a look-in or are not game to 'take on the big boys'.

As far as the Spectravideo 318/328 computer is concerned, there are already two software houses in New Zealand and at least one in Australia catering almost exclusively for these machines. So don't despair. There

is still a growing range of software available and given the right incentive, I feel sure that one or two hardware manufacturers will soon be looking at other items to add to your computers.

In the meantime, Computer Forum will continue pushing for more information about the 318/328 as per this telex to Bondwell —

N. Lo
General Manager
RE YR TLX016 DATED 2/4/86 ADVISING 318/328 OBSOLETE. AS COMPUTER FORUM IS THE ONLY MAGAZINE FOR THESE MACHINES WE WOULD VERY MUCH APPRECIATE YOU SUPPLY FULLEST DETAILED INFORMATION ABOUT OPERATING SYSTEM, DETAILED MEMORY MAP, ROM FUNCTION CALLS, BIOS DATA ETC. REGARDS B. BROWN, MANAGING EDITOR, COMPUTER FORUM.

Let's hope that does not get filed in the "too hard" basket.

HACKERS CORNER

Hi, I'm Robert Brinkworth and I will be doing Hackers Corner from now on. This column is mainly for the Spectravideo as there is virtually no information on machine language for the SV. This column is divided into four parts — News & Reviews etc., Development of a DOS, Spectravideo ROM BASIC decoded, and useful Little Disassemblys. So on with the show!

NEWS

In this section I will try and bring you up to date with the latest in the world of Spectravideo machine language.

It is a pity that not many M/L games have been written for the SV. Mass Tael have written a good batch of games (Ninja, Sasa, Turboat, Telebunnie, Tetra Horror and Kung Fu Master), which are good quality, high speed games. These seem to be about the only games written or released. In my Little Disassemblys section, I will be showing you parts of these programs.

A NEW DOS

Eventually all Spectravideo owners using CP/M and Disk BASIC come to a point where they think "What I need is a DOS" but are then sadly informed that no such programs have been written. Well, with your help in choosing what to put in a DOS, I will try and write one that may even surpass NEWDOS/80. For your benefit I will explain the different stages of constructing the DOS.

The commands so far to be included are — APPEND, ATTRIB, AUDIO, AUTO, BASIC2, BEEP, BLINK, BOOT, CHAIN, CHNON, CLEAR, CLICK, CLOCK, CLS, COLOR, COPY, CREATE, DATE, DEBUG, DIR, DUMP, ERROR, FORMAT, FREE, GO, HIMEM, JKL, KILL, LIB, LIST, LOAD, PAUSE, PDRIVE, PRINT, PROT, PURGE, R, RENAME, ROUTE, SAVE, STMT, SYSTEM, TIME and VERIFY.

COPY, LOAD and SAVE will support both tape systems which are Spectravideo and MSX standards, meaning that MSX tapes can be read into the SV and vice versa and then saved to disk or tape.

The DOS is to be a module-loading DOS much like the famous NEWDOS/80 which has for a long time been a great joy to TRS-80 and SYSTEM 80 owners alike. Any queries or suggestions for other commands would be gratefully received.

Next month, a brief explanation of each command.

THE ROM DECODED

Aren't you just sick of the lack of information on the SV ROM? Well, since I first got my computer I have been decoding the ROM and using DASM (which is a symbolic disassembler) to comment the code, so without further comment I bring you the first instalment of the SV ROM Locations 0000-0185 (Restarts and BIOS table).

```
;       SPECTRAVIDEO ROM
;
;         VERSION 1.1
;
;
BOOT:             ;0
0000 JP    BOOT2        7B50H
0003 DW    CINT
0005 DW    PUTHL
0007 NOP

;GET NEXT DATA BYTE AND
;COMPARE WITH NEXT BYTE
;AFTER RST INSTRUCTION
RST08H:           ;8
0008 LD    A,(HL)
0009 EX    (SP),HL
000A CP    (HL)
000B INC   HL
000C EX    (SP),HL
000D JP    NZ,ERROR2     08EDH
;
;GET NEXT DATA BYTE
RST10H:           ;10H
0010 INC   HL
0011 LD    A,(HL)
0012 CP    ":"           3AH
0014 RET   NC
0015 JP    LOEB2         0EB2H
;
;PRINT CHARACTER IN A
RST18H:           ;18H
0018 PUSH  AF
0019 CALL  LFF09         FF09H
001C JP    L6407         6407H
001F NOP
;
;COMPARE HL WITH DE
RST20H:           ;20H
0020 LD    A,H
0021 SUB   D
0022 RET   NZ
0023 LD    A,L
0024 SUB   E
0025 RET
LINKSTART:                26H
0026 DW    LFE79
;
;RESTART 28H

RST28H:           ;28H
0028 LD    A,(NUMSIGN)   F923H
002B OR    A
002C JP    NZ,L55A1      55A1H
002F RET
;
;RESTART 30H
RST30H            ;30H
0030 LD    A,(VARTYPE)   F793H
0033 CP    8
0035 JP    L17DA         17DAH
```

```
;INTERRUPT VECTOR
RST38H:      ;38H
0038 JP    INTER       3CC2H

;SORT OF BIOS TABLE FOR
;DISK BASIC AND CP/M
;
003B JP    CONST       3DCAH
003E JP    CONIN       403DH
;
;PRINTER ROUTINES
0041 JP    LPTST       3938H
0044 JP    LPTOUT      3915H
;
;SET SCREEN MODES
0047 JP    SCREEN0     3541H
004A JP    SCREEN1     3610H
004D JP    SCREEN2     3665H
;
;FUNCTION KEY ROUTINES
0050 JP    KEYON1      3B95H
0053 JP    KEYOFF      3B86H
0056 JP    KEYON2      3B9FH
0059 JP    KEYREST     3498H
005C JP    STATUS      3512H
;
;BANK SWITCHING ROUTINES
005F JP    BANKJP      3476H
0062 JP    BANKCALL    3480H
0065 DS    0001H
;
;NMI VECTOR
NMI:         ;66H
0066 JP    NMI2        0180H
;
;CASSETTE ROUTINES
0069 JP    CASSRD      203AH
006C JP    CASSREAD    2016H

006F JP    CASSMTROFF  207CH
0072 JP    CASSWR      2059H
0075 JP    CASSWRTE    2026H
0078 JP    WRITESTOP   206CH
;
;PRINT ROUTINES
007B JP    LINEFEED    6474H
007E JP    L6463       6463H
0081 JP    L6415       6415H
0084 JP    L692C       692CH
0087 JP    L6959       6959H
008A JP    GETSTRING   6AD5H
008D JP    PRINTMESG   697DH
0090 JP    L08C9       08C9H
0093 JP    ERROR2      08EDH
0096 JP    ERRHANDLER  0907H
0099 JP    L0981       0981H
009C JP    COMMAND     09AFH
009F JP    LOAE5       0AE5H
00A2 JP    LOE3E       0E3EH
00A5 JP    ERROR5      0F9EH
00A8 JP    L643D       643DH
```

00AB	JP	PLUS	162DH	0120	JP	MAKEUPPER	170BH
00AE	JP	GETPARMS	14CAH	0123	JP	LOBCA	0BCAH
00B1	JP	GETA1	1AA6H	0126	JP	OUTSNDBC	346AH
00B4	JP	GETDE	1CB9H	0129	JP	L3463	3463H
00B7	JP	GETA2	1AA9H	012C	JP	L721A	721AH
00BA	JP	PUTA	183CH	012F	JP	L7210	7210H
00BD	JP	L1A99	1A99H	0132	JP	L7209	7209H
00C0	JP	L0B44	0B44H	0135	JP	L747D	747DH
00C3	JP	L0AE9	0AE9H	0138	JP	L7609	7609H
00C6	JP	L55C9	55C9H	013B	JP	L6FD6	6FD6H
00C9	JP	L596B	596BH	013E	JP	L7615	7615H
00CC	JP	PUTHL	56C4H	0141	JP	L7067	7067H
00CF	JP	IOERROR	204DH	0144	JP	L747A	747AH
00D2	JP	L3966	3966H	0147	JP	BEEP	40BEH
00D5	JP	EOF	74B0H		;		
00D8	JP	L59C9	59C9H		;CONVERT ASCII TO SCREEN #		
00DB	JP	HEXDEC	5B44H	014A	JP	ASCIISCRN	3C5AH
00DE	JP	L6545	6545H	014D	JP	L3CBC	3CBCH
00E1	JP	L656A	656AH	0150	JP	L3CA7	3CA7H
00E4	JP	L6FD3	6FD3H	0153	JP	L3C39	3C39H
00E7	JP	L702F	702FH	0156	JP	L3CB5	3CB5H
00EA	JP	L7033	7033H	0159	JP	L3CB3	3CB3H
00ED	JP	L7036	7036H	015C	JP	RESETFLGS	1365H
00F0	JP	L7073	7073H	015F	JP	L1AA5	1AA5H
00F3	JP	L70C3	70C3H	0162	JP	L0F99	0F99H
00F6	JP	L70EA	70EAH	0165	JP	L09FB	09FBH
00F9	JP	L710A	710AH	0168	JP	L5783	5783H
00FC	JP	L737D	737DH	016B	JP	L6993	6993H
				016E	JP	L405D	405DH
00FF	JP	EXTWR	73CAH	0171	JP	NEW1	6557H
0102	JP	L73F1	73F1H	0174	JP	CINT	56B5H
0105	JP	L7469	7469H	0177	JP	L7402	7402H
0108	JP	L7474	7474H	017A	JP	L6066	6066H
010B	JP	L75D0	75D0H	017D	JP	L71AB	71ABH
010E	JP	L75FA	75FAH	NMI2:		:1080H	
0111	JP	L75FD	75FDH	0180	CALL	LFF7E	FF7EH
0114	JP	L7603	7603H	0183	EI		
0117	JP	L7606	7606H	01B4	RET		
011A	JP	L760F	760FH	‡			
011D	JP	L7612	7612H				

LITTLE BITS

Here are some useful routines which I use in my games.

```
1. VRDWR   (Video READ/WRITE)
HL=VRAM address (SET bit 6 of H for WR)
VRDWR:  PUSH AF
        LD   A,L
        OUT  (81H),A
        LD   A,H
        OUT  (81H),A
        POP  AF
        RET
```

```
2. M_TO_V (Memory to Video mover)
HL=main memory address, DE=VRAM address, BC=number of
bytes to transfer
M_TO_V: PUSH HL
        PUSH DE
        EX   DE,HL
        SET  6,H
        CALL VRDWR  ; routine above
        POP  DE
        POP  HL
MLOOP:  LD   A,(HL)
        OUT  (80H),A
        INC  HL
        DEC  BC
        LD   A,B
        OR   C
        JR   NZ,MLOOP
        RET
```

```
3. SNDOUT (Setup sound register)
B=PSG register number, C=data value
SNDOUT: PUSH AF
        LD   A,B
        OUT  (88H),A
        LD   A,C
        OUT  (8CH),A
        POP  AF
        RET
```

FORUM

USING THE SPECTRAVIDEO 64K RAM CARD

The SV807 64K RAM Card available for the Spectravideo SV318/328 computers comes with a manual which tends to make the reader wonder whether an Electronics Degree is a prerequisite to computer ownership. The manual does not give sufficient explanation of the DIP switch settings and general use of the card. Here is how we managed to get our card to at least provide us with an extra bank of 32K RAM.

Firstly the card needs to be "located" in Page 21 of Bank 2. To do this, switch Dip switch 1 (that is the top one) to the right, or ON position. As Page 21 is a 32K page, switch 6 (marked 48/32) should also be to the right. All other switches should be off.

With the computer switched off, carefully insert the card into either the Super Expander or the SV602 Mini Expander. Switch the computer on and you should see the usual sign on message except that for a MKI 328 you will see 58398 bytes free. If yours is a MKII 328 then type PRINT FRE(0) and press the ENTER key. A similar figure should be displayed.

The trick is that you will still not be able to have a program in memory any larger than you had before. What you can have are two programs in the computer at the same time — one in the normal keyboard RAM bank (we will call this Bank 1), and one in the external bank (which we will call Bank 2).

Try the following test. Type PRINT SWITCH and press ENTER. A zero will be displayed to indicate that you are in the keyboard bank. Now type SWITCH and press ENTER. The message "Initializing 2nd Bank" will be displayed. Typing PRINT SWITCH and pressing ENTER, will display −1 to indicate that we have switched into the expansion RAM. Type SWITCH to get back to Bank 1 and type in Listing 1.

Type SWITCH to get into Bank 2 and enter Listing 2. Running this program will display BANK 2, switch to the other bank and display BANK 1 before switching back and doing it all over again.

```
Listing 1                       Listing 3
100 REM THIS IS BANK 1          100 PRINT "BANK 1"
110 PRINT "BANK 1"              110 INPUT"ENTER A VALUE";A
120 SWITCH                      120 PRINT A
                                130 VPOKE 6001,INT(A/256)
Listing 2                       140 VPOKE 6000,A MOD 256
100 REM THIS IS BANK 2          150 SWITCH
110 PRINT "BANK 2"              160 GOTO 100
120 SWITCH
```

TRANSFERRING DATA

This is fine if you have two programs which operate independently of each other. Suppose that you wanted to run two programs and pass information from one program to the other. This can be done in BASIC, but it is not a very simple procedure.

To pass values from a program in one bank to a program in the other bank, the information must be deposited into a section of memory which is not being switched. There is another memory bank which is not affected by the SWITCH command. That is the Video Memory or VRAM. In text mode, only a small proportion of this VRAM is used for holding the text characters and an area set aside for the screen.

Enter Listing 3 and type RUN. Enter a value between 1 and 60000 when asked and the program will switch you into Bank 2.

```
        Listing 4
        100 PRINT "BANK 2"
        110 A=VPEEK(6000)+256*VPEEK(6001)
        120 PRINT A
        130 SWITCH
        140 GOTO 100
```

Now enter listing 4. Typing RUN will display the value that you originally entered and switch you back to Bank 1.

Transferring string information is a little more difficult. Get back into Bank 1 and type in listing 5. Type RUN and enter a character string when asked, and this program will then switch into Bank 2. Now type in listing 6. Running this program will display the string you entered and switch back to Bank 1.

We are unable to find out how to use more than one RAM expansion card, or access the other 32K in a 64K card. The problem appears to be that the command SWITCH will not allow you to append anything to it and therefore, we cannot see how you could tell the system which page of RAM you want to switch into. Can anyone help?

```
Listing 5
100 CLEAR 500
110 PRINT "BANK 1"
120 INPUT"ENTER A STRING";A$
125 IF LEN(A$)>64 THEN 120
130 IF LEN(A$)<64 THEN A$=A$+STRING$(64-
LEN(A$),32)
140 FOR I=1 TO 64
150 VPOKE 6500+I,ASC(MID$(A$,I,1))
160 NEXT
170 SWITCH
180 GOTO 110

Listing 6
100 CLEAR 500
110 PRINT "BANK 2"
120 FOR I=1 TO 64
130 A$=A$+CHR$(VPEEK(6500+I))
140 NEXT
150 PRINT A$
160 SWITCH
170 GOTO100
```

MSX INFORMATION SUPPLIED

A five kilogram parcel arrived at this office from ASCII Microsoft in Japan. Contained within were about a half dozen copies of the Japanese MSX magazine, a hardware catalogue and a software catalogue, all in Japanese. Anybody speak the lingo? The software catalogue contained photos (I could read those) and details of MSX software under eight sections. Action (137 titles), Sports (30 titles), Board Games (40 titles), Shooting (65 titles), Adventure (49 titles), Puzzle (24 titles), Education (48 titles) and Home Use (107 titles).

Other items in the parcel were MSX Technical Data Book (340 pages), MSX2 Technical Data Book (310 pages), MSX BIOS documentation, VRAM data, MSX2 I/O addresses, MSX2 variations to MSX, and notes for MSX software developers. Unfortunately, all of the information provided was copyright and proprietary data, and it was not indicated what or how much of it we could publish. We have contacted ASCII for clearance but will not be able to pass on any information until they give us that clearance.

HALL OF FAME

We have been asked to include a HALL OF FAME for top-score game players. If you agree there is a need for this, then send your name and address, type of computer, name of game, level achieved and final score together with a signed statement by a witness saying that the score is accurate and genuine.

If there is sufficient response, we will commence our SAM (SV and MSX HALL OF FAME).

Software NEWS & REVIEWS

ALI BABA AND 40 THIEVES (MSX)

This is one of the Sony range of cartridge games available for MSX. I must say it's great to use cartridge software — plug it in, switch on the computer and go.

This game is in the classic Pacman maze style. The aim is to stop the thieves from stealing all the bags of gold while avoiding Don the King thief.

Variations are included by entering a 'Mystery Zone' after which one of four things will occur. Ali Baba becomes larger and can catch Don. Don grows larger and Ali Baba had better watch out. ''Open Sesame'' and the thieves vault is opened to allow Ali to retrieve his gold or Ali Baba can move twice as fast.

This game is fairly simple in concept but has good graphics and smooth movement. Older players will probably do the same thing as when they play Ghostbusters — turn the sound off. The music and sound are good, but become annoying after a couple of games.

Our review copy was supplied by Peter J. Fox Computers.

MT-BASE DATA BASE CARTRIDGE (MSX)

As mentioned in this column last month, MT-BASE Card Index System is available for MSX Computers. Being a cartridge, it is suitable for use with cassette or disk systems.

MT-BASE is a card index data base and comes with seven ready-made card index examples — Address list, Agenda, Customer file, Membership list, Personal Card index, Stamp collection file and Videocassette index. You can also design your own index cards using the free-form card design screen.

The number of records you are able to store is directly related to the amount of information each index card is designed to hold. The maximum number of entry fields per card is 14 and each field can contain up to 24 characters as long as the maximum number of characters per card does not exceed 255.

As an indication of capacity, we designed a card which allowed a maximum of 128 characters and were informed by MT-BASE that it could store 447 such cards. Designing a card to contain the full 255 characters resulted in 227 records capacity.

When the time comes to print out your records, you can print the full details of each card or print them in a list or onto adhesive labels for mailing purposes.

The documentation provided is comprehensive — over 150 pages, and the built-in 'help' function displays the section of the manual covering the part of the program you are currently using.

The sales literature included stated that data stored with MT-BASE is compatible for use with MTTEXT, a word processor cartridge from the same company. If it is as good as MT-BASE, we will endeavour to bring you a review of that product also.

MT-BASE is manufactured in Holland by Micro Technology and our review copy came from Panda Soft International in New Zealand.

BOOKS . BOOKS . BOOKS . BOOKS

STARTING WITH MSX
by Tony Mariott

This is a very handy book to have as a companion to your owners' manual. In fact it could almost replace some manuals.

The twelve chapters take you through plugging in and setting up the computer and cassette recorder and then proceed to explain the keyboard and commands used in MSX computers. Later chapters explain the graphics and music commands.
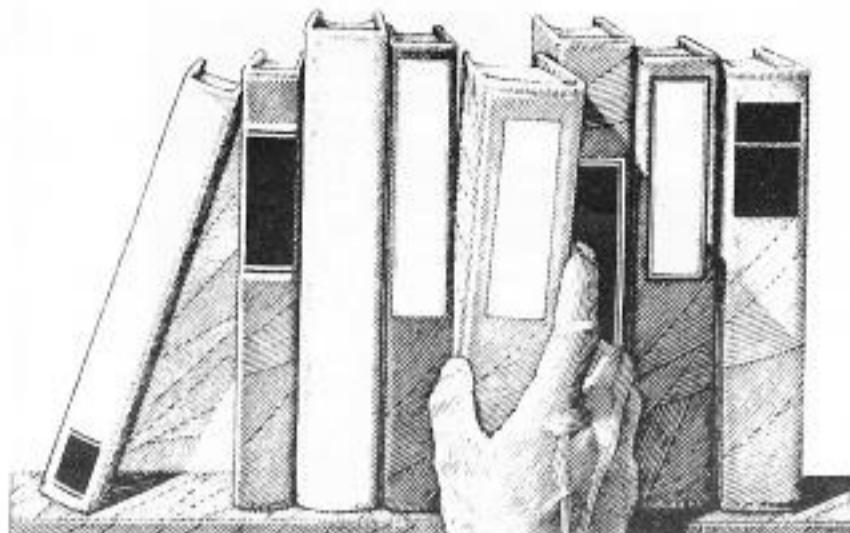
The book contains in excess of sixty sample programs ranging from quick one-line demonstration programs through to one, a Sprite Designer Program, which takes up to half an hour to type in (if you are a hunt and peck typist). For this reason we were not able to type in and test all of the program examples for accuracy. However those that we were able to enter performed as they should.

One minor criticism of the presentation of these programs came as a result of typing in a 113 line program only to be told that it worked — but was incorrect and then shown how to correct this. This was found to be very frustrating in tutorials provided for the ''what Eve gave to Adam'' computers. The moral, of course, is to read the chapter thoroughly before plunging in and typing all of the examples.

Bearing this in mind, 'Starting With MSX' is well thought out and quite clearly presented.

Publisher: Kuma Computers Ltd
Distributed by Ozisoft
132 Pages

(Review copy supplied by Peter J. Fox Computers)

GAMES FOR YOUR SPECTRAVIDEO
Damon Pillinger and Danny Olesh

Produced especially for the SV318 and SV328 computers, this is one of the Virgin Computer Games Series and was published in the United Kingdom in 1984. Written by two Australian teenagers, it contains over 20 programs.

Most of the programs are fairly simple and don't expect a cheap way of getting arcade style games for which you would have to pay $20-$30.

This book is quite handy for developing your own program skills and is quite straightforward in its approach to the subject.

We came by a copy of this book via one of our readers who stumbled across it in a country newsagency. Just goes to show, that you never know where you will find something on the Spectravideo.

Publisher: Virgin Books Ltd
Distributed by Arrow Books
85 Pages

MSX and SPECTRAVIDEO

BASIC TUTORIAL — Part 2

Before we proceed with this, Part 2 of the Basic Tutorial, let us look back to a point that was raised in Part 1 concerning the INPUT command. On page 17 it was stated that this command allowed anything except a comma to be entered. So what happens if you do input a comma?

Type in the following pressing ENTER after each line.

```
100 INPUT"ONE NUMBER";A
110 PRINT A
```

Now type RUN and press ENTER. When the ? appears, type

10,20

and press ENTER

The message "extra ignored" will appear on the screen because the program only required one number to be entered, not two.

To enter more than one value for an INPUT command, try this —

```
100 INPUT"TWO NUMBERS SEPARATED BY A COMMA";A,B
110 PRINT A
120 PRINT B
```

Now type RUN and press ENTER. When the ? appears, type

10,20

And press the ENTER key.

The computer should display

```
10
20
```

Because the Variable names in line 100 are separated by a comma, anything entered up to but not including the comma will be allocated to variable A and the rest of the input to variable B.

Type NEW and press the ENTER key to clear this program from memory.

The GOSUB and RETURN commands

The GOSUB (GOto SUBroutine) command is similar to the GOTO command as it allows the program to branch off to a line number other than the next one in sequence.

However, unlike the GOTO command, the computer remembers where it encountered the GOSUB command and when the RETURN command is executed, the program execution will transfer back to the instruction following the GOSUB command.

The function of the GOSUB command is to allow the same routine to be executed repeatedly without having to write it into the program more than once. Let us have a look at how we could perform the same routine without using GOSUB.

Type in the following, pressing the ENTER key after each line

```
100 PRINT "A"
110 PRINT "THIS IS A REPEAT"
120 PRINT "A"
130 PRINT "THIS IS A REPEAT"
```

When you have finished, type RUN and press ENTER. The computer will display

```
A
THIS IS A REPEAT
A
THIS IS A REPEAT
```

This little program uses four PRINT statements to say only two things — A and THIS IS A REPEAT.

The same task could have been performed using a subroutine to print the message.

Type NEW and press the ENTER key to remove the old program.

Now type in the following, pressing the ENTER key after each line

```
100 GOSUB 200
110 GOSUB 200
120 END
200 PRINT "A"
210 PRINT "THIS IS A REPEAT"
220 RETURN
```

When you have finished, type RUN and press ENTER

The computer will display exactly the same result as the previous example.

The program lines are performed in the following sequence -

100,200,210,220,110,200,210,220,120

Note the command END in line 120. This command is necessary to indicate that the program ENDs before the last line. Without this command, processing would continue and the RETURN command of the subroutine would be encountered and an error would result.

Remove line 120 (press the CLS key and type 120 followed by the ENTER key) and RUN the program again. You will see the error message "RETURN without GOSUB in 120" displayed.

This is because a RETURN command tells the computer to RETURN TO THE INSTRUCTION FOLLOWING THE GOSUB COMMAND. Because we arrived at the RETURN command without being sent by a GOSUB, the computer does not know which instruction to return to.

Type NEW and press the ENTER key to remove the old program.

The ON GOTO and ON GOSUB commands

The GOTO and GOSUB commands can have the extension command ON before them. The format for these commands is ON something GOTO somewhere and ON something GOSUB somewhere. The best illustration of these commands is in programs where you select a function, such as a level of difficulty in playing a game, and enter the number corresponding to that function.

Example of using the ON GOTO command -

Now type in the following, pressing the ENTER key after each line

```
10 INPUT"ENTER A NUMBER 1 TO 4";N
20 ON N GOTO 100,120,140,160
100 PRINT"LINE 100"
110 GOTO 200
120 PRINT"LINE 120"
```

```
130 GOTO 200
140 PRINT"LINE 140"
150 GOTO 200
160 PRINT"LINE 160"
200 END
```

Type RUN and press ENTER

The computer will display —

ENTER A NUMBER 1 TO 4?

Type 2 and press ENTER. The computer will display —

LINE 120

If you enter a number outside of the range 1 to 4, the computer
will jump to the next line, line 100.

Type NEW and press the ENTER key to remove the old program.

Example of using the ON GOSUB command —

Now type in the following, pressing the ENTER key after each line

```
10 INPUT"ENTER A NUMBER 1 TO 4";N
20 ON N GOSUB 100,120,140,160
100 PRINT"LINE 100"
110 RETURN
120 PRINT"LINE 120"
130 RETURN
140 PRINT"LINE 140"
150 RETURN
160 PRINT"LINE 160"
170 RETURN
```

Type RUN and press ENTER

The computer will display —

ENTER A NUMBER 1 TO 4?

Type 4 and press ENTER. The computer will display —

LINE 160

If you enter a number outside of the range 1 to 4, the computer
will jump to the next line, line 100.

The ON GOTO and ON GOSUB commands can have special meaning when
dealing with graphics and this will be covered in the tutorial
along with the graphics commands.

Type NEW and press the ENTER key to remove the old program.

The REM statement

This is the REMark statement used to place comments in the program. When the computer encounters a REM it will ignore anything that follows and skip to the next line of the program. It is important, therefore, not to place any commands in a line after a REM statement.

Type in the following, pressing the ENTER key after each line

```
100 PRINT "LINE 100"
110 REM PRINT "THIS IS A REMARK"
120 PRINT "LINE 120"
130 REM PRINT "THIS IS TOO"
140 PRINT "LINE 140"
```

When you have finished, type RUN and press ENTER

The computer will display

```
LINE 100
LINE 120
LINE 140
```

Notice that the computer has ignored the PRINT command in lines 110 and 130.

Type NEW and press the ENTER key to remove the old program.

The FOR and NEXT commands

These two commands must be used together. Known as FOR-NEXT LOOPS, they are used to LOOP through a section of the program FOR a predetermined number of times.

Type the following, pressing ENTER at the end of each line.

```
100 FOR I=1 TO 10
110 PRINT I
120 NEXT I
130 PRINT "I=";I
```

Type RUN and press ENTER

The computer will display the numbers 1 to 10 down the screen. And finally print I=11.

In this example, the variable I will have an initial value of 1 and increase in value by 1 each time line 120 is executed. When the value of I exceeds 10 the LOOP is complete and execution will move to line 130.

The program works like this. In Line 100 the computer is told

that I has a start value of 1 and an end value of 10. Line 110
prints the current value of I. In line 120 the computer is told
to add 1 to the value of I and check to see if it exceeds the end
value given in line 100. If it does not, then loop back and do it
again. Notice that the value of I in line 130 is 11.
Type NEW and press the ENTER key to remove the old program.

The STEP option

FOR-NEXT commands normally increase by 1 from the start value
until the loop is complete. This can be altered by adding the
STEP option.

For example, if we wanted to print multiples of 10 we could do it
with this program -

```
100 FOR I=10 TO 100 STEP 10
110 PRINT I
120 NEXT I
```

This program would display the numbers 10, 20, 30 etc up to 100
down the screen.

The STEP option can also be used to make FOR-NEXT loops count
backwards. For example -

```
100 FOR I=100 TO 10 STEP -10
110 PRINT I
120 NEXT I
```

When this program is run, the numbers 100, 90, 80 etc will be
displayed down the screen.

NESTED LOOPS

FOR-NEXT loops can be nested, that is one loop contained inside
another. Type the following, pressing ENTER at the end of each
line.

```
100 FOR I=1 TO 3
110 FOR J=1 TO 3
120 PRINT I,J
130 NEXT J
140 NEXT I
```
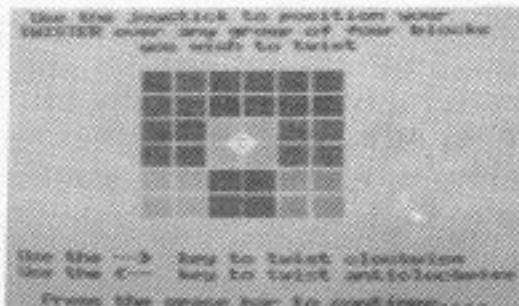
Type RUN and press the ENTER key. The computer will display

```
1        1
1        2
1        3
2        1
2        2
2        3
```

FDS Software
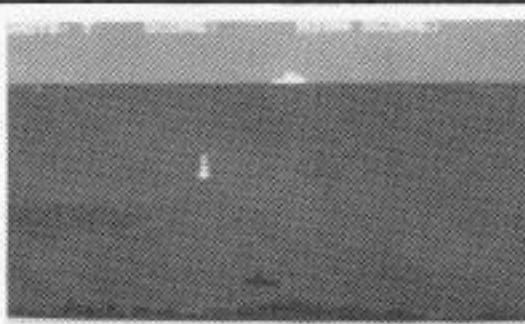
Software Catalogue

SVPAK23 - $16.00   MSXPAK23 - $16.00

TWISTER – Like a two dimensional Rubiks cube, this game displays nine different coloured squares each containing four smaller squares. These 36 squares are then jumbled around on the screen and you must rebuild the original display. Its very simple – VERY addictive!
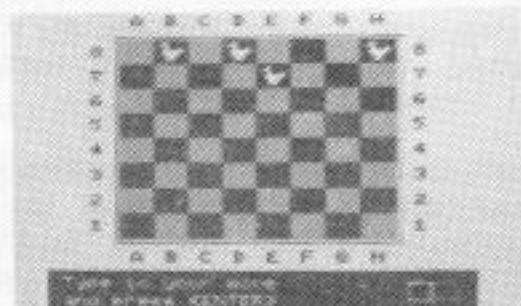
REVERSE – Your task is to arrange the ten jumbled numbers into ascending order by reversing some or all of them. Check it out – its not easy!

TS852 –$10.00   MSX852 - $10.00

GRAND PRIX – You are in the drivers seat in a race to the chequered flag while avoiding slower cars. Hitting another car or two wheels off the track will slow you down and lose points.
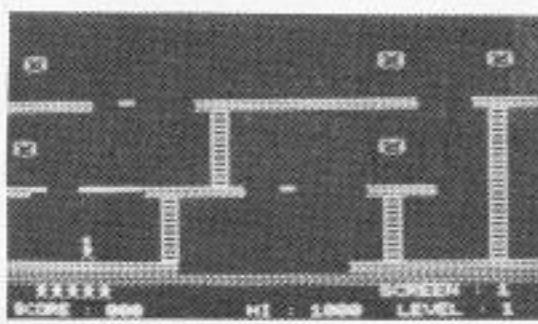
SUBSTRIKE – Drop depth charges on the enemy below. The deeper he is or the faster he moves, the more you will score.

SVPAK24 - $16.00   MSXPAK24 - $16.00

FOX & GEESE – Can you as the Fox penetrate the line of advancing geese and get to the other side of the board before they corner you.
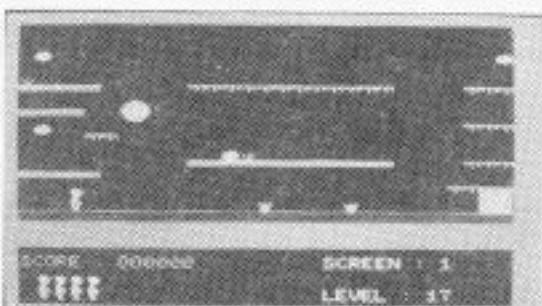
THINK – This is a form of word mastermind. You must guess the word that the computer has selected from the vast number stored in its data banks. This game will certainly make you do as the name suggests.

SVPAK7 - $16.00   MSXPAK7 - $16.00

BOMB SCARE – Very addictive game in which you must climb to different platforms and defuse 5 bombs before your bonus runs out. Has 6 separate screens with the hazards of moving platforms and conveyor belts with holes in them.
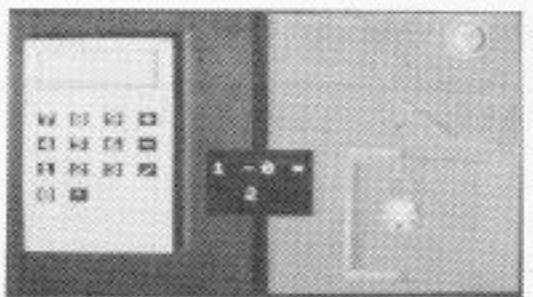
DUNGEON ADVENTURE – A text adventure where you explore the dungeon fighting monsters and gain treasures to discover the location of the great Orb.

SVPAK21 - $16.00   MSXPAK21 - $16.00

GOLDRUSH – Move the miner around the different levels of the mine collecting gold and dodging high explosive charges and falling rocks. The green ledges crumble if you don't get off quickly. When you have collected all of the gold, get to the lift cage for a new screen.

PYRAMID – This is another fascinating text adventure built around the vaults of a pyramid.
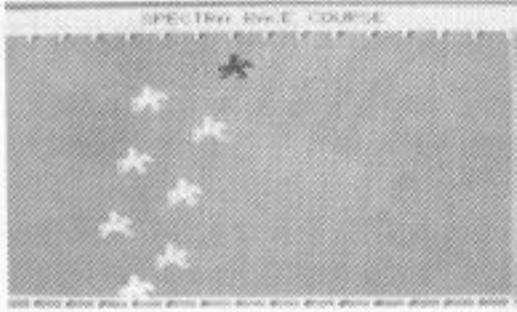
SVPAK25 - $16.00   MSXPAK25 - $16.00

OZMAP – You must drive the car around Australia finding the places required as quickly as you can.

OZQUIZ – Answer general knowledge questions about Australia and her people.
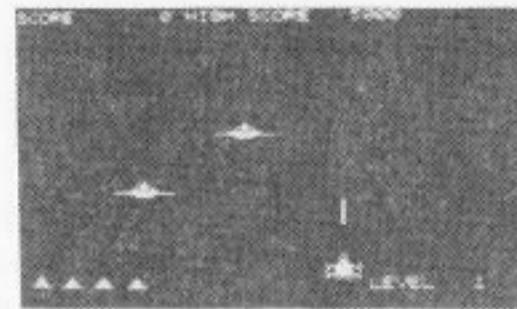
MATH DUEL – Makes practicing maths fun! Has 4 levels of addition and subtraction maths.

SVPAK1 - $12.00   MSXPAK1 - $12.00

SPECTRA DERBY - Place your bets and
have a day at the races. Even if you
lose its painless.

HANGMAN - The classic word guessing
game in which you will be gradually
hung for each wrong letter.
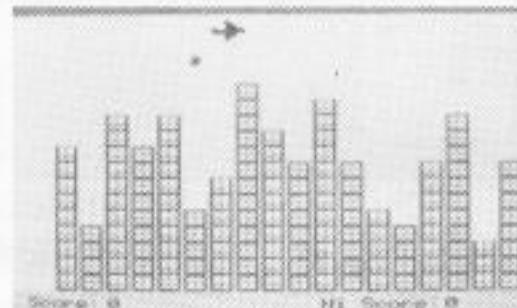
SVPAK10 - $16.00   MSXPAK10 - $16.00

DEMON ATTACK - Shoot the attacking
demons as they swoop overhead. You
can only destroy a demon when it is
fully formed. Killing ten demons gets
you on to a harder set.

SEA DIVER - Dodge sea creatures as
you make your way to the sea bed.
Grab a gold bar and get back to the
surface.

DEATH CITY - Race around the maze
trying to shoot your computer oppon-
ent but be careful, he is also shoot-
ing at you.

SVPAK2 - $12.00   MSXPAK2 - $12.00

SNAKE - Move the snake around to eat
the diamonds, but mind you do not
cross your own tail.

CITY BOMBER - You must destroy the
towering buildings of the city before
you can land safely.

SVPAK8 - $16.00   MSXPAK8 - $16.00

EXPLORER - Watch out for the Pitfalls
in this game which will test your
control of the joystick. Crocs and
other obstacles bar your way as you
wander through the jungle in search
of treasures.

PARACHUTE - Catch the paratroopers in
your boat as they jump from a heli-
copter into a shark-infested lagoon.
The more you catch, the faster they
jump.

ANDROID CAVERNS - Move around the
caverns of this game and collect the
treasure guarded by the androids. But
watch out, the androids learn by
their mistakes.
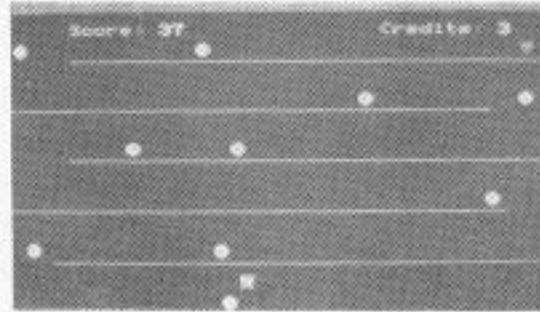
SVPAK22 - $16.00   MSXPAK22 - $16.00

MISSILE COMMAND - Shoot down the
incoming warheads before they destroy
your cities. You get bonus cities
awarded for high scores.

MASTERMIND - Your task is to match
the same hidden four-colour combinat-
ion that the computer has chosen.

LEAKY ROOF - Catch the raindrops
leaking through the roof and empty
the bucket out of the window before
you drown.
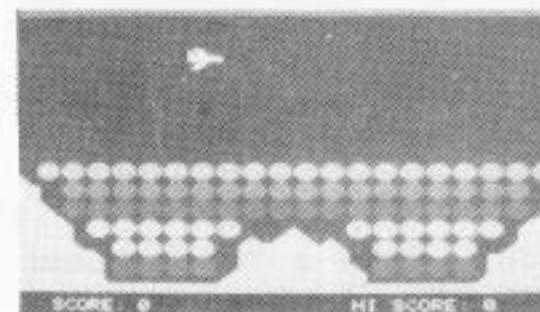
SVPAK4 - $12.00   MSXPAK4 - $12.00

SPECTRA KONG - Win the lady's heart
by getting to the top of the screen -
but watch out for falling barrels.

TENNIS - A colour version of the
original black and white TV game.
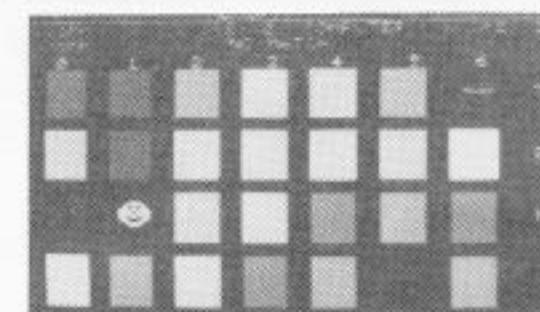
MUSICAL KEYBOARD - This program
turns your computer keyboard into a
musical keyboard and allows you to
select note length and octave.

SVPAK3 - $12.00   MSXPAK3 - $12.00

BOMBS AWAY - Destroy the targets in
the ravine below. Be warned - it gets
harder the more targets you hit.
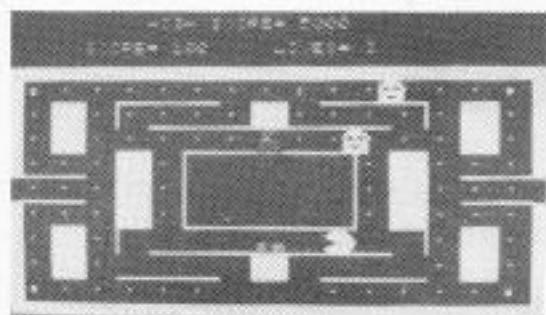
BUG CATCHER - Two players move around
the garden and the one with the most
bugs caught - wins. Great for younger
children.

SVEP1 - $12.00   MSXEP1 - $12.00

COPY CAT - The computer will play a
set of notes and you must play them
back in sequence. There are two
levels of play - one note added to
the same sequence or a new sequence
each time.

MEMORY - A 1 or 2 player game of
memory exercise. Uncover two squares
on the screen and if the objects
revealed match you get another chance

SVPAK12 - $16.00   MSXPAK12 - $16.00

MUNCH MAN - Guide your Munchman around the maze eating the dots while avoiding the deadly ghosts. If you eat one of the larger dots you will be able to eat the ghosts for a short while. Gain extra points by eating the fruit that occasionally appears on the screen.

ESCAPE FROM PLANET BETA - This is a text adventure where you are stranded on Planet Beta and must find all the necessary equipment to get off before the planet explodes. Only requires one or two-word commands - eg GET LASER.

SVPAK5 - $16.00   MSXPAK5 - $16.00

LUNAR LANDER - You are in command of a Lunar Excursion Module with limited fuel but full rotational ability and must land on the lunar surface. Has 8 different landscapes which get harder

GALACTIC ASSAULT - The alien invaders hover above you and one at a time dive on you. Destroy each wave before they get you. For 1 or 2 players.

ROAD RACER - Try and pass as many cars just as fast as you can without crashing.

SPRITE DEFINER - Design sprite shapes on the screen and rotate them when you have finished. Has grids for both sprite sizes.
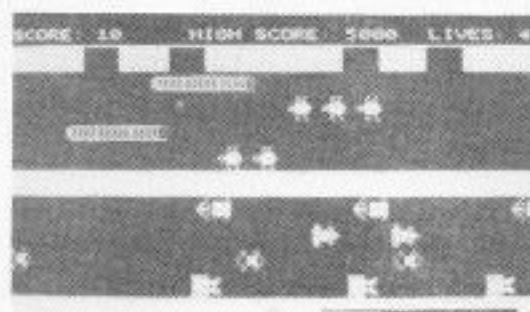
SVPAK20 - $16.00   MSXPAK20 - $16.00

ARTILLERY FIRE - A two player game where each can select a firing angle and velocity to lob shells on his opponent.

NUMBER PUZZLE - Computerised version of the popular hand-held game in which you must slide numbers around into ascending order.

TOWERS OF HANOI - Move all of the discs from peg 1 to peg 3 without placing a large disc on a smaller one.

TENNIS - This is a two player game of Table Tennis.
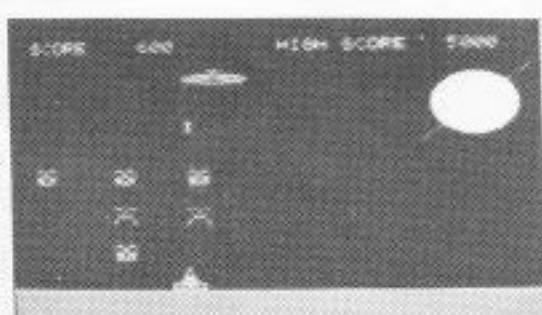
SVPAK6 - $16.00   MSXPAK6 - $16.00

HOPPER - Help Hoppy get across the road (SPLAT!) and then to cross the river (SPLOSH!) and if you are lucky he won't get eaten by the crocs (GULP!!).

SPACE WAR - Challenging game for two players in this duel between your spaceship and that of your opponent. First one to ten points wins.

OTHELLO CHALLENGER - The classic mind game where you must outflank your opponent to capture his pieces. For 1 or 2 players.

PAINTER - Explore the flexibility of your computers colours with this on-screen paint brush.
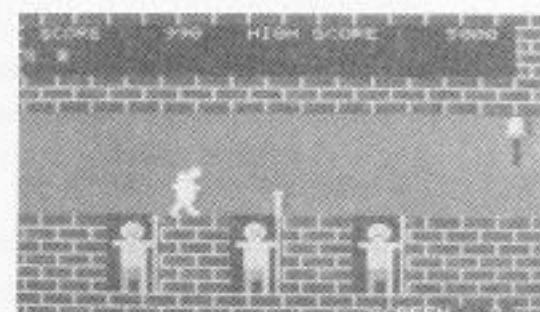
SVPAK9 - $16.00   MSXPAK9 - $16.00

SPACE INVADERS - Shoot the aliens before they invade your planet. Move your ship left and right and shoot missiles at the aliens. Once they have landed the game will end. Score extra points by shooting the UFO which flies overhead.

SUB HUNT - Drop depth charges on the attacking subs and dodge the missiles they fire. You can fire two depth charges at once by firing while moving left or right. Each of the subs is marked with its value.

CHICKEN - Who cares why the chicken crossed the road, we have to find out how! Each time you make it across, the cars speed up.

SVPAK11 - $16.00   MSXPAK11 - $16.00

LUNAR RESCUE - Rescue the stranded astronauts from the moons surface one by one. Dodge the asteroids on the way down and destroy them on the way back up for more points.

SKY BASE - Blast the aliens but watch out for their kamikazi attacks. Shoot two sets and then dock with your mother ship. With this added firepower go on to destroy the alien base.

QUASIMODO - Can you as the hunchback Quasimodo rescue the beautiful maiden from the French soldiers. Cross the screen avoiding fireballs and spears, then ring the bell to get the next screen.

SP101 PARALLEL
PRINTER INTERFACE

- No modifications to the computer
- No separate power supply required
- Attractive white rigid PVC case
- Suits SV318 and SV328 computers
- Dimensions   105W x 27H x 85D
- Weight   100 gram
- Accepts standard centronics cable
- Centronics cable available (1 metre)

FITTING INSTRUCTIONS –

Simply plug printer cable into the printer interface which then plugs into the back of the computer.

SUITS SPECTRAVIDEO
SV3I8 – SV328

SP101 PARALLEL PRINTER INTERFACE $84   CENTRONICS PRINTER CABLE $35

NOTE: The SP101 cannot be used with the SV601 Expander. Owners of these expanders should use the SP102 which comes with 1.5 metre centronics cable and connector for $120.

Prices include postage and packing within Australia

Products in this catalogue are available from –

Peter J Fox Computers, Fremantle WA   Downs Home Computing, Toowoomba QLD
Park Music Centre, Rockingham WA   Minit Computer Service, Bendigo VIC
Main Street Music, Whitfords WA   Hunter Valley Business Machines
                                                              Hamilton NSW

Or direct by mail order from –

FDS FORREST DATA SERVICES

P.O. Box 71 Palmyra WA 6157
(09) 339 5087

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```
3        1
3        2
3        3
```

Notice that the value of J changes faster than the value of I.
This is because the program flow is such that the I loop
surrounds the J loop and the computer will execute the J loop
three times for each run through the I loop.

It is important to remember that loops must be nested in FOR/NEXT
pairs —

```
FOR I etc
    FOR J etc
        FOR K etc
        NEXT K
    NEXT J
NEXT I
```

You don't have to indent each pair — this has been done here to
illustrate the nesting principle.

Type NEW and press the ENTER key to remove the old program.

The READ and DATA commands

These commands are also used together in a program. The READ
command READs the information stored in a DATA statement. Each
item in a data statement is separated by a comma.

Type the following, pressing ENTER at the end of each line.

```
100 FOR I=1 TO 5
110 READ X
120 PRINT X
130 NEXT I
140 DATA 5,3,7,2,9
```

Type RUN and press ENTER

The computer will display

```
5
3
7
2
9
```

Line 100 sets up a loop of 5 runs. The first time through, the
READ command in line 110 READs the first value in the DATA

statement and gives that value to the variable X. The second time through, the READ statement reads the second value and so on.

The data statements do not have to be in a line that is close to the one with the READ command. In fact they can be anywhere in the program, even in a line that is numbered lower than the one with the READ statement. For the sake of clarity, and until you become more experienced, it is best to keep them close together. Even though in some programs this will slow down the execution.

Type NEW and press the ENTER key to remove the old program.

The RESTORE Command

If the number of READ operations exceed the number of DATA items, an error will result.

This can be illustrated using the following program

```
100 FOR I=1 TO 5
110 READ X
120 PRINT X
130 NEXT I
140 DATA 5
```

In this example the loop will mean that the READ command will be executed 5 times. However, there is only one value in the DATA statement. Running this program will produce an OUT OF DATA error.

If we insert the following line

```
125 RESTORE
```

the READ command will start reading from the first data value each time through.

Type RUN and press the ENTER key.

The computer will display the number 5 five times down the screen.

Type NEW and press the ENTER key to remove the old program.

The following are some READ and DATA combinations

```
100 FOR I=1 TO 3
110 READ A
120 PRINT A
130 NEXT I
140 DATA 20,2.2,-15
```

```
100 FOR I=1 TO 3
110 READ A$
120 PRINT A$
130 NEXT I
140 DATA CAT,DOG,THE BIG MOUSE
100 FOR I=1 TO 3
110 READ A$
120 PRINT A$
130 NEXT I
140 DATA JOHN,DAVE,"BROWN, JAMES"
```

Notice the third data item is contained within quotes ("). Remember that each data item in a data statement is separated by a comma. The third data item in this case contains a comma and we want to print BROWN, JAMES. The quotes tell the read command to take everything within quotes "as is". Try removing the quotes from around BROWN, JAMES and RUN the program again.

The IF-THEN commands

These are the decision makers in programming. These commands must appear on the same program line. They tell the computer that IF something is true THEN perform the remaining commands in that line. If it is not true then execution will continue at the next line number.

For example

```
100 FOR I=1 TO 5
110 READ X
120 IF X=2 THEN PRINT X
130 NEXT I
140 DATA 5,3,7,2,9
```

In this example, the value of X will only be printed if it is equal to 2.

Each time through the loop, the READ command reads one data value and assigns that to X. Line 120 checks to see if that value is 2. If it is, then the PRINT statement displays that value. Execution continues at line 130 until the loop is completed.

Remember that only the remaining commands in the same line will be performed if the test is true. You can have more than one command per line if they are separated by colons (:). For example

```
100 FOR I=1 TO 5
110 READ X
120 IF X=2 THEN PRINT X : PRINT "FOUND IT!"
130 NEXT I
140 DATA 5,3,7,2,9
```

Sometimes you may wish to perform more functions than will fit in

one program line. In this case we must make other arrangements.

```
100 FOR I=1 TO 5
110 READ X
120 IF X=2 THEN GOSUB 160
130 NEXT I
140 DATA 5,3,7,2,9
150 END
160 PRINT "MESSAGE FROM COMPUTER TO BOSS"
170 PRINT "I HAVE FOUND THE NUMBER WE ARE LOOKING FOR."
180 PRINT "IT HAS A VALUE OF 2"
190 RETURN
```

Because the message we want to print might not fit in the same
line as the IF-THEN statement (actually, it would have using
colons) we told the computer to go to the subroutine at line 160.

The ELSE option

The IF-THEN command can have an optional ELSE command on the same
program line. The format would then be, IF something is true THEN
perform a function ELSE perform another function. We can use the
last example to illustrate this.

Alter line 120 to read

```
120 IF X=2 THEN GOSUB 160 ELSE PRINT "ITEM ";I;" IS NOT IT"
```

Type NEW and press the ENTER key to remove the old program.

Multiple decisions can be handled on the one line by using
several IF-THEN or IF-THEN-ELSE combinations -

```
100 INPUT"ENTER A NUMBER";N
110 IF N>5 THEN IF N<20 THEN PRINT "NUMBER IS BETWEEN 6 AND 19"
120 IF N<6 THEN PRINT"LESS THAN 6" ELSE PRINT"GREATER THAN 5"
```

Type NEW and press the ENTER key to remove the old program.

RELATIONAL OPERATORS

The following relational operators are used to compare data and
information.

```
>   greater than
<   less than
>=  greater than or equal to
<=  less than or equal to
<>  not equal
```

Example

```
100 REM THE REQUIRED NUMBER IS 7
```

```
110 INPUT"ENTER A NUMBER FROM 5 TO 9";N
120 IF N<5 THEN PRINT "TOO LOW" : GOTO 110
130 IF N>9 THEN PRINT "TOO HIGH" : GOTO 110
140 IF N<>7 THEN PRINT "WRONG NUMBER" : GOTO 110
150 PRINT "CORRECT"
```

Type in and run this program as a demonstration of how the relational operators work.

* * * * *

Here are some questions based on what you have learned in this section. Write down what you think the answer should be before you use the computer to find out.

Do not send in your answers, if there is any doubt check back through the previous pages. Should you find any errors or have any suggestions to improve this tutorial, please WRITE to us. We do not tape our telephone conversations and therefore, your call could be wasted.

QUESTIONS

1. What will be displayed when the following program is run?

```
100 PRINT "LINE 100"
110 GOTO 130
120 PRINT "LINE 120"
130 REM
140 PRINT "LINE 140"
```

2. What will be displayed when the following program is run?

```
100 PRINT "LINE 100"
110 GOSUB 200
120 PRINT "LINE 120"
130 REM
140 PRINT "LINE 140"
150 END
200 PRINT "LINE 200"
210 RETURN
```

3. What will be displayed when the following program is run?

```
100 PRINT "LINE 100"
110 REM GOTO 130
120 PRINT "LINE 120"
130 REM "LINE 130"
140 PRINT "LINE 140"
```

4. What will be displayed when the following program is run?

```
100 FOR I=1 TO 3
110 READ A
120 PRINT A
130 NEXT I
140 DATA 12.345,99,-20,JOHN
```

5. What will be displayed when the following program is run?

```
100 FOR I=1 TO 3
110 READ A$
120 PRINT A$
130 NEXT I
140 DATA 123,JOHN SMITH,MARY
```

6. What will be displayed when the following program is run?

```
100 FOR I=1 TO 3
110 READ A$
120 PRINT A$
130 NEXT I
140 DATA "UP","DOWN"
150 DATA "IN AND OUT"
```

7. Which of these is correct?

(a) 5>7
(b) 9<11
(c) 2<>3

8. Which lines will be performed in the following program?

```
100 X=20
110 IF X<25 THEN GOTO 140
120 PRINT X
130 Z=25
140 PRINT X
```

BITS &
PIECES

SVI X'PRESS — MSX1 or MSX2?

The Spectravideo SV I738 X'press is sold as an MSX1 computer with single 3½'' disk drive.

It has the ability, unlike most other MSX1 computers, of displaying 80 columns on a TV. This is a function found in the various screen modes of MSX2.

If we look inside, and remove the inbuilt disk drive, there is something strange about the main printed circuit board. There are some components missing!

The component overlay on the PCB indicates a place for a battery and a crystal. Is this provision for a battery backed clock? This again is part of the MSX2 specifications.

Looking around for the Video Display Processor chip and its support VRAM chips, we discovered that they are not there. Instead, we found two Custom Chips. Do these perform the function of the VDP And VRAM. These Custom chips are in sockets and therefore can be removed and replaced quite easily.

Maybe the X'press is designed to be upgradeable to MSX2 standard. Therefore we are inclined to call the SV I738 X'press an MSX1.5 computer.

X'PRESS DISKS

A few months ago we became aware of a possible problem with the disk system of the SV I738 X'press. The system that we had in the office was returned for a replacement because it was corrupting disks. Not all the time. Just now and then. Another good reason for doing regular backups.

For those who do not know, the X'press does not load its disk operating system from disk, but has it stored in a ROM chip in the computer. It appears that there was a bug in the firmware contained on this chip.

According to Mr Chang of Bondwell, this situation has now been corrected in current models. When we asked him if the new ROMs were available for existing models that might contain the faulty firmware, he commented that they had no stock of ROM chips at present, but would keep us informed. We, in turn, will keep you informed.

USER GROUPS

Thank you to those User Groups who have responded in a positive way to COMPUTER FORUM. We print their names and addresses below. A special "Thank You" to the group which published our subscription form in their newsletter.

If you are a member or know of a User Group which has not yet responded (tut, tut) DO SOMETHING ABOUT IT!

Brisbane Spectravideo & MSX Users Group
C/- Mrs Lucille Parker (Secretary)
25 Primrose Street
Woodridge
Queensland 4114

The MSX Users Group
C/- Max Cowin
P.O. Box 87
Mt Hawthorn
W.A. 6016

Wellington Spectravideo Users Group
P.O. Box 26-050
Newlands
Wellington 6004
New Zealand

COMPUTER KIDS

Hi kids! This is Wendy, back with you for another issue. I hope everyone had a good time at Easter. How long did *your* Easter eggs last? I saved mine up and ate small pieces after meals as a treat!

Did you find all the hidden words in our COMPUWORDS puzzle? See the answer on this page.
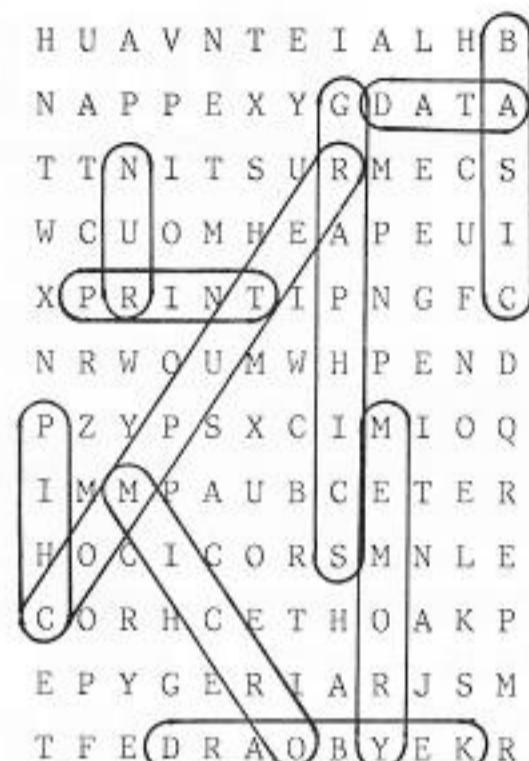
Hands up all those who know the words to our National Anthem! This month's program uses the computer as a musical instrument. Type in the program listing and sing along with your computer to "ADVANCE AUSTRALIA FAIR".

Watch out for Computer Kids in the next issue. Bye for now. Wendy.

P.S. When you type a program into the computer, it's a good idea to use a ruler. Put the ruler on the page right underneath the line you are going to read and remember to move it down as you finish typing in each line. Go slowly. Good luck!

```
10 CLS:PRINT"### ADVANCE AUSTRALIA FAIR
   ###":PRINT
20 A1$="o4go5co4gecgr8g16r16g8r64":A2$=
   "o3go4co3gecgr8g16r16g8r64"
30 B1$="r64o5edco4b":B2$="r64o4edco3b"
40 C1$="r64o4ga3b7o5co4ag3":C2$="r64o3g
   a3b7o4co3ag3"
50 PLAYA1$,A2$
60 PRINT"Australians all let us rejoice
   "
70 PLAYB1$+"o5cddr64",B2$+"o4cddr64"
80 FORT=1TO2500:NEXT:PRINT
90 PLAY"r48r64"+A1$,"r48r64"+A2$
100 PRINT"For we are young and free"
110 PLAYB1$+"aggr64",B2$+"aggr64"
120 FORT=1TO2000:NEXT:PRINT
130 PRINT"We've golden soil and wealth
    for toil"
140 PLAYC1$+"e8r64e8r64",C2$+"e8r64e8r6
    4"
150 PLAY"r64gao5cfed2r64","r64gao4cfed2
    r64"
```

SOLUTION TO COMPUWORDS NO. 1


```
160 PRINT:PRINT"Our home is girt by sea
    ."
170 FORT=1TO2700:NEXT
180 PRINT:PRINT"Our land abounds in nat
    ure's gifts"
190 PLAYC1$+"o5c8r64c4r64",C2$+"o4c8r64
    c4r64"
200 FORT=1TO2000:NEXT
210 PRINT:PRINT"Of beauty rich and rare
    ."
220 PLAY"r64r64o5c8e3c6d3o4b6o5ccr64","
    r64r64o4c8e3c6d3o3b6o4ccr64"
230 FORT=1TO2300:NEXT
240 PRINT:PRINT"In hist'rys page let ev
    ery stage"
250 PLAY"r8o5efedco4bagr64","r8o4efedco
    3bagr64"
260 FORT=1TO2000:NEXT
270 PRINT:PRINT"ADVANCE AUSTRALIA FAIR"
280 PLAY"r64o5c6e3c6d3o4b6o5ccr64","r64
    o4c6e3c6d3o3b6o4ccr64"
290 FORT=1TO2700:NEXT
300 PRINT:PRINT"In joyful strains then
    let us sing"
310 FORT=1TO2700:NEXT
320 PRINT:PRINT"ADVANCE AUSTRALIA FAIR"
```

HINTS & TIPS

USING CP/M ON SV318

The SV318 cannot run CP/M without extra memory. Adding a 16K RAM card will not solve the problem, as CP/M on the Spectravideo requires the full 64K of RAM. The 64K RAM card is the only cure.

CASSETTE KILLER

This may be obvious to many people, but the programs stored on your cassettes are placed there magnetically and can be destroyed or damaged by magnetic fields.

These magnetic fields are able to physically alter or erase the information on the tape. So, when you have finished loading your program, do not put the cassette on top of the TV or near any loudspeakers. Another source of magnetic problems which is easy to overlook is the type of magnetic cupboard catch used in some furniture.

We will be running an article about care of your cassettes and data recorder in a future issue.
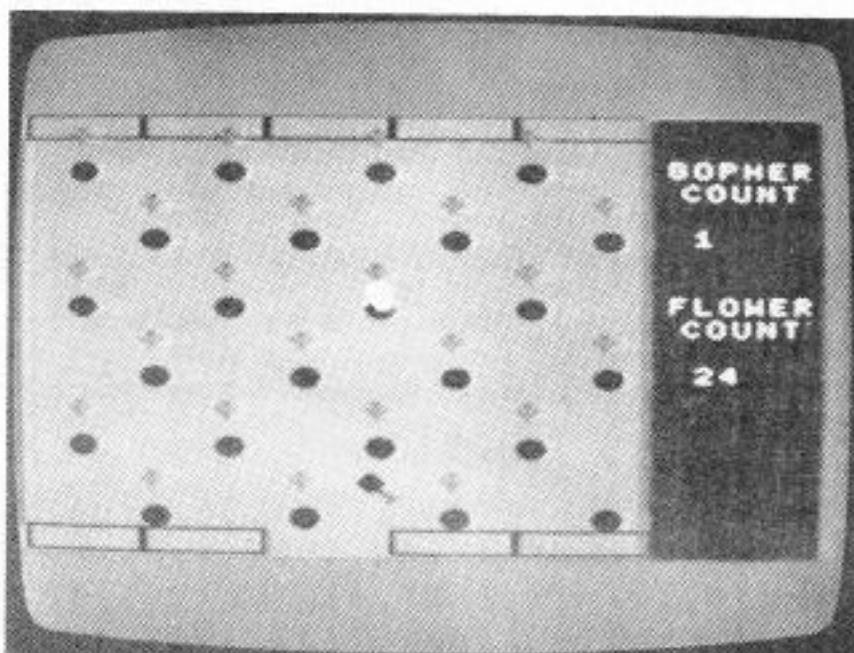
Each issue of COMPUTER FORUM will contain program listings for you to type in. When entering these programs it is a good idea to save off to cassette or disk every 10 or 20 lines and then continue. Then if the power goes off or another major disaster occurs, you will not have to type in the whole lot again.

Another check is to verify each save using the CSAVE? command. To use this command, CSAVE your program, then rewind the tape and type CLOAD? and press enter. This command will then compare the program on the tape with the one in memory, to verify that it was saved correctly.

Take care that you do not mistake the letter I for 1 or an O for a zero. Where graphics characters are used in the program, they will be shown as @1@. This symbol will then be repeated at the end of the listing with instructions concerning the graphics character used.

All of the listings have been tested on MSX and SV318/328 computers and do work. Should you have any problems, we suggest that you thoroughly check your work as errors can creep in very easily. Should you not wish to type in these listings, send a blank tape together with $2 to COMPUTER FORUM and we will post a copy to you. Do not forget to tell us which computer you have.

GOPHER

This listing is in Spectravideo SV318/328 format.
For MSX owners, see the note at the end

```
10 REM GOPHER
20 GOSUB570
30 DEFINTA-Z:D=300:X=102:Y=176
40 COLOR15,12,4:SCREEN1,2
50 STRIG(0)ON:STRIG(1)ON:GOSUB250:ONSTRI
GGOSUB200,200:GOTO130
60 ST=STICK(0)+STICK(1):ONSTGOSUB90,80,1
00,80,110,80,120,80
70 PUTSPRITE1,(X,Y),1,1
80 RETURN
90 IFY<3THENRETURNELSEY=Y-3:RETURN
100 IFX>193THENRETURNELSEX=X+3:RETURN
110 IFY>176THENRETURNELSEY=Y+3:RETURN
120 IFX<3THENRETURNELSEX=X-3:RETURN
130 G1=INT(RND(1)*30):GOSUB60:IFG1>27ORG
1<4THEN130ELSEIFF(G1)=0THEN130
140 IFF=23THEN150ELSEIFG1=LPTHEN130ELSEL
P=G1
150 PUTSPRITE2,(X(G1),Y(G1)+8),10,2
160 FORT=1TOD:GOSUB60:NEXT
170 IFGH=1THENGH=0:GOTO130
```

```
180 F(G1)=0:BEEP:PUTSPRITEG1,(0,209):F=F
+1:GOSUB530:IFF=23THEN540
190 GOTO130
200 STRIG(0)OFF:STRIG(1)OFF:IFX<X(G1)-60
RX>X(G1)+80RY<Y(G1)ORY>Y(G1)+20THEN240
210 SOUND6,31:SOUND7,55:SOUND8,16:SOUND1
2,8:SOUND13,5:PUTSPRITE2,(0,209):FORI=1T
O20:PUTSPRITE1,(X(G1),Y(G1)+16),15,4:PUT
SPRITE1,(X,Y),1,1:NEXT:PUTSPRITE1,(0,209
):GH=1:SC=SC+1:GOSUB530:GOSUB60:GOSUB530
:FORT=1TO200:NEXT
220 IFD>50THEND=D-10:ELSED=D-1
230 PUTSPRITE31,(0,209)
240 STRIG(0)ON:STRIG(1)ON:RETURN
250 DIMF(30),X(30),Y(30):N=RND(-TIME)
260 SPRITE$(0)=STRING$(8,255)+STRING$(8,
128)+STRING$(8,255)+STRING$(8,0)
270 A$="":FORI=1TO29:READA:A$=A$+CHR$(A)
:NEXT
280 SPRITE$(1)=A$
290 A$="":FORI=1TO12:READA:A$=A$+CHR$(A)
:NEXT
300 SPRITE$(2)=A$
310 A$="":FORI=1TO8:READA:A$=A$+CHR$(A):
NEXT
320 SPRITE$(3)=A$
330 A$="":FORI=1TO23:READA:A$=A$+CHR$(A)
:NEXT
340 SPRITE$(4)=A$
350 FORL=2TO180STEP40:LINE(L,0)-(L+39,10
),1,B:LINE(L,180)-(L+39,190),1,B:NEXT
360 LINE(0,10)-(0,180),1:LINE(201,10)-(2
01,180),1:LINE(82,180)-(121,190),12,BF
370 LINE(202,0)-(256,191),6,BF:LOCATE210
,20:COLOR15:PRINT"GOPHER":LOCATE214,30:P
RINT"COUNT":LOCATE210,80:PRINT"FLOWER":L
OCATE214,90:PRINT"COUNT"
380 FORP=4TO27:F(P)=1:READX(P),Y(P):PUTS
PRITEP,(X(P),Y(P)),4,3
390 CIRCLE(X(P)+4,Y(P)+20),4,6:PAINT(X(P
)+4,Y(P)+20),6:NEXT
400 RESTORE520:FORI=140TO180STEP10:READM
$:LOCATE210,I:COLOR14:PRINTM$:NEXT
410 IFSTRIG(0)+STRIG(1)=0THEN410ELSELINE
(210,140)-(256,191),6,BF:RETURN
420 DATA 8,28,62,127,255,127,62,29,8,0,0
,0,0,0,0,0,0,0,0,128,0,0,0,128,64,40,1
6,32
430 DATA 60,126,94,254,254,28,62,127,191
,191,31,31
440 DATA 56,56,146,214,124,56,16,16
450 DATA 241,138,138,242,130,130,129,0,0
,0,0,0,0,0,0,0,145,81,81,85,85,91,145
460 DATA 18,5,66,5,114,5,162,5
470 DATA 42,35,90,35,138,35,186,35
480 DATA 18,65,66,65,114,65,162,65
```

```
490 DATA 42,95,90,95,138,95,186,95
500 DATA 18,125,66,125,114,125,162,125
510 DATA 42,155,90,155,138,155,186,155
520 DATA"PRESS","FIRE","BUTTON","TO","ST
ART"
530 LINE(210,50)-(256,70),6,BF:LOCATE210
,50:COLOR15:PRINTSC:LINE(210,110)-(256,1
30),6,BF:LOCATE210,110:PRINT24-F:RETURN
540 PUTSPRITE0,(X(G1),Y(G1)-4),9,0
550 LINE(60,90)-(140,100),1,BF:LOCATE70,
91:PRINT"WE WIN!!"
560 GOSUB400:RUN30
570 COLOR15,13,4:SCREEN2,2:LOCATE48,80
580 P$="r64c64r64d64r64e64r64d64r64c64r6
4":PRINT"GOPHER":PLAYP$:PLAYP$:PLAYP$:PL
AY"r64d64d64r64c64c64c64"
590 FORT=1TO1000:NEXT
600 SCREEN0,0:WIDTH40:LOCATE1,6:PRINT"Us
e your joystick to move the shovel":LOCA
TE1,7:PRINT"around the garden. Whack tho
se pesky":LOCATE0,8:PRINT"gophers by pre
ssing the trigger before"
610 LOCATE3,9:PRINT"they disappear with
your flowers.":LOCATE2,12:PRINT"When the
re is only one flower left,":LOCATE10,13
:PRINT"the gophers have won!"
620 LOCATE2,15:PRINT"You are also hamper
ed by not being":LOCATE7,16:PRINT"able t
o move diagonally.":LOCATE15,18:PRINT"GO
 GET 'EM"
630 LOCATE6,20:PRINT"Press the SPACE BAR
 to start"
640 I$=INKEY$:IFI$<>" "THEN640ELSERETURN
```

NOTE: FOR MSX CHANGE LINES 40,370, 530,550,570,590 AND 600 AS FOLLOWS

```
40 COLOR15,12,4:SCREEN2,2:OPEN"GRP:"AS#1

370 LINE(202,0)-(256,191),6,BF:PRESET(21
0,20):COLOR15:PRINT#1,"GOPHER":PRESET(21
4,30):PRINT#1,"COUNT":PRESET(210,80):PRI
NT#1,"FLOWER":PRESET(214,90):PRINT#1,"CO
UNT"

530 LINE(210,50)-(256,70),6,BF:PRESET(21
0,50):COLOR15:PRINT#1,SC:LINE(210,110)-(
256,130),6,BF:PRESET(210,110):PRINT#1,24
-F:RETURN

550 LINE(60,90)-(140,100),1,BF:PRESET(70
,91):PRINT#1,"WE WIN!!"

570 OPEN"GRP:"AS#1,:COLOR15,13,4:SCREEN3
,2:PRESET(48,80)
```

```
590 FORT=1TO1000:NEXT:CLOSE#1

600 SCREEN0,0:WIDTH38:LOCATE1,6:PRINT"Us
e your joystick to move the shovel":LOCA
TE1,7:PRINT"around the garden. Whack tho
se pesky":LOCATE0,8:PRINT"gophers by pre
ssing the trigger before"
```

— — — — — — — — — — — — — — — —

HOME FINANCE

This program is suitable for SV318/328
and MSX computers.

```
10 '***********************************
11 '*         HOME FINANCE PROGRAM      *
12 '***********************************
101 '*****   MAIN MENU   *****
105 CLS : WIDTH40 : DEFSNGA-Z
106 PRINT"**            INTEREST CALCULATOR
    **"
110 LOCATE 0,3 : PRINT"CHOOSE ONE OF THE
    FOLLOWING:"
120 LOCATE 0,5 : PRINT"1 SAVINGS INTERES
T COMPOUNDED DAILY"
130 LOCATE 0,7 : PRINT"2 MONTHLY PAYMENT
S (ADD-ON INTEREST)"
140 LOCATE 0,9 : PRINT"3 MONTHLY PAYMENT
S (INT ON UNPAID BAL)"
150 LOCATE 0,11 : PRINT"4 MONTHLY PAYMEN
TS WITH AMORTIZATION"
160 LOCATE 0,13 : PRINT"5 END THE PROGRA
M"
170 LOCATE 0,16 : PRINT"TYPE 1, 2, 3, 4,
 OR 5";:INPUTS
175 IF S<1 OR S>5 THEN 170
180 ON S GOTO 205,305,405,505,1080
200 '***********************************
201 '*         SAVINGS             *
202 '***********************************
205 CLS : A$=" "
210 PRINT"SAVINGS INTEREST COMPOUNDED DA
ILY"
215 LOCATE 0,3 : PRINT"STARTING BALANCE
(MAX 999999)";:INPUT A
216 IF A>999999! THEN205
217 LOCATE 0,5 : PRINT"NUMBER OF DAYS CO
MPOUNDED";:INPUT T
218 IF T<=0 OR INT(T)<>T THEN217
220 LOCATE 0,7 : PRINT"INTEREST RATE PER
 YEAR (6.5% = 6.5)";:INPUT R
222 LOCATE 0,9 : GOSUB1100
230 R=R*.01/360   'REM MOST BANKS USE 36
0 DAYS
```

```
235 PRINT"DAY       BALANCE          INTERE
ST"
236 PRINTSTRING$(40,"-");
237 F$="###   $$#,###,###.##   $$##,###.##
"
238 PRINTUSINGF$;0;A;0
239 IP=0 : L=0 : TA=A
240 FOR J=1 TO T
243 IF L=12 THEN L=0 : GOSUB1100
244 I=A*R
245 L=L+1
246 IP=IP+I
247 TA=TA+I
255 PRINTUSINGF$;J;A;I
260 NEXT J
265 GOSUB1100
272 PRINTTAB(6);"BALANCE           TOTAL
INTEREST"
274 PRINTSTRING$(40,"-");
277 F$="$$##,###,###.## $$##,###,###.##"
278 PRINTUSINGF$;TA;TA-A
285 PRINT"AGAIN (Y/N)";: INPUT A$ : IF A
$="Y" OR A$="y" THEN205
290 GOTO105
300 '**********************************
301 '*          LOAN PAYMENTS 1         *
302 '**********************************
305 CLS : A$=" "
310 PRINT"MONTHLY PAYMENTS WITH ADD-ON I
NTEREST"
320 GOSUB1000
325 R=R*.01
330 IP=A*R*T/12
340 PRINT
341 PRINT"MONTHS  PRINCIPAL   INTEREST
   MONTHLY"
342 PRINT"TO PAY              PER MTH
   PAYMENT"
343 PRINTSTRING$(40,"-");
344 F$="###$$#,###,###.## $$#,###.## $$#
#,###.##"
345 PRINTUSINGF$;T,A,IP/T,(A+IP)/T
350 PRINT
351 PRINT"TOTAL","TOTAL AMOUNT"
352 PRINT"INTEREST","PAID BACK"
353 PRINTSTRING$(40,"-");
354 F$="$$###,###.## $$#,###,###.##"
355 PRINTUSINGF$;IP,A+IP
360 PRINT
370 PRINT"AGAIN (Y/N)";: INPUT A$ : IF A
$="Y" OR A$="y" THEN305
380 GOTO105
400 '**********************************
401 '*          LOAN PAYMENTS 2         *
402 '**********************************
```

```
405 CLS:A$=" "
410 PRINT"MONTHLY PAYMENTS INT ON UNPAID
 BALANCE"
420 GOSUB1000
421 PRINT:GOSUB1100
425 R=R*.01
430 P=A/T
440 GOSUB1200
450 FORJ=1TOT
460 IFL=12THENL=0:GOSUB1100
461 I=A*R/12
462 PRINTUSINGF$;J;A;I;P;P+I
463 L=L+1
464 IP=IP+I
465 TP=TP+P+I
466 SP=SP+P
467 A=A-P
468 NEXTJ
469 GOSUB1100
475 GOSUB1220
480 PRINT"AGAIN (Y/N)";:INPUTA$:IFA$="Y"
ORA$="y"THEN405
490 GOTO105
500 '*******************************
501 '*           AMORTIZATION        *
502 '*******************************
505 CLS:A$=" "
510 LOCATE11,0:PRINT"AMORTIZATION TABLE"
520 GOSUB1000
521 LOCATE0,10:GOSUB1100
525 R=R*.01/12
530 E=(A*R*(1+R)^T)/((1+R)^T-1)
540 GOSUB1200
550 FORJ=1TOT
560 IFL=12THENL=0:GOSUB1100
561 I=A*R : P=E-I
562 IFJ=TTHENP=A:I=E-P
563 PRINTUSINGF$;J;A;I;P;E
564 L=L+1
565 IP=IP+I
566 TP=TP+P+I
567 SP=SP+P
568 A=A-P
569 NEXTJ
570 GOSUB1100
575 GOSUB1220
580 PRINT"AGAIN (Y/N)";:INPUTA$:IFA$="Y"
ORA$="y"THEN505
590 GOTO105
999 REM INPUT SUBROUTINE
1000 LOCATE0,3:PRINT"AMOUNT BORROWED (PR
INCIPAL)"
1010 PRINT"MUST BE LESS THAN 1,000,000"+
SPACE$(13)
```

```
1020 LOCATE27,4:INPUTA
1030 IFA>999999!THEN1000
1040 LOCATE0,6:PRINT"NUMBER OF MONTHS TO
 PAY";:INPUT T
1050 IF T<=0 OR INT(T)<>T THEN1040
1060 LOCATE0,8:PRINT"INTEREST RATE PER Y
EAR (6.5% = 6.5)";:INPUT R
1070 RETURN
1080 END
1100 PRINT"PRESS ENTER TO CONTINUE";:INP
UTD$:RETURN
1200 CLS:IP=0:TP=0:SP=0:L=0
1201 PRINT"MTH PRINCIPAL INTEREST+PRINCI
PAL=MONTHLY";
1202 PRINT"NO. OWED         PAYMENT  PAYMEN
T   PAYMENT";
1203 PRINTSTRING$(40,"-");
1204 F$="### $$###,### $$#,### $$#,### $
$##,###"
1205 RETURN
1220 PRINT:PRINTTAB(10);"TOTAL       TOTAL
       TOTAL"
1221 PRINTTAB(10);"INTEREST  PRINCIPAL
PAYMENTS"
1222 PRINTSTRING$(40,"-");
1223 F$="$$##,### $$###,### $$#,###,###"
1224 PRINTTAB(10);:PRINTUSINGF$;IP;SP;TP
1225 RETURN
```

— — — — — — — — — — —

Written any programs? Send them in to
COMPUTER FORUM for inclusion in our Program
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payment based on size, originality and scope of
interest. Please send programs in cassette form or
disk and clearly marked which format they are for.
If you wish them to be returned, enclose sufficient
postage for safe return. Mark your name and address
on everything.

❀ ❀ ❀ ❀ ❀ ❀ ❀ ❀ ❀ ❀

SYNTAX ERRORS etc.

It seems that two errors appeared last month.

EASTER BUNNY — Line 10 should read 10 REM FOR
SV 318/328 CHANGE LINE 50 TO READ SCREEN 1,2.

WORLD WAR I — (MSX changes) Line 630 LOCATE
120,0 should be PRESET(120,0).

Sorry about that.

MSX and SPECTRAVIDEO COMPUTER FORUM

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