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Support new machine, software houses urged

Big sales expected

HIGH on the list of new hardware at the Atari Computer Show was the new games machine console.

Still without a firm release date, the cartridge-based machine will cost £89.95.

It will be expandable to run all existing Atari 8 bit software on cassette. The joystick, data recorder and light gun come with a keyboard for about £40. This produces a full 64K computer system for £129.95.

Atari chairman Jack Tramiel said at the launch that more than 400 pieces of software were available for the machine even before it was launched.

Because of the promotional effort Atari was putting into the machine around the world – particularly in the US – it was going to be a big seller, he promised.

8 BIT CHESS ARRIVES

COLOSSUS 4 Chess has been released for the Atari 8 bit.

CDS Software (0302 21134) says this is the first 3D chess game for the machine and claims it is the strongest program of its kind.

It features a backtrack facility, problem solving mode and handicapping.

The 8 bit version requires 48k of ram and costs £9.95 on cassette and £14.95 on disc.

BRITISH software houses have a great opportunity to make money worldwide if they weigh in with support for the new games machine, Atari boss Jack Tramiel is asserting.

He told journalists and dealers at the recent Atari Computer Show that he had just raised 75 million of long-term backing in Europe.

This meant finances were in order and the product range was right, ‘We are ready to go’, he said.

“We need your support but on the other hand we are spending 10 million promoting Atari in the US this year. We hope you software people will find a home there; if you try we will support you with everything we can.

“If we all work together we are going to make it big’.

With 200 million in the bank and ‘all petrol tanks full’ Atari was ready to take on the world, he boasted.

“Everything is being plugged in; we are going to be a major force’.

The Atari chairman said he could smell success in the air in Britain now that Bob Gleadow was in charge. ‘He has made all the difference’.

Until Gleadow’s arrival, Atari UK was losing money. This year it was expected to break even and next move into profitability.

Gleadow revealed he would expect to turn over £30 million this year. The least he could expect next year was £50 million, he said.

Earnings soar

ATARI Corporation earned more than four times as much in the first quarter of this year as it did in the same period last year.

Income was $9.3 million compared with $1.8 million in the first three months of 1986 – a 412 per cent rise.

Worldwide sales in the quarter were nearly double those for the period in 1986.

Cash registers rang up a total of $65.1 million compared with $44.8 million last year – an increase of 45 per cent.

During the period Atari opened new sales offices in Spain and Sweden, and appointed a new general manager to concentrate on improving US sales.

Atari has completed a $75 million Euro-dollar bond issue. The company says the proceeds will be used to expand its business through capital expenditures and acquisitions in the computer field and related areas and for general corporate purposes.

New mission for Floyd

AT last there is a sequel to Planetfall, featuring one of interactive fiction’s favourite characters, Floyd the lovable robot. American publisher Infocom has released the Atari XL/XE version of Stationfall in which you are enlisted in the Stellar Patrol and sent on a mission with the playful Floyd.

Toast of the show

SOFTWARE houses showed their commitment to cartridge games for the new 8 bit machines at the show.

The public responded, too. They crowded into the Novotel on the Friday to make it the best first day ever, 1,000 up on previous opening sessions.

So many people had wanted to exhibit that organisers, Database, had booked more space. The 70 or so exhibitors reported an excellent response from an informed public.

Software publishers gave a universal thumbs up to the new games machine pledging lots of support for it and a staggering variety of new software was unveiled with every sort of utility and game on offer.

June 1987 Atari User 5
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(NOTE S.T. GAMES WANTED)
Revolt against games image

SCIENCE teacher Glenn Leader is so fed up with people saying Atari micros are only for games that he has started a counter movement.

He is recruiting like-minded Atari users for a new special interest group called Sigatarri.

“The group was set up to combat what many people consider Atari computers to be – that is, purely games machines”, he told Atari User.

“I believe you don’t have to shoot blobs to have fun. There is music, robotics, programming, control technology, interfacing techniques and much much more available with Atari.

“One of our aims is eventually to adopt a language – Forth perhaps – bearing in mind the limitations of Basic and the difficulty of learning machine code.

“We are also developing a contact service for members with similar interests, a Help line for Atari-related problems, and a bulletin board”.

No war casualties

FEARS that the US-Japan trade war would affect Atari’s UK operation have been dispelled by British boss Bob Gleadow.

Because Japanese computers now cost twice as much in the US following the introduction of tariffs, it was suggested that Atari might flood the market there and hold back on manufacturing for Europe. But Gleadow explained that Atari manufacturing was operated separately for each side of the Atlantic.

“I can say that the present trade relationship between the US and Japan will not affect UK availability and pricing”. he said.

HERO FLASH FLIES IN

SPACE crusader Flash Gordon is off on another mission to save the world, this time courtesy of the Atari 8 bit series.

In Mastertronic’s latest release the evil Ming has targeted Earth with planet-killer missiles. To stop him destroying life as we know it you take the part of superhero Flash and foil the plot.

Ming must die if the Earth is to live – he carries the missile controls with him and only by destroying them can you hope to succeed. Unfortunately your spaceship has crashed into the jungle on Ming’s world and you only have 24 hours left.

Flash Gordon costs £2.99 from Mastertronic (01-377 6880).

CREATIVE DEAL

CREATIVE Sparks Distribution has just signed a major deal with Atari – because it believes the company now knows what it’s doing.

Vince Holton, CSD marketing manager said: “We firmly believe that 1987 will be Atari’s year.

“It is evident that both consumers and dealers are becoming excited about the variety of Atari products.”

The deal, says Holton, is part of Atari’s attempt to improve on its distribution.

He said CSD talked to Commodore as well, but in the end they persevered with Atari because “the pricing was more attractive and the company had its act together better”.

Compiled by Gallup/Microscope

While budget titles seem to dominate the chart, this month sees four non-budgets in the Top Ten – with Arkanoid going straight in at number eight. We’ll have a review in the next issue.
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Waiting for the DOS menu to load can get very frustrating after hours of typing. So why not keep the two DOS files in memory at the same time? A complete waste of space I hear you all cry. But not if you find an area of memory that the Atari doesn't normally let you use.

This program uses the unused area of memory under the operating system to hold the DUP.SYS file and allows the file to load at machine code speed — a great improvement on the old method. The area of memory is also used to save the program space that the DUP.SYS file will sit in when loaded.

In other words it will act as a MEM.SAF file, leaving your programs intact. Let me explain how to change your old tortoise DOS into a high speed hare.

Type in the listing, save it and type RUN. The program will take about 10 seconds to run. It will then load DOS and select option H to write DOS files for you. To be on the safe side insert a blank formatted disc: Press Return, and follow the prompts to copy the system files on to this disc. You now have a new master disc which can be used to update any other DOS disc.

To check that all is well, turn off the computer and reboot using the new disc. Return to Basic and type DOS again. This time — and subsequently — the DOS should come up almost instantly. If at any stage things do not proceed as described, recheck the program and try again.

This modified DOS can be used with Basic, assembler or any application program that normally uses DOS 2.5.
FLASHING CURSOR
from BRUCE BLACK

ATARI computers possess many powerful features but lack certain cosmetic effects such as a flashing cursor. This can make all the difference to a screen display, and many routines have been published over the years that provide this obviously useful feature.

Unfortunately they usually have these major drawbacks in that all the inverse text on the screen flashes in time with the cursor and the routine has to be re-initialized with a USR call every time the system reset button is pressed.

If you only want the cursor to flash and have it stay flashing even after pressing the reset button, this program — CFLASH — is just what you have been waiting for. It consists of three short machine-code routines which are copied into page 6 and initialized with a USR call.

The routine sets the VBLANK interrupt vector to point to the CFLASH interrupt service routine. Once this has been done the CFLASH will continue to run even after the reset button has been pressed.

When an ATARI does a warm start after the reset button is pressed it resets the interrupt vectors to default values and removes the CFLASH vector.

Fortunately it is possible to trap the warm start routine, since during its execution the operating system examines the contents of the boot success flag (BOOTF) at location $9.

If the value is 1 a disc boot was successful and the operating system will jump to the address held in locations $C0 and $D (DOSIN). By resetting the DOSIN vector to point to the reset routine within CFLASH, it is possible to reset the VBLANK vector whenever reset is pressed.

CFLASH also allows cassette users to have this reset protection since it fools the operating system into thinking a disc boot was successful and so calling CFLASH’s reset routine.

The cursor flashing is accomplished during the VBLANK interrupt service routine. Each time a VBLANK interrupt occurs it decrements a count. When the count reaches 0 the count is reset and the routine proceeds to flash the cursor.

CFLASH makes use of the value of the character under the cursor, held in location $5D (DCHR) and the memory location of the cursor which is held in locations $5E and $5F (OLDADR).

The flashing is produced by toggling the top bit (bit 7) of the location pointed at by OLDADR. This has the effect of changing the state of the character so that if it was normal it is now inverse, and vice versa.

A check is made to make sure that the VBLANK interrupt did not occur during a cursor move, otherwise a character may be reversed before the operating system has saved the correct value of the character under the cursor.

The check is carried out by comparing the value in OLDCHR with the value pointed at by OLDADR. If they are not the same, the cursor flash is aborted and the routine begins counting down again.

The flashing period may be altered while the routine is running by the command “POKE 1607, period” where period is a value between 0 and 255. The smaller this value of period, the faster the flashing effect, except that a value of 0 produces the slowest flashing rate.

10 FOR X=1535 TO 1581;READ A:POKE X,A
30 NEXT X:X=USR(1556)
20 DATA 104,165,9,41,1,240,14,165,12,
30 141,13,6,165,13,141,44,6,169,1,133
40 DATA 5,169,59,133,12,169,6,133,13,
50 162,6,160,45,169,1,32,92,228,96,32
60 DATA 29,6,76,77,160,165,87,209,26,
70 286,78,5,288,21,160,8,165,93,91,94
80 DATA 41,127,288,4,177,94,73,128,14,
90 5,34,165,32,141,78,8,199,228,32

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Atari User, Europa House, 68 Chester Road, Hazel Grove, Stockport, SK7 5NY.
**SPACE INVADERS from RICHARD PARKES**

WHO said you couldn't put a game into five lines? Well here we have a version of the classic Space Invaders program and the only difference is that you only have one crafty little invader to deal with.

The program makes use of many Atari Basic features, but the one most utilised is the assignment of the values 1 or 0 to a true or false Boolean statement.

For example, the expression X=2 yields a 1 if X is 2, or a 0 if X is not equal to 2. The ON GOTO statement is also used to good effect to give the missing IF..THEN..ELSE type structure.

To get the program into five lines you will have to use Basic abbreviations shown, but do not abbreviate the GOTO of the ON GOTO statement, as this cannot be abbreviated to G.

Unfortunately because of the length of the lines you must use the abbreviations and it is not possible to give a GIF with this listing.

```
10 POSITION X,Y:=30;FOR U:=0 TO 100:GOTO 20:END
20 A=WIND(0);SOUND 1:IF A=-1:G0TO 20:GOTO 30:GOTO 30:
30 IF X=0:GOTO 60:GOTO 20:GOTO 60:
40 IF X=100:END
50 A=WIND(0):B=WIND(0):C=WIND(0):IF A=-1:GOTO 20:
60 BEG
70 X=10:Y=100
80 GOTO 20:END
90 END
```

**MASS FORMATTER from COLIN FROGGATT**

HOW often have you had a pile of disks that you wanted formatting? well here is a five line program that allows you to do that without having to use that tiresome format option on your Dos discs. You don't have to enter which drive you wish to format, or answer the Y prompt: Just get on with the job at hand.

The program uses the Basic command XIO254, #1, 0, 0, “DI”, to format the discs. This will format any disc in Drive:DI in the density of the Dos you boot the system up with. So Dos 2.0 is formatted to single density, Dos 2.5 to enhanced density, Dos 3.0 - 87 Blocks.

**LINE BREAKDOWN**

Line 1 sets up screen, sets colour registers, turns cursor off and prints the title.

Line 2 prompts you to press start to format the disc.

Line 3 uses XIO 254 to format the disc and a bell when finished.

Line 4 prompts you to continue.

Line 5 reports when an error has occurred.

```
1 GRAPHICS 1:POKE 752,1:POKE 716,0:TRAP 5:POSITION 1,2:? #6:4:MASS FORMAT BY * * COLIN FROGGATT *
2 POKE 706,8:POKE 711,18:POSITION 3,8
3 #6:PRESS START TO FORMAT DISK:IF PEAK(773/79/3)=0 THEN GOTO 2
4 POKE 789,8:POKE 711,0:POKE 254,1,0,0
5 #6:PRESS ANY KEY TO CONTINUE:OPEN #0,4,0:G:K=GET #0,CLOSE #0:GOTO 2
6 GRAPHICS 1:POKE 716,0:? "":?"#:POKE 1973,0:POSITION 1,5:G:ERROR HAS OCCURED
7 REPLY FORMAT:FOR T=1 TO 2000:NEX
8 T=6060
```

**3 DIMENSIONAL CUBES from MATTHEW CROFT**

HERE’s a five liner that allows you to draw any number of 3D cubes on the screen. When the program is first run a Graphics 8 screen appears with your first cube drawn and a message asks you to enter the two coordinates of the top left hand edge of another cube to plot.

The cubes can be stacked, put behind, in front and either side of any other cube you choose to plot. In fact they can be placed anywhere, but don't enter any points over 280 on the first coordinate or 160 on the second, as this will cause an error -144 - cursor out of range.

If you wish you could add an extra line to reject any points above these settings. To draw a cube behind another simply decrease both previous numbers by 10, and to plot in front of another cube increment by 10. If you experiment with these plots you can create some amazing effects.
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IN this final part of our series we look at AUTORUN.SYS machine code files, which will allow you to make your own Basic programs load and run automatically from Dos.

Program I shows our now-familiar colour change routine in AUTORUN.SYS form. You can see the differences between this and the autoboot version listed in parts 1 and 2 – only lines 270 to 370 look at all familiar.

Notice first of all that no special header is required in our source code, since the Assembler Editor cartridge will insert one automatically when you assemble the file to disk. To identify it as a binary load file a six-byte header will be placed before the actual machine code.

The first two bytes will be set to 255, the next two will contain the load address and the last two will hold the address at which the load will end. If you had to insert it manually, it would look like this:

```
START BYTE 255
    BYTE 255
    WORD START
    WORD FINISH
```

Program I is a conventional AUTORUN.SYS file which loads and runs on power-up, then hands control back to Basic.

DOS extracts the load address and calculates the file length from the six-byte header, then loads the file into the specified area – or areas, since there may be more similar blocks of data assigned to different places in memory.

After all the blocks have been loaded, it then looks to see if you have stored a run address in RUNAD (736,737). If so, it performs a JSR to that address and executes everything down to the final RTS, then hands control back to Basic.

Lines 410 and 420 set RUNAD during the load process to point to the start of our file. If you don't store an address at RUNAD, DOS will give control to Basic as soon as AUTORUN.SYS has finished loading, without running it.

Alternatively, you can store an address at INITAD (736,739), in which case the code at that address will run as soon as it is loaded, without waiting for the rest of the file.

System Reset handling is not as simple as it was with the boot formats we have been looking at so far. When DOS.SYS was first loaded, it set the value of DOS.INI to point to its own initialisation routine and, provided you don't want anything extra done during Reset, you should leave this value unchanged.

The OS will then carry out Dos Initialise and hand control straight back to Basic whenever Reset is pressed.

In many cases, however, you will want to run some extra code of your own after System Reset has been pressed, so DOS.INI will have to be altered. You could make it point to any address in your own code, but then Dos Initialisation would be by-passed thus disabling the Dos file management system disabled.

To get around this problem lines 130 to 160 copy the original value from DOS.INI into the operand of JSR INITDOS. This effectively transforms line 240 from a simple time delay into an instruction to initialise Dos. Then lines 170 to 200 change DOS.INI so that it points to our extra Reset code, at WARMST.

Now when Reset is pressed, the OS jumps via the new value at DOS.INI to WARMST, carries out the Dos Initialisation and then returns to execute all the code between WMST2 and the final RTS. It then hands control back to Basic.

If you want to extend the Reset routine, put your extra instructions between lines 200 and 210 (renumbering the program, of course), while any extra power-up code should go between lines 260 and 290. If you stick to this layout, your AUTORUN.SYS file will always behave correctly.

Saving Program I to disc is easy. Just type:
```
ASM,FD:AUTORUN.SYS
```

automatically. Alternatively, you could use Program II to make the same AUTORUN.SYS file from Basic. Notice that in this case the header data must be included in the DATA statements (line 70).

To round things off let's look at an AUTORUN.SYS file which will load and run a Basic program automatically on power-up. Program III is the source code for those readers who are interested.

It inserts a new editor handler which allows you to put a line of text into the computer's text buffer during power-up. When Basic takes control, it will assume that you have just typed that line and hit Return. If the text line contains:
```
RUN:
```

followed by your filename, the specified file will load and run as soon as Basic takes control. Program III also changes the text luminance so that the READY message can't be seen while your Basic program is loading. This makes it look more like a commercial disc autoboot.

The source code is for interest only – program IV is the one to use. It starts by putting the machine code into page 6, with 12 blank spaces left for the file name. Then it asks you for a name, such as PROGRAM1.BAS or MENU, and rejects anything that is too short or too long.

You could improve the program by adding more sophisticated checks to ensure that the file name is legal in all respects. The name is inserted into page 6 at the appropriate point in the machine code, then line 70 creates the AUTORUN.SYS file for you.

Now whenever you switch on with that disc inserted, a chain of events takes place. First DOS.SYS is loaded and, after being initialised, it takes control and looks for an AUTORUN.SYS file on the disc. Once run, your program inserts a text line reading:
```
"CHRD(125): POKE 789,282: RUND:filename"
```

Basic now takes control, and carries out the instructions in the text line. This clears the screen, makes text visible again, then finally loads and runs the specified Basic program. The net result is difficult to distinguish from a single-stage machine code autoboot.

AUTORUN.SYS is ideal for customising the operating system, or even adding extra facilities to Basic itself, and we will be presenting a few interesting routines in future issues.
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Program I

05 ;PROGRAM I - A SIMPLE AUTORUN.SYS F
10 REM ETEXT=82CB
20 DOSINIT=40C
30 MEMLO=2827
40 RUNAD=2828
50 ;
60 $=1000
70 ;
80 ;load address must be above DOS
90 0100
100 COLSTOP
110 LDA DOSINIT ;Store old DOSINIT value
120 STA WARMST+1 ;into operand of
130 LDA DOSINIT+1 ;USR INITIDS
140 STA WARMST+2
150 LDA WARMST+255 ; Insert RESET vector
160 ORT
170 LDA DOSINIT
180 LDA WARMST+256
190 JMP WSM12
200 ;
210 WARMST

Program II

0240 JSR INITIDS ; Do normal DOS init
0250
0260 WSM12
0270 LDA #148 ; Change sc
0280 STA COLOR4
0290 STA $# > FFINISH > 255
0300 STA MEMLO
0310 STA $# > FINISH > 255
0320 STA MEMLO+1
0330
0340 INITIDS
0350 RTS ; Give control to BASIC
0360
0370 FINISH=*
0380
0390 ; Insert the Run address:
0400
0410 $RUNAD
0420 .WORD COLSTO

Program III

05 ;PROGRAM III
10 COLOR=82C5
20 EOL=59H
30 HATABS=831A
40 OLVTAB=83CB
50 $=80H
60 1000
70 1100 COLDST
120 DEX #8
130 STX COUNT
140
150 SEARCH
160 LDA HATABS,X ;Search HATABS to f.
170 CMP 40H ; the Editor's entry
180 BEQ @FOUND
190 INX
200 INX
210 INX
220 INX
230 BNE SEARCH
240 @FOUND
250 INX ;Store offset to address
260 STA POINTER ; set old vector table
270 LDA HATABS,X ; Store old address, and
280 STA OLVTAB ; put address of new
290 LDA #NEWTAB+255 ;vector table
300 STA HATABS,X ; Into HATABS
310 INX
320 HATABS,X ; Repeat with high byte
330 STA OLVTAB+1
340 LDA #NEWTAB+256
350 STA HATABS,X
360 ;
370 LCV #15
380
390 COPYTAB
400 LDA (OLVTAB,Y) ; Copy old vector table
410 STA NEWTAB ; into NEWTAB
420 DEY
430 BPL COPYTAB
440
450 SETGB
460 LDA #NEWGB-18255 ; Put address -1 of

Program IV

0470 STA NEWTAB+4 ; New GET BYTE routine
0480 LDA #NEWGB-1256 ; Into new vector
0490 STA NEWTAB+5 ; Table
0500 LDA M504 ; Hide the READY message
0510 LDA COLOR1
0520 RTS ; Give control to BASIC
0530
0540 NEWGB
0550 ; New GET BYTE routine
0560 LDY COUNT
0570 CPY HENDSTRING-STRING
0580 BEQ RESTORE
0590 LDA STRING,Y ; Give string characters
0600 INC COUNT ; One at a time to OS
0610 LDA #1 ; Signal success
0620 RTS
0630
0640 RESTORE
0650 LDA POINTER ; Change Editor's entry
0660 LDA HATABS,Y ; in HATABS to point
0670 STA HATABS,Y ; Old vector table
0680 INY
0690 LDA OLVTAB+1
0700 STA HATABS,Y
0710 LDA HATABS,X
0720 LDA HATABS,X
0730 STA HATABS,Y
0740 STA HATABS,Y
0750 STA HATABS,X
0760 LDA #1 ; and successful transfer
0770 RTS
0780 POINTER +=1
0790 COUNT +=1
0800 NEWTAB +=16
0810 STRING
0820 BNE "byte "CHR$(125):POKE 709,202:X"
0830 "byte ";for filename
0840 ENDSTRING
0850
0860 BPL OLVTAB+2
0870 LDA #1620
0880 .WORD COLOST
0890 .END

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Battle stations

Product: Astro-Droid
Price: £3.95 (disc) £7.95 (cassette)
Supplier: Red Rat Software,
11 Fennel Street, Manchester M6 3OU.
Tel: 061-835 1055

IS it a bird? is it a plane? No, it’s Astro-Droid, the latest release from Red Rat Software. You take on the role of a $200,000,000 machine of destruction, a cyborg, a machine with a human brain – an insane one at that.

You are first presented with an impressive title screen. When the rest of the program loads this changes to a 3D scrolling starfield, with a prompt to press the fire button to start.

Playing in the background is a catchy tune that suits the game’s mood very well. This continues to play all the way through the game.

When you press the fire button you are enter the Median Sector and go single-handedly into battle against the evil Reldans to force them back to their own galaxy.

You do this by flying over their 50 mile long neutron-powered starships blasting away at their positronic laser batteries and destroying enemy fighters that attempt to crash kamikaze-style into you.

After you have inflicted enough damage to their craft you move to a bonus level which involves avoiding fighters in deep space.

Once the fighters have been destroyed you progress to another space sector with yet another starship to obliterate.

The first impression is good – the screen scrolls very smoothly, the fighters appear and attempt to dive bomb you. However, after I had been playing a while it began to remind me of Screaming Wings, an earlier Red Rat game. Fighters fly at you in a similar way, even the way your droid moves around the screen.

This does not detract from the skilful content of the game – the fighters are very hard to shoot, and the wreckage can destroy you if you are not fast enough.

Dotted along the starship are different letters. If you shoot at a letter C you cause your droid to turn into an invisible attack ship, but this transformation only lasts for a limited time.

The time remaining is displayed at the bottom of the screen. If you look closely at the starship the letters XL appear frequently – a nice touch.

This is a one-player game using the joystick in port one. In certain parts of the game you are required to move your droid to the left or right of the screen to indicate if you wish to fly above or below the starships.

The scoring system is easy; and you gain points for blasting the fighters, with bonus points awarded for hitting special targets and for surviving the deep space section.

There are many nice features, such as the ability to fly on either side of the starships. Visible through the ships is a very nicely scrolled starfield which gives the impression of depth.

The way that your droid transforms into the sleek attack ship is smoothly done and does not interfere with the screen’s scrolling.

My only quibble lies with the instructions, which are very short and contain an error when telling you how to load the disc version. They indicate that you hold Start and Option keys when powering up your machine. In fact you only hold Option to deselected Basic.

Apart from this, I was very impressed with the game, and if you like to see your enemy vanish in a hail of laser fire this is the one for you.

Neil Fawcett

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June 1987 Atari User 17
Fast and frantic

Program: Attack of the Mutant Camels
Price: £1.99
Supplier: Mastertronic, 8-10 Paul Street, London EC2A 4JH
Tel: 01-377 6880

MINTER Madness is about to burst on to your screen as cut-price king Mastertronic rereleases the games that made Jeff Minter into a megastar.

Minter might be more famous for his C64 games, but he's always had a soft spot for the 8 bit Atari. Attack of the Mutant Camels is the game that started it all.

As with all the best shoot-'em-ups, Mutant Camels is easy to play but almost impossible to master. The plot revolves around your attempts to foil the Zyxian's evil plot to destroy the Earth.

These dastardly aliens secretly abducted a herd of camels and have genetically engineered them into 90 foot high, laserbolt-firing, neutronium-shielded war machines that now march relentlessly on their path of destruction. Your job is to stop them.

The countries of the world have united to provide you with a small but highly manoeuvrable ship to fly between the deadly beasts, blast them with neutron bolts (thus wearing down their shielding) and finally destroying them while avoiding their laser bolts. I found the best tactic was to hurtle towards the first camel (so you don't waste any time), get behind it and blast away.

Naturally, you should avoid the laser bolts and stay as close as possible as you'll score more hits.

In between waves you must survive a hyperspace hurl through an asteroid belt, so keep your nerve.

Attack of the Mutant Camels was Jeff Minter's first game and, as far as I'm concerned, it's still the best. Fast, frantic action, now at a budget price. What more could you want?

Tony Hetherington

It's a knockout!

Program: Fight Night
Price: £3.95 (cassette) £14.95 (disc)
Supplier: US Gold, Unit 2 & 3, Hofford Way, Birming ham B6 7AX
Tel: 021-356 3380

FIGHT Night offers five different modes of play - main event, construction, training, sparring and tournament.

Control of your boxer is by joystick and you are limited to eight basic moves - fake or throw a punch to the body or head, put your guard up or down, and move left or right.

Although punches never actually seem to connect, the recipient nevertheless doubles up or jerks his head back as appropriate.

To defeat an opponent in the three, three minute rounds you must either out-point him or knock him out.

Each time you land a blow your score goes up and the contender's KO indicator increases. The greater the length of the KO Indicator, the closer to being knocked out.

All options are selected from the title screen. The main event has you fighting five plug-ugly computer-controlled boxers, each one stronger that the last.

Construction mode allows you to create up to 24 of your own boxers.

You can select head, body, feet and shorts. Then your creation is either controlled by the computer or by a player and can balance the strengths (100 per cent split between head and body) of the power of the boxer's blow and his resistance to blows.

If the boxer is to be computer-controlled you can also adjust the balance of offensive and defensive moves and the split between action and intelligence.

Sparing mode lets you call up any two boxers to fight. You can have computer v computer (in which case you sit back and watch), player against computer, or with a second joystick, player against player.

Training mode lets you call up any boxer to punch away at a bag. You may operate in Follow or Lead mode at a selected speed, allowing you to practice joystick control as well as being able to evaluate a created boxer's power.

In Follow mode you simply move your joystick in accordance with an illuminated position on a displayed joystick chart. In Lead mode, you can move the joystick at will.

In Tournament mode (disc only), two players can set up various boxers against each other in a knockout competition.

The graphics are of a fairly high standard although the animation is a little on the slow and jerky side.

Presentation is excellent, from the ease of selecting the various options, to such things as the use of an admission ticket as a header screen before a contest.

Sound effects are only fair - a little bit of music and simple crashes whenever a punch lands.

All told, Fight Night provides genial, non-nonsense entertainment and is certainly the best boxing simulation around. Good humoured and good value for money.

Doug Wooler
**All aboard Loco**

Program: Loco  
Price: £1.99  
Supplier: Alligator Software,  
1 Orange Street, Sheffield  
S1 4DW.  
Tel: 0742 755796

BRITISH Rail was never like this. Alligator's new release puts you in charge of a classic American steam train on a journey more hazardous than anything Casey Jones ever undertook.

Most of the screen is taken up with a side-on view of an impressive red steam engine.

The engine chugs away to the right along the track, or rather, it gives that impression. In fact, the train stays in the centre of the screen while the background scenery (blue skies, green fields and mountainous terrain) slides smoothly to the left.

At the bottom of the screen is an overhead view of a criss-crossing, six lane railway system. This lets you see some distance ahead and behind and so works as an early warning device.

Your train has a limited supply of fuel and the only way you can take on more is by visiting fuel dumps sited around the system.

To do this you'll need to change lanes from time to time - accomplished by pushing up or pulling down on your joystick.

There are other reasons why you'll need to keep a weather eye open. A dynamite-laden handcart will come rattling along the tracks at frequent intervals. If it hits your train, you're a goner.

Mind you, there are means other than evasive action to deal with that particular peril. A quick pull to the right with your joystick fires a missile - very handy when you're on a collision course with a handcart.

Danger also comes from the skies in the form of planes and airships which drop red bombs. The best way to deal with this aerial bombardment is to fire a blast of smoke upwards from your engine (Smoke that destroys bombs and aircraft? The laws of physics have been rewritten again!).

Holding and releasing the fire button controls the height of your smoke clouds which rise to the desired height and then drift off to the left, hopefully eradicating aerial objects on impact.

There are 10 levels to deal with and a choice of speeds (fast or slow). At least the instructions say there are two optional speeds, but don't tell you how to select them.

No matter what keys I pressed or how I waggled the joystick, I never did find out how to race at top speed.

Neither do the instructions mention that there's a Pause facility (key P to pause, anything else to continue).

Loco is excellent value for money. High quality graphics, sound and gameplay make this a must for your library.

Bob Chappell

**House to forget**

Program: House Of Usher  
Price: £1.99  
Supplier: Midas Marketing,  
35 West Hill, Dartford,  
Kent DA1 2EL.

ANOTHER platform game, I'm afraid, and not a terribly good one at that even taking into account its cheapness.

The main screen of House of Usher is supposed to represent the reception hall of this ill-famed house.

To enter a room, you simply position your small, rather nondescript, character in front of a door. By pushing forward on the joystick and pressing the fire button the screen will change to show the appropriate room.

Every room offers a series of platform puzzles. Most involve dodging mobile objects such as monsters, cannonballs, boulders, and so on.

You have three lives and touching any object will cost you one, as will mis-timing a jump over a gap between platforms, or falling off a ladder.

In some screens, you must collect items: in others you simply need to reach the exit. One screen has you jumping hidden gaps, the position of which are shown only by a tiny inset map.

When you have successfully negotiated all the rooms you will be allowed to enter a mystery room (the Treasure Chamber). From here you can catapult yourself into the Final Room via a spring.

Every time you enter this last room you will be given the chance to pick a letter of the alphabet to discover whether it forms part of a secret codeword.

What happens in these last two rooms and what results when you discover the code word can only be guessed at, since I have not so far reached them - due in equal parts to my lack of skill and the absence of interest or excitement generated by the game.

The price is low, but there's no doubt you could find better value in many other budget releases.

Even better, why not save a few pence more and buy Edgar Allan Poe's The House of Usher in paperback form - far more exciting than this game.

Bob Chappell

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AT last, it's here! I've been waiting for Gauntlet for so long I almost began to think that US Gold wouldn't release it.

If you read the preview of Gauntlet in the April issue of Atari User you know that it is a conversion of the arcade game.

The first thing to appear when you load the game is the arcade title screen of Thor the Warrior and Thyrathe Valkyrie in action.

Then you choose between a one or two player game, then which character or characters you are going to use (warrior, valkyrie, elf and wizard). I chose the wizard, for his powers with magic. Then you move into the game itself.

The first few levels are easy, compared with what's to come later on. To start with, you only come across relatively harmless ghosts.

But as you get deeper into the game, you come across grunts, libbers, demons and a friendly character known to his pals as Death.

Keys and potions can be found and used in the dungeons, as well as food and drink to replenish your health. But take care what you consume, as some food and drink is poisoned.

The exits are marked with a key and, and transport you to the next level. One of the later levels is a dungeon filled with exits, except for a few pathways littered with food, drink and treasure.

In this, the exits are more of a disadvantage than anything, although in other levels you may not be able to find the exit, so if you leave the joystick alone for about a minute all the walls turn into exits.

That gives you just an idea of what Gauntlet is like. Play is just a bit slow, compared to the other versions, but it's still good fun. The music is a little rough, but you don't find yourself listening to it that often — you're too engrossed in the action.

The treasure rooms are included as well as levels where shots stun and hurt other players. The selection of screen is impressive, using four colours, and the sprites and scrolling are both extremely fluid.

The game is very addictive. You can find yourself collecting treasure in an otherwise empty room, then be attacked by dozens of monsters all at once.

Overall, Gauntlet is totally wicked. Although you only have a single colour shaded screen, the game play more than covers that.

Take my advice: Run the Gauntlet!

Robert Swan

---

A wizard time...

Program: Wizard's Crown
Price: £19.99 (disc only)
Supplier: SSI o/o US Gold, Units 2 & 3, Holford Way, Holford, Birmingham B6 7AX. Tel: 021-336 3388

If you've tried adventures but find they lack depth or restrict your movements, why not try a computer role playing game?

They don't quite match up to the real role-playing action and atmosphere of games such as Dungeons and Dragons and Chivalry and Sorcery, but they do come close.

Wizard's Crown provides you with a masses of magic, monsters and mayhem to explore. There are towns, dungeons and ancient ruins that SSI claims will take you 100 hours to complete.

Somewhere in the land lurks the evil wizard Tarmon who stole the Crown of the Emperor. Your quest is to get it back.

If you're to stand any chance of surviving – never mind solving – the game you must manage your party of eight adventurers so that the rangers and fighters are supported by magic-wielding sorcerers, healing priests and lurking, scouting thieves.

Each character has a rating for its strength, dexterity, intelligence and life (health points) as well as specific skills such as fighting, haggling or casting any of the sorcerer's 92 possible spells.

Play is controlled by entering single key commands to move your party around a wilderness map which then expands for combat.

In such a battle each character and monster is moved independently, depending on its dexterity. Single key commands control moves, attacks, loading and firing bows, casting spells, healing wounds, sneaking by thieves and evasive action such as ducking or zig-zagging.

As your characters survive battles and fight for plunder they will gain in skills, experience and power, equip themselves with magical weapons and powerful potions.

This depth of character and gameplay make up for the basic graphics and almost constant disc accessing. The result is an enjoyable game that will take months to solve.

Tony Hetherington

---
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**STANDARD SOFTWARE**

- **GEM version of DOS**
- **GEM version of Windows**
- **ST version of GEM**

**520ST-M**

The Attic Atlas 520ST-M is the affordable alternative to the Attic Atlas 520ST-FM. It provides all the same features as the 520ST-FM, but without the color monitor and built-in network interface. The 520ST-M is the perfect choice for anyone who wants the Attic Atlas experience, but doesn't need the extra features of the 520ST-FM.

**520ST-FM**

The Attic Atlas 520ST-FM is the ultimate personal computer. It provides all the same features as the 520ST-M, but with the added convenience of a built-in color monitor and network interface. The 520ST-FM is the perfect choice for anyone who wants the Attic Atlas experience, but needs the extra features to get the job done.

**1040STF**

For the businessperson and the more serious home user, the Attic Atlas 1040STF is the perfect choice. It provides all the same features as the 520ST-FM, but with a built-in network interface and an extra-secure network interface. The 1040STF is the perfect choice for anyone who wants to stay connected and protected.

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As always, we offer free overnight delivery on all orders over $100. To order your Attic Atlas today, please call us at 1-800-SILICA. Thank you for choosing Silica, winner of the 2023 Innovation Award in Personal Computing.
By MICHAEL A. BAXTER

HAVE you ever thought of yourself as a bit of a William Tell? This challenging game gives you the chance to show everyone what a crack shot you are. You take the part of a slightly eccentric character who enjoys bouncing up and down on a trampoline while shooting at various objects with a crossbow.

Unfortunately for you, these objects happen to be obscured by an endless stream of indestructible balloons that drift up the screen, causing you endless trouble. Your timing is critical: You have only a limited number of crossbow bolts, so shoot carefully.

The game can be played by one or two players using joysticks plugged into ports one and two. The crossbow bolt is fired by pressing the fire button, and the speed of the man bouncing up and down can be altered by moving the joystick up and down. The game consists of three individual rounds:

ROUND 1: Has you bouncing up and down shooting at a standard archery target. The closer your bolts are to the bullseye, the more points are gained. This is the easiest round to play, and gives you practice for the harder ones that follow. The main problem is that the balloons keep getting in your way.

ROUND 2: You are attempting to shoot small glass jars off shelves and gain five points for each one that you manage to hit. But this is not as easy as it sounds, as those dastardly balloons again obscure most of your vision.

ROUND 3: In this, the hardest level to master, the true archer comes out in all of you as you try to shoot apples off the heads of two men. If you shoot a man he dies and you only have one apple to shoot at. If you shoot both men then the game automatically ends, regardless of how many bolts you have left. And all the while those accursed balloons continue to stream up the screen annoying you. When you kill a man (and you most probably will) he vanishes and a tombstone appears with R.I.P carved upon it, just to remind you of your hideous crime.

Once you have typed the game, save it to tape or disc as it uses various machine code routines to manipulate graphics. Any errors in the code can lock the computer up and thus you would lose your program. All REM statements can be removed, and if you have any problems typing it in you can refer to the accompanying Get It Right! listing.

1 REM **************************************
2 REM ***
3 REM *** BOUNDER - WRITTEN BY ***
4 REM ***
5 REM *** MICHAEL A. BAXTER 1986 ***
6 REM ***
7 REM ***
8 REM **************************************
9 REM
10 W:0;MI:1;N2:2;MI:4;N5:5;MI:8;N:0
11 M:7;W:3;W2:3;W1:10;V:1536;VLOC:024
12 ;HL:256:PLYR5:MI:VY:1537
13 20 COM DARS(72); POLS(43),VULIN(14),VD
14 OFFS(M10),MRES(12),STC(N6),MI5(M13)
15 NT(M13),NC(M13),B(MC13),AP(MS)
16 22 VB=MI:4;VBOFFS=MI:4;L=MI:4;L=MI:4
17 30 POKE 559;MI:SUB 5800;SUB 6000;GO
18 TO 1000
19 50 IF STRIPE(PLYR5)=N2 AND 52=N OR Peek
20 (555) THEN 100
21 55 Y=PEEK(YLOC):IF Y>160 THEN 65
22 60 GOTO 50
23 65 Y=PEEK(YLOC):IF Y>160 THEN FOR G=20
24 0 TO 250 STEP 0.5:G=SOUND(M,NI6,N):NEXT
25 G=SOUND(M,NI6,N)
26 66 IF PEED(15158)=NI1 THEN FOR G=N2 TO N
27 4:POKE VELG;G:NEXT G=GOTO 50
28 67 IF PEED(15158)=N2 THEN FOR G=N1 TO M
29 3:POKE 1537+G:NEXT G=GOTO 50
30 80 GOTO 50
31 84 POKE 1537+G:NEXT G=GOTO 105
32 105 POKE 559;M:SUBI 5800;SUB 6000;GO
33 TO 1000
34 1053:0N ROUND G=SUB 120,150,180
35
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GAME

VARIABLES

N-N10  Constants 0-10.
VEL   Determining the velocity of the bounce.
YLOC  Bounder's Y coordinate.
PLYRS   Number of players (1 or 2).
YMAX  Maximum height of bounce.
DARTS   String holding Mode for the dart.
PCLS   String holding Mode for clearing the player missile area.
VBINS   String holding VBL initialization routine.
VBOLFS   String holding routine to turn VBI off.
MOVES   String holding Mode to move memory
         (used with character set).
HIS   String holding high score.
INITS   High scorer's initials.
SC$   Current score.
SC1(n)   Array holding score for both players.
B(n)   Array holding status of glass jars.
AP(n)   Array holding status of apples and condition
         of men.
YD   Reserve darts (indexed with screen Y
         coordinates to print darts).
MPL   Memory start for PLM stripe holding the dart.
ROUND   Round number (1,2 or 3).
DEAD   Flag. True if both men in armour have been
         shot.
G,A,L,HL   General variables used in the listing.

PROGRAM BREAKDOWN

10-30   Initialize variables and strings.
50-70   Main program control loop.
100 107   Dart moving routine.
110-112   Handles end of routine, checks for
         two-players.
120-125   Check for dart hitting target, alter score
         accordingly.
130-155   Check for dart hitting glass jars.
170-199   Check for dart hitting apples or men.
200-225   End of game and initial entry routine.
300-550   Draw screen.
560-6130  Set up player missile graphics.
6150-6170  Install machine code to move dart.
7100-7109  Reset values before new game starts.

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105 IF Y=128 THEN SC1(ROUND+52)=SC1(ROUND+52)+MS
125 IF Y=116 OR Y=117 THEN SC1(ROUND+5)
23=SC1(ROUND+52)+MS
125 GOSUB 115:RETURN
130 POSITION N5,YB::"*"**:FOR C=15 TO N
STEP -N1:SC1=SC1+INT(MX)*10:NX,G
NEXT G;SC1=SC1(ROUND+52)=SC1(ROUND+52)+MS
131 SC$=STR$(SC1(ROUND+52)):
POSITION 17-LEW(157)INT(52*MS/2.71),ROUND-N1?:SC$:
RETURN
135 FOR G=15 TO N STEP -ML1=ROUND N,200
,NX,G;NEXT G:FOR C=1 TO 80:NEXT G:RETURN
150 IF Y=65 AND Y=69 AND B(N) THEN
YB=NS:(N)=N:GOTO 130
151 IF Y=29 AND Y=29 AND B(N) THEN
YB=NS:(N)=N:GOTO 130
The new 520 STM from ATARI has been an instant hit since its appearance in February 1984. The design has gained from experience with earlier ST and STM machines and the result is a practical and superbly engineered computer that will easily find its place in your home as well as in your business.

**MEMORY:**

The basic 520STM has 192K bytes of ROM, an optional 128K bytes of plug-in ROM cartridges and 61.2K of RAM. The MEGAPAC 520 STM has bigger memory—a full ONE MEGABYTE of RAM, like the 1040 ST.

**DISC DRIVES:**

The basic 520 STM has a built-in single-sided disc drive. The MEGAPAC 520 STM comes with two drives, one internal and one external. The latter is a double-sided, offering twice the capacity (720K) of the built-in drive (360K). Your disc drive can be used almost half when compared with that of basic 520 STM users.

**PROCESSOR:**

The Central Processor unit (CPU) is a Motorola 68000 chip, running at a clock speed of 8 MHz. It is further enhanced by ATARI's own custom 10A providing a Direct Memory Access (DMA) channel for fast data transfer with other peripherals such as the 8024 Winchester drive the 40 Laser printer (available soon) and a real-time clock.

**DISPLAY:**

The 520STM can display 40 or 80 column text on any monochrome TV or colour monitor such as the Philip's CMB53 or the dedicated ATARI EMT 25 high resolution monochrome monitor. Graphics is 600 x 400 pixels on the EMT 25, 600 x 200 pixels in 4 colours or 320 x 200 pixels in 15 colours on a colour monitor of TV. The elephant palette uses 512 possible colours. Some ATARI software indeed uses the exceptional display hardware to produce stunning graphics with up to 576 colours at once.

**FREE MEGAPAC INTERFACE:**

The 520 STM has 3 programmable sound voices and a Musical Instrument Digital Interface (MIDI) to allow direct connection to a wide range of musical organs and synthesizers such as the Casio C3205.

**MOUSE:**

The 520 STM has its own dedicated mouse as part of its standard hardware.

**PERIPHERAL CONNECTORS:**

The 520 STM can be easily expanded by plugging in 'add-ons' through its ports. They will accept printer (Centronics port), Modem (RS232 port), musical instruments (MIDI port), sensors (mouse port) and test intelligent devices such as network, Winchester, laser printer etc (SCSI port).

**BUILT-IN SOFTWARE IN ROM:**

The 520 STM has 192K bytes of permanent software in ROM. This comprises EMODCS, the disc operating software which now becoming the dominating standard for 16 bit computers, and EOM the Graphic Environment which uses pictures and drawing instead of cryptic messages to communicate with the user and the electronic Mouse in place of the keyboard to enter the user's commands.

**SYSTEM BUILDERS . . . .**

**ATARI COMPUTERS:**

1. 520 STM computer keyboard, external PS/2, 32K RAM. £259.00
2. 520 STM computer keyboard, internal PS/2, internal single sided (380K) disc drive, 512K RAM, 5.25" disc drives. £371.00
3. 520 STM with external modem. £484.00
4. 520 STM computer keyboard as above but with 1 MB RAM. £439.00
5. 520 STM with monochrome monitor (380K) £533.00
6. MEGAPAC 520 STM. £630.00
7. MEGAPAC 520 STM with monochrome monitor. £633.00
8. 1040ST computer keyboard, internal PS/2, internal double sided (720K) disc drive, 1 MB RAM. £556.00
9. 1040ST with monochrome monitor. £649.00
10. MEGAPAC 1040ST (with double sided disc drive). £895.00
11. MEGAPAC 1040 ST with monochrome monitor. £749.00

**MONITORS:**

1. SM125-12" high resolution (600 x 400) 8/16 metochrome monitor. £136.00
2. SC1224 14" medium resolution (600 x 200) colour monitor. £372.00
3. Philips CMB53-14" medium resolution colour monitor. £259.00
4. NEC Multisync-14" colour monitor, can replace SM125 and SC1224 to display hi-res monochrome and colour. £659.00

**DISC DRIVES:**

1. SF395 single sided disc drive with PS/2, 360K £129.50
2. SF395 double sided disc drive with PS/2, 720K £186.50
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ATARI USER June 1987
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Tron Light Cycles

M-M-M-Max

Self portrait
Ranging far in magic lands

by Ruoloc

WELCOME heroes everywhere to another visit to the world of Adventure. First of all I must announce a change of party members. My old pal Brillog has decided that the lure of the new ST has proven too much of a temptation even for him. He has gone off to concentrate on that for Atari ST User.

As for me: Well, having just defeated the evil Krill and seen off the Demon Jeearr on behalf of the Great Belbok, and his Circle of Enchanters, I find myself at somewhat of a loose end. It seems that my prowess has preceded me and all known adversaries have fled, so my Wizard/Ranger skills are not needed at this time.

On occasions such as this, when I am resting, I often turn to my trusty Atari and indulge in a spot of computer adventuring. In fact, having solved countless quests in my time I suppose you could look on me as something of an expert, and if modesty permits, I could pass on some valuable help to any of you who might be in a spot of difficulty.

Brillog has kindly passed on his postbag to me, and as of this month I shall be delving into it to see who is in trouble.

The Pawn, 'ah, Kerovnia, when again shall I look upon your beauty) is the subject of the month, and to support it I shall give you many hints to the solution in a cryptic form only, for those of you who might not want the secrets divulged completely.

You may have read last month of the imminent release of Guild of Thieves. Well, the final touches are being put to the game as we speak, but also on the drawing board at Magnetic Scrolls are five more adventures to be released over the next two years, so hurry up and solve Guild before you're faced with a backlog.

On that note, I feel a competition is in order, so the first person to send me the list of all the treasures needed in Guild (and remember, I have seen it already so I know the answer) will win a prize.

See you next month
DOES anyone out there have any answers for Donna Thresher, who is stuck in Ten Little Indians? She can't get out of the carriage.

Adam Marshall would like a map of Alternate Reality, and thanks to reader Vic Rowland, I shall provide you with one next issue.

John Sweeney is not happy about Brillig's review of Moonmist and writes that he said it is specifically aimed at adult gamers new to adventures, and on this basis he judged it to be in some part a failure. It does say on the box that it is for ages 9 and up. It is in fact a superb game for 8-year-olds, as Infocom's previous two introductory level games were actually much too hard for the average younger.

Also, to answer John's plea about Ulysses and the Golden Fleece: to get past Pluto, throw DUST which you can find in a hole in a tree on the island of Storms.

Thanks for your letter John, and with regard to Moonmist, I entirely agree with you and the idea of four different endings is truly wondrous.

Adventures Unlimited are four boys from Manchester who between them have solved over 60 quests, and offer help if you write to them at Adventurers Unlimited, C/o Stewart Townsend, 1 Taunton Ave, Flixborough, Lincolnshire LN1 1PO.

Mrs Greenway has shivered nerve endings and a nearly exploding brain due to the Pay Off. For 10 months she has been in the Box Room unable to get the box containing the gem. The April issue of Atari User carried a complete solution for you, but if you missed it, get the list from the chamber and drill box (the number is on the list) open box and get gem.

The answer comes from Chris Beard who says that J C Bradbury asks where to find the combination in Lapia Philosophorum. You need to clean up the hoe of copper using the rags from the monastery, then use the copper to reflect some hieroglyphics on a boulder in a swamp. Also, to enter the cave just type enter cave, then play hangman with the Troll.

Lastly, I have received a letter from Robert O'Leary, the boss of Robico Software, who is puzzled as to why a mention of his Rick Hanson Adventure has not been forthcoming in the column. He puts it down to the fact that I haven't got a copy so he kindly sent one with this letter.

So to Robert I say Robico and Rick Hanson, there I've said them twice now, thanks for the disc, and I'll have a look at it for next month.

Good luck with The Pawn, I'm off to sharpen my rusty sword and practice a few spells. See you next month.

HINTS AND TIPS

By Nik Kiokpissoglou, Greece

Escape from Traam, by Jyrm Pearson: If you have found the alien warrior, type TALK: The program will respond with some letters. Type TALK again: The program will respond again, with different letters. The letters are words, but they are written in code. The coded words are:

TFRBY AHXW YCOV SVB VFCD RH XWFW UORAT HXW YCOVWB HFWW SVB KSUX ZCF HXW HFSSAG.

I broke the code, and the final code was:

BRING ME THE GOLD AND DROP IT HERE, CLIMB THE GOLDEN TREE AND WATCH FOR THE TRAMMS... THEY EAT EARTHINGS.

Dallas Quest: The complete responses are:

East, get envelope, north, get sunglasses, north, offer sunglasses, enter barn, get owl, get shovel, south, south, south, south, west, get bugle, west, dig, get bugle, dig, get tombstone.

Then: North, north, enter den, get spade, close desk, get money, north, north, west, get airplane, offer envelope, get knapsack, get spade, drop knapsack, get parachute, close knapsack, jump, get spade, offer spade, close spade, get parachute, south, south, south.

Now: Tickie anaconda, south, south, get spade, open spade, offer spade, close spade, row dinghy, blow bugle, drop bugle, get shovel, enter post, get curtain, get flashlight, get mirror, open spade, offer spade, close spade, drop photo, drop mirror, get ring, drop ring, light flashlight, climb ladder, drop flash, east.

Then: Enter post, get ring, climb ladder, drop ring, east, enter post, get photo, climb ladder, drop photo, east, enter post, get spade, get photo, get spade, get mirror, get spade, drop spade, extinguish flashlight, get shoe, get coconuts, west, open spade, offer spade, give eggs, offer mirror, wave ring, heat eggs, light flashlight, drop ring, get map.

J R will appear and make an offer to you. You don't want to accept it, so type NO. You will go back to Southfork Ranch. Type GIVE MAP and the game ends with 112 moves.
Following numerous requests from our readers, this month's featured adventure is The Pawn from Rainbird Software. This is a beautifully packaged product with excellent graphics to complement the detailed text descriptions.

NOTE: Remember to wear your shirt & to bring the white with you, if you wish to pass the Snowman!
High tech thrives on Sark

THE bucolic island of Sark—population 500 and not a car to be seen—is, surprisingly, a major user of information technology.

Sark is a thriving financial centre due to its tax-free status, so electronic communications are a vital element here”, explains MicroLink subscriber Philip Stokes, who has lived on the island for 13 years. In fact: he reckons we have the world’s highest ratio of telefax and fax machines per head of population.

Philip owns a gift shop, but he used to work on the London Stock Exchange, and when he’s not serving tourists he operates an administrative service for offshore companies. “Efficient movement of documents is essential to properly maintain an offshore company’s Sark registration”, says Philip. “But while the ferries carrying our mail run like a bus, rough winter weather can easily cut us off for days at a time. The Guernsey authorities are about to provide an electronic mailbox facility which will help make up for our lack of PSS, and I’m confident my investment in computer communications will have paid for itself within a year thanks to MicroLink.”

Help for the handicapped

A CALL for computer users to put their brains to work on behalf of the handicapped has come from MicroLink subscriber Brian Vallot-Lewis.

Brian is disabled by a rare disease called Friedreich’s Ataxia which affects a victim’s coordination, balance and speech.

He says: “I’m extremely lucky in that I’m still just about mobile, but others are not. Many sufferers are completely untechnical, but some of us can see huge possible benefits from the use of a micro.

“I am currently working on a dictionary word entry system, the main advantage of which would be greatly reduced use of the keyboard in word processing and programming.

“This is only one example of the kind of thing we need. Help with software ideas, complete programs, or just tips and advice could open one of the prison doors for someone confined to a wheelchair.”

IDent to cut costs

To combat the effects of the crippling disease which afflicts more than 15 million people worldwide, the Leprosy Mission helps support more than 2,500 doctors, nurses and paramedics caring for 400,000 lepers in 30 countries.

The interdenominational Christian organisation has 16 area organisations throughout England and Wales who are being connected by MicroLink electronic mail in a pilot scheme designed to speed the flow of information while cutting the cost of communications.

“We hope to make savings in our overheads that will allow us to send more money abroad to help leprosy victims”, said Dr Tony Lloyd, the man in charge of the project.

“To produce and circulate a memo to our area offices in the UK can cost as much as £25 — by MicroLink Email we should be able to do the job for under £2.”

Your chance to join MicroLink see Page 4

Discounts on view

THE latest firm to display its wares in MicroLink’s Shop Window section is run by Paul Lange, descendant of a Lithuanian family which emigrated to Britain at the turn of the century.

Paul has been exporting computer software and peripherals to home and business users overseas for the past two years. His customers range from Europe and North America to Australia, Israel and North Africa.

Recently he decided to extend Veyair’s discount offers to UK residents, and chose Shop Window on MicroLink to display his products.

From the Antarctic with love . . .

ELECTRONICS technician John Mackintosh couldn’t work much farther away from home than on a scientific research vessel in the icy waters of Antarctica. But he is in constant touch with his wife in Scotland thanks to a combination of MicroLink and Inmarsat, the international marine satellite system.

Contracted to an international scientific foundation, John’s ship travels all over the world doing ocean research.

For some time it has been using electronic mail as a relatively cheap alternative to regular telex services for communicating with its base office.

“So when I was looking for a means of keeping in touch with home while at sea, the obvious solution was Email”, said John.

“Inmarsat is an extremely reliable means of communications — though it’s expensive at about £5 a minute. By using a MicroLink mailbox, however, my wife and I can exchange letters in a fraction of the time taken by voice calls and make considerable savings.

“Because MicroLink is available 24 hours a day, I don’t have to set up any particular schedule with my wife, and I can use the ship’s communications system whenever it is available.”
MONEY, and lots and lots of it, is scattered around a two dimensional dungeon with 10 levels. All you have to do in this game is walk up and take it.

Sounds easy. But living in this dungeon are two eight-legged, furry money spiders. And these horrible little creatures get very annoyed when you try to take their savings. Luckily for you they are not very intelligent, and you can avoid them by confusing them at junctions. This can be done by watching which way they travel when they encounter a gap in the walls and moving in the opposite direction.

You have to travel from the top of the screen to the bottom collecting the moneybags. When you have enough, an out sign will appear in the top left hand corner and at this point you make your way to the exit avoiding the spiders on the way up. If this sounds too easy, a blue bar at the top of the screen indicates a time limit which is running out fairly quickly.

Moneybags is a one player game, played with the joystick in port one. During the game a few moneybags may still be left when the out sign appears and these can be collected to obtain extra points. Each moneybag is worth 10 points and at the end of each level you gain a bonus for completing the screen. You have three lives at the start of the game and if you lose a life you'll begin that particular level again.

There are 10 levels, each a little harder than the previous, with level 10 as the most challenging - where the walls and doorways of the room are invisible. The screen layout is randomly generated, so each level and game will be different.

The computer keeps your high score only while the program is running. Pressing system reset will purge the variables containing this information, so you only have the score table as a temporary challenge.

When first run, the initialisation will take around 10 seconds due to the characters being redefined and the setting up of a machine code routine that animates the spider's legs. The Break key is disabled by the two pokes in lines 50 and 1390 because there are interrupt routines running which continue to execute even after it has been pressed. To abort the game press the System Reset key.

---

PROGRAM BREAKDOWN

Lines 50-60  Sets the graphic mode, switches of the screen display, disables the Break key, and sets display line 0 to a graphics mode 2 line.

Lines 80-100  Sets the variables in the program.
Lines 150-170  Sets the timer routine.
Lines 200-310  Reads the joystick port, and moves the man.
Lines 320-550  Moves the money spiders around by locating what is above, below, left and right.
Lines 560-580  Prints the second man with shorter legs to give the impression of animation. Enters a loop to alter time of each level.
Lines 590-860  Draws the screen display, which is made up of redefined characters.
Lines 890-930  Reduces the time by one.
Lines 950-970  Executes a gosub depending on the values held in the variable Q.
Lines 990-1040  Increments the score by 10 when a money bag is taken. Also checks to see if the variable limit is below one, and if it is, prints the out sign.
Lines 1060-1260  Designs the new level, multiplies the remaining time by 100 and adds it to the score.
Lines 1280-1370  Reduces the remaining lives variable by one, produces the sound and colour effect when spider kills you.
10 REM MONEY BAGS
20 REM BY GEOFFREY STOREY
30 REM (c) ATARI USER.
40 REM
50 GRAPHICS 17;POKE 559,0;POKE 16,64,P
60 OKE 5576,0,4
70 D=PEEK$(5X8)+PEEK$(5X8)+256:POKE DL+,5,7,7,1
80 GOSUB 1500
90 TIME=180=TIME:LEVEL=1:DEF 3=SCORE
100 $=LIFE=5
110 V=0;X=10;Y=1;X=10;X=0;Y=0
120 VX=0;VY=0
130 XX=210;XY=0;YX=1;XX=0;X=1;Y=1
140 Y=1;AA=32;B=A
150 GOSUB 600
160 POKE 559,24
170 LOCATE TO 100:NEXT I
180 COLOR 10:POKE 3,1
190 FOR I=3 TO 20:DRAW I:1,1;SOUND 0,0,1
200 -I=5;0,10,10
210 NEXT I: SOUND 0,0,0,0
220 V=I:NEXT I:SCORE 5,0,0
230 K=V
240 IF K=7 THEN MODE 0;8,8:COLOR 2,8:SETCOLOR 1,12,8;SET
250 COLOR 2,8:COLOR 1,12,8:SETCOLOR 3,15,8
260 IF R THEN R1:POS R=1:POSITION 2,8? #6:
270 NEWS(4):MONEY BAGS;NEWS(4):POKE 5
280 NEWS(4):MONEY BAGS;NEWS(4):POKE 5
290 0,0,10:GOTO 1500
300 0,0,10:GOTO 1500
310 0,0,10:GOTO 1500
320 0,0,10:GOTO 1500
330 0,0,10:GOTO 1500
340 0,0,10:GOTO 1500
350 0,0,10:GOTO 1500
360 0,0,10:GOTO 1500
370 0,0,10:GOTO 1500
380 0,0,10:GOTO 1500
390 0,0,10:GOTO 1500
400 0,0,10:GOTO 1500
410 0,0,10:GOTO 1500
420 0,0,10:GOTO 1500
430 0,0,10:GOTO 1500
440 0,0,10:GOTO 1500
450 0,0,10:GOTO 1500
460 0,0,10:GOTO 1500
470 0,0,10:GOTO 1500
480 0,0,10:GOTO 1500
490 0,0,10:GOTO 1500
500 0,0,10:GOTO 1500
510 0,0,10:GOTO 1500
520 0,0,10:GOTO 1500
530 0,0,10:GOTO 1500
540 0,0,10:GOTO 1500
550 0,0,10:GOTO 1500
560 0,0,10:GOTO 1500
570 IF PEEK(191)>1 THEN GOSUB 890
580 GOTO 210
590 SETCOLOR 0,8,8:SETCOLOR 1,12,8:SET
600 COLOR 2,8:SETCOLOR 3,15,8
610 IF R THEN R=1:POSITION 2,8? #6:
620 NEWS(4):MONEY BAGS;NEWS(4):POKE 5
630 NEWS(4):MONEY BAGS;NEWS(4):POKE 5
640 NEWS(4):MONEY BAGS;NEWS(4):POKE 5
650 NEWS(4):MONEY BAGS;NEWS(4):POKE 5
660 NEWS(4):MONEY BAGS;NEWS(4):POKE 5
670 COLOR 151:FOR I=0 TO 19
680 FOR I=2 TO 22 STEP 2
690 PI...
BEFORE starting on this month's topic - customising the operating system to your own requirements - let's first answer the question I left you with in the April issue of Atari User: Why should it take so much longer to send 1000 bytes of data when using the PUT command than it does with the Binary Put routine we gave you?

Well, the reason is not all that hard to work out if you think about how the OS actually works when you give it a task. Each time you access it to send some data, it first needs to take care of a lot of internal calculations, such as working out the handler addresses and moving the Input/Output Control Block.

Even at machine code speed this takes a little time, and while you won't notice it when you call a routine once, you will start to see the effect if you call the OS 1000 times - and this is why the extra delay occurs.

So far we've looked at the way that the operating system carries out your commands, but let's now examine the potential for expansion that it gives us.

As you know, the OS has a number of internal device drivers - such as those for the cassette, printer and screen - available from the moment you switch on the machine. In addition, there are a number of extra peripherals you can add to your Atari - each of which needs to add its own handler to the existing set.

These include the disc operating system and the RS232 interface routines, both of which are capable of loading - or booting - their own handler routines as required. This facility gives us a very neat way to add our own routines to the OS, or indeed to customise the existing ones.

Program 1 is a simple machine code device driver. It is not designed to do anything especially useful, but it does demonstrate the basic principles required when constructing a new device handler.

In fact, all each of the six commands does is to change the screen colour so that you can see it has worked. The rest of the program is perfectly valid for any driver, so you could insert your own routines quite easily by replacing the colour changing instructions such as those at lines 540 to 560.

If you think back to the first part of this series you will recall that the OS uses a table of device names and handler addresses known as HATABS (at address $31A) to keep track of the currently available drivers.

This table, shown in Figure 1, consists of a single ASCII byte for the handler name - C, P, D, S and so on - plus a two byte number. This is the address of a further table which gives the actual memory locations of the various Open, Close, Put, Get and other data handling routines.

If we want to patch our own driver into the OS, we must first look for a free space in HATABS. Since each three-byte entry starts with an ASCII character, we can check every third byte to find the names used by the OS so far. As soon as we find a zero entry we know that we have come to the end of the used portion of the table, so we can insert our own handler's name and address there. Lines 250 to 400 do this, adding the name X: to the current HATABS list.

In fact, the OS always starts searching from the end of the table, so you could even add a device name that already exists and the new version would then be used instead of the original one.

The two-byte address should point to a 15 byte table (lines 150 to 210) within your machine code which contains six addresses - or vectors - and a jump instruction. These addresses will point to the six major routines that the OS can access - Open, Close, Get, Put, Status and Special.

In fact, due to the internal workings of the OS, the addresses given in your table should be one byte lower than the actual location of the machine code routine. The jump instruction is a simple JMP INIT which will only be used to initialise the handler, and often does nothing more than return with an RTS, as in our example.

When you access your device, the OS checks the ICCOM command byte to decide which of the six routines to use. Open, Close and Status (3, 12 and 13) are obvious, as are the various Put and Get commands (5, 7, 9 and 11), but what about the Special commands such as fill and rename file?

Well, if the OS finds an ICCOM command number greater than the normal maximum of 13, it will use the Special vector at the end of the table, and your driver should check to see whether it can handle the command number requested. By the time your routines take control, the IOCB information will have been transferred into the Zero Page IOCB (ZIOCB) at $20. This means that you never need to

# Constructing a machine code device driver

## Part 5 of Andre Willey's series on the Atari's input/output facilities
worry which channel number the calling program is using — all the information you require will always be located in the ZI0CB.

The ICCOM command byte will thus always be found at $22 (three bytes into the ZI0CB). In our example, lines 890 to 930 check whether this value is 100 — the only command number that we will allow in this case. Of course, you can check for any numbers you want here, thus allowing a lot of flexibility beyond the normal data in/out operations.

After completing whatever tasks it needs to do, your routine should place any error code into the Y register and update the ZI0CB with any changes which have occurred. Normally the Y register should contain a value of 1 if no error has occurred, as in the Open, Close, Get, Put and Status examples shown.

In the case of the Special command, any ICCOM number other than 100 should generate an error, and hence line 920 sets the Y register to 146 — the error code for Function Not Implemented — and returns.

When writing new handlers you should always bear in mind that the System Reset button will wipe out any user-defined drivers and replace the original rom-based set. Programs that need to get around this problem must trap the Reset routines by means of the CASINO or DOSINI locations.

When the system boots it sets a flag called BOOT? to indicate if any special initialisation will be required when Reset is pushed. If this flag is set to 1, the disc vector at DOSINI is used. If it is 2, then the cassette vector CASINO will be used — and a value of 3 means that both cassette and disc software requires initialising.

To avoid any complications with Dos you can always cheat the system a little and put your initialise address into CASINO and alter the BOOT? flag to 3. This will fool the OS into thinking that a cassette boot has also taken place, and thus initialise your code alongside that of Dos. This is done in lines 420 to 480.

Normally, you would also need to adjust the LOMEM pointers to make sure that nothing overwrites your code. In this case this is not necessary, because our driver is so short that it fits into page 6, which is always protected anyway.

For those of you who do not have access to an assembler, Program II is a Basic version of the handler. It works in exactly the same way but is POEd into page 6 and initialised via a USR command.

Lines 240 to 530 provide a full demonstration of what each command does, plus the effect of using a value other than 100 in an XIO command. This section may be typed in separately if you have already loaded the handler from an assembled file.

Well that’s it. You may like to experiment further to find out which types of error are handled by the OS and which are handled by the device driver itself — you may be surprised by how little the OS actually does. You could also have a go at LISTing, LOADING or SAVEing with the X: driver and watch the screen colours change as the OS performs different tasks.
I/O Channels

120 REM () ATARI USER, JUNE 1987
130 REM
140 REM LINES 180-230 POKE THE HANDLER
150 REM INTO MEMORY AND INITIALISE IT
150 REM LINES 240-350 DEMONSTRATE THE
160 REM OPERATION OF THE DRIVER
170 REM LINE 540-640 IS THE M/COE
170 REM DRIVER ROUTINE

300 1 : "GET BYTE..."
310 GET #1,A
320 GOSUB DELAY
330 : "STATUS..."
340 STATUS #1,A
350 GOSUB DELAY
360 : "XIO 100..."
370 XIO 100,#1,0,0,0,X:
380 GOSUB DELAY
390 : "XIO 20 (NOT SUPPORTED)..."
400 XIO 20,#1,0,0,0,X:
410 END

510 REM DELAY ROUTINE
520 FOR #1 TO 750: WENT 1
530 REM * DONE:RETURN
540 REM M/COE DATA
550 DATA 39,45,46,47,48,49,50,100
560 DATA 39,45,46,47,48,49,50,100
570 DATA 39,45,46,47,48,49,50,100
580 DATA 39,45,46,47,48,49,50,100
590 DATA 39,45,46,47,48,49,50,100
600 DATA 39,45,46,47,48,49,50,100
610 DATA 39,45,46,47,48,49,50,100
620 DATA 39,45,46,47,48,49,50,100
630 DATA 39,45,46,47,48,49,50,100
640 DATA 39,45,46,47,48,49,50,100
650 DATA 39,45,46,47,48,49,50,100
660 DATA 39,45,46,47,48,49,50,100
670 DATA 39,45,46,47,48,49,50,100
680 DATA 39,45,46,47,48,49,50,100

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40 Atari User June 1987
Shadow registers

I AM having a bit of trouble with a program I'm trying to write. I have finished the main parts, and I'm now tidying up the screen displays and so on.

My problem is linked to the SETCOLOR statement. Before I read some data from disc I print a message in register 2. However, I often find that the colours I have set do not appear immediately, but often take four or five seconds to come on-screen.

I understand that this has something to do with shadow registers, but I'm not too sure what these are - can you help? — A. Pratt, Solihull, West Midlands.

- You are indeed correct in what you say and the problem is linked to these mysterious shadow colour registers.

There are two types of colour register on the Atari - hardware registers, from which the screen display is generated, and software (or shadow) registers which are used by software and SETCOLOR commands.

The two types are provided to prevent a problem common to many computer display systems: If you change a colour value while the display is being updated on the television you will see an annoying jump on the screen. This is most pronounced when you are using flashing colours.

To avoid this, the Atari only updates the actual hardware colour registers during the blank period between each TV frame - or the Vertical Blank period as it is known.

When you do a SETCOLOR command, the colour value you provide is stored in a temporary colour register - the shadow - until the next Vertical Blank comes along. During this time, all the shadow registers are copied into their hardware counterparts.

Your problem occurs because some of these Vertical Blank tasks are temporarily suspended whenever time-critical tasks such as data transfer are taking place. Thus, whenever you access the disc drive within one-fiftieth of a second after executing a SETCOLOR command, the colours may not appear until the disc I/O has finished.

You can get round this in one of two ways. Firstly you could use a simple FOR... NEXT loop to delay the program until the next Vertical Blank has occurred - a loop of 50 times should be ample for this purpose. Alternatively, you could POKE the hardware register directly.

Each of the software registers (708 to 712) has a hardware equivalent (53270 to 53274). All you need to do is POKE the hardware register with the value held in the shadow. If you have just set the colour of the 708 shadow you could use:

POKE 53270,(COLOUR+16)+BRIGHTNESS

This will ensure that the screen display shows the correct colours immediately.

Square root snags

I wish to use my recently acquired 800XL to carry out various mathematical calculations. However, I appear to have struck a problem with Atari Basic when attempting to work out square numbers or roots.

For example, a simple problem of determining the area of a circle of given radius is given by A=πr². In Basic this would be:

10 INPUT R
20 LET A=3.14159*R*R
30 PRINT A
40 END

Unfortunately this produces an error message on line 20 requiring the substitution:

20 LET A=3.14159*R*R

This produces the required result. However, visualise the problem when dealing with R².

Conversely, how does one determine a square root or cube root? In Basic R=√R might be:

R=(A/3.14159)¹/₂

But how does one obtain this on the 800XL?

It seems quite easy to produce the symbol by pressing Escape then Control+ but each time I try it an error occurs.

I should be extremely grateful if you could supply a solution to this problem as the local computer club are unable to help, claiming that the Atari is only a games machine. — Mr A. P. Tuite, Tyn-y-Groes, Gwynedd, Wales

- The answer to your problem is actually very simple - the character used when raising numbers to a given power is ½, and is given by pressing Shift+. This will allow you to use the formula:

\[ A = \frac{A}{3.14159}^{1/2} \]

You may then use fractional powers for roots, or for a simple square root use:

\[ R = 50^2 (\frac{A}{3.14159}) \]

Because of the way computers handle real numbers, you might find that the final place of decimals is often somewhat inaccurate, in which case you can round off to, say, four decimal places with:

\[ X = \text{INT}(X * 100000 + 0.5) / 100000 \]

If you omit the +0.5 you will truncate to four places instead. There - now you can tell everyone what a great machine the Atari really is.
The Atari 520 ST gives you the power to defeat deadly enemies, slaughter monsters and outwit cruel captors.

**Gauntlet** - U.S. Gold. Enter a world of monsters, mazes, mystery and combat in the ultimate role-playing fantasy game.

**Tai Pan** - Ocean. Voyage to 19th Century Hong Kong for action and excitement with pirates, smuggling and mutiny.

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**Arkanoid** - Imagine. The latest smash-hit coin-op game! Are your reactions quick enough to handle 33 different play screens?

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But it's not all fun and games.

1st Word Plus – G.S.T. Professional word processor featuring U.K. spellings and integration of graphics including 1st Mail for full control of form letters etc.

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Mixing business with pleasure is no problem with an Atari 520 ST. Not when you've got over 1,000 software titles to choose from.

You'll find all the latest games and a huge range of business titles from the top business software houses. And the range is growing all the time.

You won't be short of power, either. The Atari 520 ST is twice as powerful as most business micros.

So you'll be able to create spectacular colour graphics. Even animate them to make your own films.

If you're musically minded, you can compose and play a full symphony.

Or, for those who'd rather write programs than music, the 520 ST supports over thirty programming languages.

In fact, whatever you're looking for in a computer, you'll find it in the Atari 520 ST.
The Last V.8
(tape only)
IF YOU can’t get past the first screen press the Break key as you load the program when the tape counter is around 187. Start the game as normal and when the background disappears move down until you reach a green strip. Move slightly up and horizontally along, alternately accelerating/decelerating. A message should appear: Flash – Entering Inner City – and you then go on to the next screen. If you don’t manage it the first time, don’t give up: There is a knock to it. – S.P. Kershaw, Huddersfield.

Spy vs Spy II: The Island Caper
YOU can drop missile parts just behind foreground trees so that only a pixel or so is visible. In the two player game your opponent tends to miss them, especially if you bury lots of objects around the area to distract him. – Paul Collins, Lewes, Sussex.

M adip
First pass the skeletal horse by going down as far as possible then running up until you are one pixel or so above the bridge. When the horse stops, run quickly across the bridge and he should follow.

You must now cross the lake by doing a 3D version of Frogger, going from turtle to log and so on. When you land on the island at the centre, the Maniac waving his arms about should disintegrate.

You must now climb the trees and pick the apples, descend and press the fire button to throw them at the horse. The longer the button is pressed the steeper the angle of the throw. After three hits, the horse should wade through the lake and carry you off.

While you are on this screen, if you are called up to fight the enemy, you will find that you have been awarded a forward-firing missile for your endeavor. Just push forward to fire it.

The next screen is nasty because aliens come pouring down from the mountain while you beat frantically on a xylophone in the hope that they’ll explode.

Just when I think I’ve got somewhere that lousy bird flies past, steals my hammer and leaves me well and truly in the lurch. Can anyone help? All I do know is that if you press up on this screen, left and right will steer your missile (from last screen) accordingly.

At this rate, all I can say is your ship on screen eight must be a real mean war-machine with the amount of extra weaponry it’s receiving. – Paul Collins, Lewes, Sussex.

International Karate
IF YOU hold down X and a number between one and four you can change the speed. Four is slowest and one fastest. – Gary Bowman, York.

Aztec
TO OBTAIN infinite dynamite, collect seven sticks then crawl to the end of a ledge with your hand over the edge. Drop the sticks quickly on each other and they will stay in mid-air. The dynamite indicator will become a mass of weird symbols but you will have infinite dynamite. – C.E. Smith, Welling, Kent.

Zorro
HERE is the full solution, but you will have to work out a map for yourself.

Collect the brand, heat it at the forge and brand the ox. You can collect the Brand that was next to it.

Collect the mission bells from the hotel and put them at the top of the church with the grave in. The grave will open, but do not enter yet.

Collect the trumpet from the hotel, stand on the see-saw and press fire. A hanky will emerge and fall on to the see-saw, catapulting you into the air. Move along the pole, go up and collect the boot.

Collect the hanky (if you haven’t already) then go down the well and take the goblet in the cellar.

Now enter the grave and collect the bag of money. When you are in the room with the flashing icons, go high to the far left and push the barrels in the cellar.

Go back to the hotel and collect the flowers.

Re-enter the tomb by the cellar and go up to the jail.

Free the prisoners while avoiding the bullets. The prisoners will form a platform to jump on to the low roof. Enter the next room and then work your way across it.

On entering the room with the senoritas at the top, work your way to the top. When you reach her, the hanky and flowers will be given to her automatically. She will kiss you and music will play. You have completed Zorro. – C.E. Smith, Welling, Kent.
To help you destroy the aliens

and defeat the taxman,

we’ve massacred the price.

For a limited period, the Atari 520 STM is even more of a knockout than usual. We’re offering it for just £449.95 (inc. VAT) complete with SF354 disk drive, SM125 mono monitor,* a mouse worth £24.95 and 1st Word, worth £49.95.

So as well as saving you from the enemy, the 520 STM will also save you £184. You’d better hurry though, because it won’t be long before our stocks are wiped out.

*Offer includes mono monitor. The 520STM plugs into a standard colour TV.
THE Atari XL is hardly blessed with a proliferation of music add-ons, so it is encouraging to see 2 Bit Systems devote its energy to righting this wrong. It already has three music packages for the 48k Atari and more are on the way.

We're looking at three of them this month - Midi Master, Replay and Digidrum/Synth. The first contains six programs - an eight track Midi sequencer, CZ voice editor, DX100/21 voice editor, CZ keyboard split utility and two programs which will play, via Midi, music created with the Music Composer and the Advanced Music System.

You get an interface, too, which plugs into one of the disc drive's I/O ports. It even has six feet of wire attached with Midi DIN plugs on the end so you can connect it straight into your synth. The plugs are marked in pen with an I and an O but these soon rub off, so it's a good idea to tape on a couple of labels.

The trade-off for all these programs is a general lack of facilities, but you do get lots to play with. The sequencer is controlled from one screen and operation is a piece of pie. You can record on up to eight tracks but each is monophonic, which means it can only record one note at a time.

The tracks are listed down the left side of the screen with seven parameters across the top, REC, PLY, PGM, TRP, REP, LEAD and GAP. You alter parameters by moving the cursor on to them and typing in new values. Thankfully you don't have to hold down Control to operate the cursor keys - nice one 2 Bit.

REC selects the record channel, PLY selects the play channel, PGM sets a Midi patch or program number which is transmitted to the synth before the music starts and TRP transposes the track over plus or minus 99 semitones. REP will cause a track to repeat a certain number of times, LEAD lets you delay the start of a track and, finally, GAP will produce a delay before the track repeats.

You can save and load a piece of music, wipe a track and record. There is also a time input option which lets you tap out the rhythm of a recorded track. This is the nearest you get to stop-time input, as all tracks must be recorded in real-time - but see the Music Player programs.

Let's say straight off that what the sequencer program does it does well but a comparison (however odious that may be) with almost any other piece of Midi software finds it lacking in the facilities department.

For example, one of the main attractions of Midi sequencing is the ability to record a piece slowly and speed it up on playback, but Midi Master can't do this (although you can set the metronome speed to help you keep time as you record).

Other features which you might expect to find are also missing. There are no editing or copying facilities, and it doesn't record velocity or pitch-bend information.

The program doesn't send a Notes Off message when you stop playback, and notes on your synthesiser will dangle on until you reset it. It doesn't transmit Midi sync messages, so controlling a drum machine could be awkward.

I'd love to be able to catalogue the disc, too.

Okay, that's a pretty big list, but there is good news: Apart from being easy to use, the program works a treat with Casio CZ synths.

The CZ series are multimbral instruments, which means they can sound more than one tone at the same time under computer control. It's a doodle to record four parts and by altering the PGM parameter you can experiment with different sounds on playback.

Another bonus for Casio CZ owners is the CZ voice editor. This shows all the synth's parameters on screen at once and you alter them by moving the cursor and typing in new values. It has no frills and can only handle one sound at a time.

If you have a CZ230 this is perfect as it lets you edit the otherwise inaccessible four programmable voices. A CZ menu program lets you instantly load any of the voices on disc.

A new addition to the disc is the CZ split facility which lets you play one sound on the lower end of the key-board and a different one on the upper end.

The DX100/21 editor performs a similar service on these Yamaha synths and it can even dump a complete bank, although the synths have faster built-in tape dumps.

The two final programs let you load in and play music produced with the Music Composer cartridge and the Advanced Music System. The manual admits there are limitations because of the way the programs handle music data but they can still produce excellent results.

The most amazing part of Midi Master is the price. Even though it may be short on features in a few areas, if you want to make music with Midi and your Atari - and especially if you have a CZ synth - you really cannot afford to be without this package. It is terrific value for money, and if you have a CZ230 it is a must.

Replay is something different - a sound sampling system. The necessary circuitry is housed in a cartridge which plugs into the cartridge port, and there are five programs on the support disc.

A 15 inch flying lead ending in a mini jack plugs runs from the cartridge and plugs into a sound source, such as a tape recorder or hi-fi, for sampling purposes. I wish this lead had been a bit longer.

The sampled sound is played back through your TV or monitor speaker and the sound quality suffers accordingly. An audio out socket would have been nice, and would have made the recording of your Replay experiments easier and cleaner.

The main program is called Replay and this lets you sample and playback a sound. You can select six sampling rates - 6KHz, 8KHz, 10KHz, 12KHz,
16KHz and 21KHz – which give you between three and 12 seconds sampling time.

The waveform of the sample is shown on screen and you can position start and end markers to select the section you want to hear.

You can load and save samples between these markers, and catalogue the disc. By loading a number of samples and moving the markers each time you can build up a series of sounds one after the other. You can produce some good – and weird – effects like this.

Apart from chopping bits off a sample, you can’t do much else to edit it, although there is a reverse option which lets you play the sound backwards. Always great fun, this one.

A calibration meter on screen helps you select the optimum playback level for your tape recorder. There is also an auto trigger function which will trigger the sampler as soon as the sound source reaches a threshold level.

The sampling resolution is eight bits, with a playback resolution of four bits. This means it’s not the best quality, but it should be acceptable – and that sums it up nicely considering the sound plays back through the TV speaker.

Careful positioning of the start and end point markers can often get rid of unwanted noise, and good recording procedure is very important, too.

You have to set the output and recording levels carefully to get the best results.

The User program allows you to use samples in your own Basic routines: What makes this especially useful is that you don’t need the cartridge to play them back, so you can give copies of your programs to your friends. Imagine your program saying, “Now press Fire!” – or whatever other words your mind can conjure up. The sample does occupy memory of course, but not so much that you couldn’t write some interesting programs.

Digidrum converts your Atari into a software-based drum machine which uses drum samples taken with Replay at a sample rate of 10KHz. You can program up to 29 patterns of up to 28 steps and chain them into a song.

A song consists of up to 32 steps, each step consisting of a pattern number and the number of times it is to be repeated. This construction is similar to the method used by many dedicated drum machines.

Options are accessed from pull-down menus and you select the pattern (to be edited), then edit mode, followed by play, which is a bit fuzzy. It would be nice if you could hear the pattern and select patterns from the edit screen.

You can’t load in new samples in place of the existing drum sounds, which would have been terrific, but perhaps that’s asking a bit much.

Watch out for 2 Bit’s Percussion Master, which lets you do just that!

Available sounds include bass drum, snare, mid tom, low tom, cowbell, hand clap and open and closed hi hats. You can only play two drums at once, and certain combinations can’t sound at the same time (such as the hi hats and the cowbell) but you can produce some pretty good results with a little thought and careful programming.

Digisynth, as you may guess from the name, does for sequencers what Digidrum does for drums. You can load new voices into Digisynth and use them to play a sequence of up to 256 notes within a single octave range.

Now you can program a dog barking, “How Much is that Doggy in the Window – Woof! Woof!” – something I’ve always wanted to do since seeing it on a Tomorrow’s World programme.

The pitch only ranges from C up to B. That missing C at the top is rather restricting – as, indeed, is the one octave limitation – but you can enter and play back simple tunes quite effectively. It is interesting to hear how the character of a tune can alter when played with different sounds.

New to the package is Echo, which can produce a delay ranging from 2/100ths of a second to 1.3 seconds. It can do some rather funny things to recorded music, and it will work on your speech too, although you will probably need an adapter of some sort to go between the mini jack on Replay and a microphone.

Although all the programs are simple you can have a lot of fun with a bit of scope and a few more features would be nice but, as with Midi Master, you get a lot of programs in the package.

The significantly more powerful features and intricate hardware required to run the system is reflected in the higher price of Replay. It hardly costs an arm and a leg as sampling systems go, but if you want to make extensive use of it in recording you may find it lacks facilities you really need.

The good news is that the Digidrum and Digisynth programs are available together for the ridiculous sum of £4.95. This is a prime example of software being cheap even if it were twice the price. Buy these if you buy nothing else!

2 Bit is currently working on an enhanced version of Midi Master which will include a 16 track polyphonic sequencer and a score writer. Now that will be something.

Products: Midi Master £27.50, Replay £39.95, Digidrum/Synth twinpack £4.95.

Supplier: 2 Bit Systems, 44 Marcom Road, Dunstable, Beds, LU5 4EG.

Tel: 0582 896526
PART three, the final section of the ACE character set editor program, adds the Pad and Animation modules. It will not run on its own, but must be merged with Parts one and two that appeared in Atari User in April and May.

Once you have typed in Part three, list it to tape using the LIST "C:" command, or to disc with LIST "D:ACE3".

With Part three in memory enter the combined Parts one and two from last month by using ENTER "C:" or ENTER "D:ACE1AND2" and you will have the complete version of ACE which can then be saved to tape or disc using the command SAVE "C:" or SAVE "D:ACE".

The extra commands now available are as follows:

PAD(P): Used to create multi-character graphics. It is also used to design animation frames used during the Animation section.

To enter Pad press P. There are further commands associated with Pad and these are listed on the right hand side of the menu display. Like the main commands, they are accessed by pressing a single key. When returning from a Pad command, ACE will redisplay the Pad menu. To exit from the Pad menu and return to the main menu press Escape.

ATASCI(A): Affects all characters on the Pad display.

When this function is on, all characters will be displayed as standard Atari characters. Pressing A again returns the Pad display to the redefined shapes. This helps you keep track of what shape has been assigned to which character.

When leaving Pad mode the selected character set (Atari or redefined set) remains on the Pad display.

MODE[M]: The bottom section of the screen display is the Pad design section. When ACE is first run all characters printed to the Pad display will be in Graphics 0. To change to a Graphics 1 or 2 screen press M and select the mode required.

PRINT(P): When the Print option is accessed a rectangular flashing cursor will appear on the Pad display. Any character key that you press will be printed to the Pad screen at the current cursor position. The cursor is moved around the screen by means of a joystick.

In Graphics 0 do not use any non-character keys such as Delete, Tab or Insert. You should also avoid using the * key as it is used to make up the cursor square.

In Graphics 0 use the Caps and Inverse keys to select uppercase, lowercase and inverse characters. In Graphics 1 and 2 these keys are used to select a colour from the palette of four foreground colours. Because of this, only 64 characters are available in modes 1 and 2 – uppercase letters, numbers and symbols (screen codes 0 to 63). Screen codes 64 to 127 – lowercase and Control+key graphic symbols – are not available.

For Graphics 1 and 2 characters the four colours are selected by means of the Caps and Inverse video keys:

<table>
<thead>
<tr>
<th>Caps on/Inverse off</th>
<th>Colour 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caps off/Inverse off</td>
<td>Colour 2</td>
</tr>
<tr>
<td>Caps on/Inverse on</td>
<td>Colour 3</td>
</tr>
<tr>
<td>Caps off/Inverse on</td>
<td>Colour 4</td>
</tr>
</tbody>
</table>

This is true for the 26 letters of the alphabet, but numbers and symbols act differently – refer to the discussion of the Basic COLOR statement in Your Atari Computer for more information.

Because the Escape key is accepted as a valid character in Graphics 1 and 2 it cannot be used to exit from the Print option. Instead, press the Start function key to return to the Pad menu – then press Escape if you want to return from Pad to the main menu.

WIPE(W): To erase the Pad display press W – this operation takes a few seconds.

Wipe fills all the current Pad display with spaces. It is possible to edit the space character just like any other during the Edit option, but in normal circumstances this is not recommended unless you deliberately want to create a textured background.

One interesting aspect of editing the space character is to create artifacts effects which take advantage of how your television handles colour information. Try editing the space character so that it resembles a chess board with alternate pixels plotted.

On a Graphics 1 or 2 Pad display print large blocks of space character using different colours. As if by magic more colours will appear. Switch to graphics 0 and what is normally a two colour mode (foreground and background) has acquired other colours. This effect is more dramatic with some colours than others – try experimenting with this effect using the Colour option.

SCREEN CHANGE(1-9): ACE has the facility to hold up to nine separate Pad displays in memory for use in the Animation mode or for storing graphic designs. To switch from one screen to another press keys 1 to 9 from the Pad mode. When in the Print/Pad mode, use the Option key to go up a screen and the Select key to go down.

When saving Pad screens you will be prompted to specify how many screens to save. As well as saving the data, ACE also saves the colour registers so that, when loading screens from cassette or disc, the colour registers will be changed back to the saved values.

ANIMATION(A): The animation facility displays a quick succession of Pad screens to create graphic movies. This mode is entered by pressing key A from the main menu. A Pad screen (1 to 9) may be allocated for each frame of the animation.

Press Escape after entering the screen number of the final frame in your animation sequences – these need not be the maximum nine frames. The frames will then be displayed in quick succession.

Animation speed is preset to 1 (fast). To change speed move the joystick down (slower) or up (faster). The animation sequence will stop while the speed is being adjusted. Press the fire button to return to animation. To stop animation and return to the main menu press Escape.

The animation effect is handled by a Basic subroutine and achieves high speed smooth animation without
using machine code. The data from each P# screen is stored in a separate area on the memory. 

The screen display list is customised so that the operating system points to the area of ram where the first P# screen is located. By swiftly updating this pointer in the display list using a technique known as page-flipping, an animation effect is achieved. Lines 620 to 6930 of ACE organise this operation.

In conjunction with Animation, Pad can be used to design the movements of arcade game characters such as aliens or walking men. In some applications, Player/Missile graphics are useful for arcade game animation — but often redesigned characters are better for the job and are much easier to control.

Many commercial arcade games, such as Gauntlet, use redefined characters, and you should quickly find that ACE will become an invaluable part of your graphics program library.
Set up your own closed user group on MicroLink

MicroLink is ideal for transferring instant messages between groups of people — between branches of a company, members of a club or just friends with like-minded interests.

Whether there are five or 500 people in one group, they can all send the same information in one operation... instantly.

And each recipient can immediately send a reply, or his own comments, to every other member of the group.

Head offices of companies use MicroLink to send daily memos to their regional offices. Chains of shops use MicroLink to receive daily trading reports from their branches.

It’s cheap, reliable — and it’s 100 per cent secure, because information sent via MicroLink can only be seen by the person for whom it is intended.

Details from 061-456 8383.
PAYING income tax is no fun at the best of times, but at least with this program you can anticipate how much cash will be left in your pocket next pay day.

Before working out the calculation it needs to know what your tax code is, which tax period your next pay day will be in, how much you've earned, how much tax you've paid on those earnings and how much you expect your next pay to be before any deductions.

Your tax code is issued by the local tax office and is in the form 233L. The actual number can be almost anything but 233 is normal for single people or married women and 369 for married men or others who are claiming a married man's allowance (for instance a single parent).

The letter following the number would normally be L as shown, H or T. None of these letters affects the way in which tax is calculated. Certain other letters however may affect calculation and are outside the scope of this program.

National Insurance calculations in the program are based on a person who pays NI contributions under weekly table A. This will cover all working men and single women who are not classed as self-employed, any working married women who are not entitled to be on B rate and is not self-employed, and in all cases, not contrated out of the State pension scheme and under the current legal retirement age.

The way this program calculates your income tax is to start with your tax code. A tax code of 233 means that you may earn up to £2335 a year before you need to pay tax at all. This is just under £45 a week. A married man with a tax code of 369 can earn £3695 a year, just under £72 a week, without incurring tax liability.

The amount of tax-free pay which you are entitled to for week X is calculated and this figure is deducted from the total wages earned for the current tax year, up to and including the week in which you will receive the amount entered in the input routine.

If your total taxable earnings in any one tax year are less than £17,100 you will be taxed at the rate of 27 per cent. If you exceed that figure, you will have to pay tax at 40 per cent on all taxable pay earned between £17,100 and £20,100.

The rate then increases to 45 per cent for the next £3,000 spread. There are other bands up to 65 per cent and the program caters for these too.

National Insurance is calculated differently. In this case there is a base line and a ceiling. Any earnings below this line, currently £39 a week, attract no contributions up to the maximum amount payable of £25.80 a week irrespective of the amount earned.

For all points in between, the amount due depends on the gross pay for that week. From the base line to £70 the figure is 5 per cent, from £70.01 to the ceiling it is 9 per cent.

Unlike income tax calculations, amounts earned during the year have no effect. If you earn £20 one week and £100 the next, you will pay no NI contribution for the first week and £9 for the second.

Once the tax and NI has been calculated, nett pay is found by subtracting these two amounts from your gross pay.

This program draws a bar chart and shows the figures for Tax, NI due, and nett pay both as money and as a percentage of your total earning that week.

If you have entered the information incorrectly, or you are due a rebate, the bars may exceed the limit of the screen. This should not be a problem and will leave you secure in the knowledge that you are due a nice fat tax rebate.

18 REM TAX CALCULATOR PROGRAM
20 REM "^L"$COLOR 2,B,B"POKE 752,
38 POSITION 9,B;? "INCOME TAX CALCULAT
48 POSITION 9,1;? "--------------------------------
---------------------------
ONE of the few things Atari left out of its touch tablet graphics package was an artshow program, similar to that included in paint. This allows you to display your creations on a computer screen, and save it as a file.

With this in mind, I wrote this picture handling utility. When the program is run you are presented with six options:

Enter picture display order: Lists all the picture files you have on the disc. They must have the extension .PIC to be listed and be in compacted form, as this program will not operate with the 62 sector micropainter files. To enter the picture order, use the cursor keys to move up and down the columns. Press Return when you wish to include a picture and the display number will appear on the right of the filename. When finished, press Escape to return to the main menu.

Set up colour scroll values: Replaces the rainbow colour option on the Atari Artist cartridge and is much more flexible in its use. It allows control over direction and speed of the colour scroll. There is also a random setting which creates interesting effects. The default setting is fast scroll up.

Program Breakdown

Variables.
- Poke in machine code and data tables.
- Main options page.
- Reads picture filenames, displays them and allows you to input picture order.
- Set up colour scroll values.
- Auto disintegrate toggle.
- Clear screen routine.
- Leave program.
- Determines whether time delay or keypress is to be used.
- Loads pictures, handles colour scroll and disintegrate routines.

Main Variables

N-N10 Numbers 0-10
SLD Location of machine code.
BYTES Number of bytes to poke into SLD.
P6 Page 6 (15636).
RAN Random colour scroll flag.
AUTO Auto disintegrate flag.
NPIC Load next picture by time delay or keypress.
FS List of picture files to be loaded.
TS Temporary string.
COL(4) Colour register data.
W Width of colour bands.
S Speed of colour scroll.

8 REM ***************PICTURE HANDLING UTILITY ********
1 REM * FOR ATARI USER *
5 REM * BY MICHAEL A. BAXTER 1987 *
5 REM
20 REM ***************PICTURE HANDLING UTILITY ********
1 REM * FOR ATARI USER *
5 REM * BY MICHAEL A. BAXTER 1987 *
5 REM
10 N=4:N1=1:N2=2:N3=3:N4=4:N5=5:N6=6:N
7=7:N8=8:N9=9:N10=10:N12=12
76=N86:N126=N126:N256=0

11 N=128:N1=128:N2=256:N3=384:N4=512
12 N=64:N1=64:N2=128:N3=192

DI:4:FS=1/F=0:LSB=1
N,N,N,X

80 POKE 201,30:POKE 45,45,N
5000 GRAPHICS N:POKE 559,N:POKE 16,64:
50 POKE 5774,64:POKE 752,N:POKE 709,14:
500 POKE 82,NEE PEEK(SLD)=10 THEN 7000
5000 FOR I=1 TO BYTES:READ A:POKE SLD+I
1,A,NEXT I:RESTORE 5198:FOR I=1 TO 101
500 FOR I=30000 TO 30052:POKE A:READ A
5000 POKE 152,216,112,133,285,32,153,112,2
5000 POKE 258,285,286,113,159,16
5000 POKE 245,48,196,165,287,285,117,1
5000 POKE 176,14,165,286,285,119,159,176,7,32
5000 POKE 183,112,165,285,143,201,32
5000 POKE 231,112,248,1,96,104,104,96,146
5000 POKE 186,128,126,133,285,185,64,127
5000 POKE 135,204,287,96,32,21
5000 POKE 112,48,233,141,113,159,32,21
5000 POKE 112,170,285,32,114,159,96,142,115
5000 POKE 119,169,18,158,21,113
5000 POKE 48,289,77,115,96,173,11
5000 POKE 4,159,248,22,280,287,165,287,285,117,1
5000 POKE 59,144,123,286,175,116,159
5000 POKE 135,207,164,262,204,119,159
5000 POKE 164,262,204,286,132,284,119,159
5000 POKE 176,1,96,112,159,240,2
5000 POKE 230,287,73,1,141,112,159,24
5000 POKE 189,118,159,153,286,164,287,286,117,1
IN Bob Chappel's review of Trivial Pursuit in the February edition of Atari User, he states "All you have to do is speak it aloud — there's no typing or selection of multiple answers.

I would like to know how the computer receives its voice input, what it uses for a microphone and whether it requires a voice print demonstration at the start so that it can understand your statements.

I don't know much about that side of the computer world, but if you don't need extra hardware for this maybe someone could write a routine to let the computer monitor your voice print in the way the review says this game does.

Of course I may have got the wrong end of the stick, in which case could I inform you of the true meaning of this statement.

Also, could you tell me if there is an 8 bit version of the Star Trek game you reviewed in Atari ST User last month.

— K. Swinton, Scunthorpe, South Humberside.

● When Bob Chappel reviewed Trivial Pursuit in the February issue of Atari User, he did say that all you have to do is speak aloud, but this was not meant to be taken too literally.

The computer, as it stands, has no ability to interpret speech patterns and when you play Trivial Pursuit you tell the other players of your True/False or Yes/No answer to the question.

The game works this way on a truth basis, depending on your typed input.

There is an old version of Star Trek about for the Atari 8 bit machines, but it is far cry from the one out for the ST. If a version comparable with the ST one ever comes out for the 8 bit we will certainly review it.

Costly error

I HAVE recently typed in Illuminations from the November issue of Atari User. I saved the program and checked it using Get-It-Right and I found some mistakes. But when I tried to load the program to correct them, Error-21 came up.

This has also happened with another program. Please could you tell me what is going wrong. — Evan Proudfoot, Ratho Station, Midlothian.

● Unfortunately, Error-21 indicates that your file did not save correctly to tape, so unless you made more than one copy we're afraid you will have to type the Illuminations program in again. A useful tip for the future is to ensure that you save your work several times. It may be that the tape you were using was of poor quality or that your tape heads may need cleaning.

Search for cartridges

I OWN an Atari 800XL with Data recorder, joystick and 100 games and I am looking for some cartridges, but can't find any.

Is the hole on the top for decoration? Can you use the old 2600/ves cartridges on an 800XL?

Also, is Beach Head available on a cassette for my 800XL. If so where could I buy and for how much? — M. Lee, Bingley, West Yorkshire.

● A lot of software was changed to fit in the cartridge slot. However, your 2600 cartridges will not plug in and even if they did you would damage your computer.

Available cartridges include Galaxians, Gorf and Missile Command.

Beach Head is not available on tape, as the program refers back to disc all the time.

REPLACING A KEY

I HAVE a 1010 tape recorder which I use regularly, but recently the Record button broke in half. I know several people who have had this problem.

Could you please tell me of a company which sells separate keys, because it seems such a waste to buy a new tape recorder. — Colin Bryson, Kilmarnock, Scotland.

● Your letter shows a standard fault with the 1010 tape deck. The keys have a tendency to snap after a lot of use. The usual keys that break are Play and Record.

We don't know where you can get new keys but you have a Pause key that has little if any use. So you can swap it with the broken one.

To do this you unscrew the base of the tape deck and pull the front off very carefully, as two plastic lugs secure it.

You will see a grey coloured plug on the circuit board. Unplug it and you now have an unrestricted view of the keys, which are held in place by a metal bar and circlip.

Remove the circlip, pull the bar through and pull the keys upwards. Remove your Pause key and the broken key and swap them over, remembering to replace the small metal spring behind the keys.

Refit everything, and your tape recorder will be working again. We recommend you only do this job if your deck is out of warranty, otherwise take it back to where you bought it.
wire from inside the cable goes to which pin in the joystick socket in my 800XL. I would be grateful if you could print the solution. — D. Chatwin, Solihull, West Midlands.

It is recommended that when disconnecting any wires you always keep a record on paper of where all the wires go instead of cutting them off straight away.

Here are the pin numbers followed by the colour of the wires that go to the joystick plug:

1. Brown
2. None
3. Orange
4. Yellow
5. Green
6. None
7. Pink
8. Grey
9. White

800XL. Nearly all our games are good quality, and if we go through a period where we cannot get a game to load, no other games load either.

I've used a head cleaner on the 1010 recorder, but it didn't improve the situation and I have checked that all wires are not crossed and that plugs and sockets are securely connected. I also ensure tapes are wound just beyond the leader before loading.

When our machine does not load the loading tone heard through the TV is often much softer and seems to sound higher pitched.

Loading will normally fail before the tape counter reaches 30. The screen will show Boot error or else the Atari will go into Self-check mode.

Do you know the address of Atari(UK) since our guarantee card has only the US address. — Paul Heawood, Fareham, Hants.

Menu Maker update

I was delighted when you published Menu Maker by Mark Cocker in the February issue of Atari User. I have found it to be very useful and now include MENU.BAS together with the AUTORUN.SYS file on all my discs.

There is, however, one problem with it. I discovered it when trying to load a rather large machine code program which required Basic to be turned off.

It appeared that although Basic was turned off the 8k of memory in which it resided was not available for use by other programs.

This program shows a modification to the original MENU.BAS program to allow this area of memory to be used. Line 600 starts a subroutine to set up the new machine code in page 6. This is initialised by a GOSUB command inserted into line 10 and executed by X = USR(1536) in line 460.

This modification is well worth doing and puts the finishing touches to a very useful program.

10 GOSUB 600:1536 470
460 X=USR(1536)
600 DATA 173,211,9,2,141,1,211,169,192,133,106,162,95,109,12,157,65,3,32,86,22,162,96,169,5,157,66,3,169,57
610 DATA 157,65,3,169,6,157,65,9,169,0,157,75,3,169,26,157,74,5,32,68,228,76,200,21,83
620 RESTORE 600:FOR I=1 TO 56:READ A:POKE 15551+A: NEXT I
630 RETURN

— Dr M.R. Holland, Merry Hill, Wolverhampton.

It could be that your tape heads are out of alignment, and if this is so then we would recommend you take the deck to a dealer for adjustment. We do not suggest that you undertake this action yourself, due to the temperamental performance of 1010 data recorders.

You say you wind tapes just beyond the leader before loading. On most commercial software you should fully rewind the tape, or you will get a time out error on loading because Atari has a 12 second timer before data transmission.

The address of Atari(UK) is Atari House, Railway Terrace, Slough, Berkshire, SL2 5BZ.

Missing brackets

HAVING recently got into computing I bought an Atari 600XL expanded to 64k. I have come across two problems which I hope you can solve for me.

Firstly I have been given Compute's Atari Games Collection Vol. 1, and I am having problems typing in most of the programs. This is caused by the fact I am unable to fathom how to input the curly bracket characters.

An example of a line using these signs is as follows:

PRINT #6: (C24 Spaces)

I have tried using ordinary brackets but to no avail. Have you any suggestions?

Secondly, when typing in lines from a program the computer sometimes seems to freeze and has to be abandoned. This always happens when the Return key has been pressed and the cursor returns to the next line but will then not move any further no matter what key is pressed.

I hope you or your readers can shed some light on my problems, and thanks for a really first class magazine. — R. Masson, Castlemead, Bournemouth.

It is not surprising that you are having problems, as these brackets do not exist on the Atari.

When the line says "C24 Spaces" it means that you can place the quotes, press the space bar 224 times then close the quotes.

You are not meant to enter the text, merely follow what it means.

In answer to your second problem, this plagues most XL machines and the old 400/800 ones. It has to do with your operating system, and when a lot of text is edited it is possible for the Atari to get a bit confused and crash, thus losing all your work.

It is highly recommended that before editing a program you should always save it.

Alternative languages

KEEP up the good work, and may Atari User continue to improve. As a relative newcomer to computing, although I am a very fast learner, I find that the intricacies of machine code elude me.

I am fairly competent in Basic but I am becoming bored with it. So I began to look for another language.

Action! was my first choice, but sadly beyond my budget, so I fell back on Atari Logo. I've been using it for about a week now, and it's fascinating.

So how about running a page as a regular feature devoted to, if not Atari Logo, then alternative languages in general, with programming features, reviews — in short, a mini magazine?

After all, D. Radburn says the Atari is just made for Logo!

I wonder if any other readers agree? — R. Robinson, Doncaster.

We are discussing the
The secret of line 5

I AM having problems typing in "Just like the real thing" from the April 1987 issue of Atari User. I have typed it in exactly as you printed it, but the computer always comes up with an error message at line 5.

What am I doing wrong? I own an Atari 800XL computer so has this anything to do with it?

Do I need some sort of cartridge to be able to type in this sort of program or must I first poke in some sort of code?

Typing in these listings gives me lots of enjoyment so please can you help me out of this dilemma. – B. Ellis, W.Glamorgan.

Your problem is that you are attempting to type in an assembler listing from Basic.

This will not work, as the computer cannot understand the syntax that you are entering. So you need an assembler editor cartridge or some kind of assembler language to enter this listing.

If you read the article you will see that the listing on page 16 of the same issue gives a Basic version of the program to emulate the one that you are unable to enter. Your 800XL is working fine so you have no worries on that scene.

A memory problem

I HAVE recently bought an Atari 130XE and a 1010 tape recorder and I am having trouble saving programs that I have typed in.

Could you please tell me where I am going wrong. – S. Miller, Middlesbrough

Unless you have got faulty equipment you should not be having any problems.

With a program in memory and the Ready prompt on the screen, press the Record and Play buttons at the same time on your 1010 then type CSAVE and press the Return key twice. The program will then be saved to tape. If this does not work then you must have a problem with your tape recorder or computer. If this is the case you should contact your dealer.

No joy with the socket

I RECENTLY bought an Atari computer system and joystick. When I tried the joystick on my computer I found to my horror that it would not fit.

My joystick has a round connector on it with lots of pins inside and I cannot find a suitable socket on my Atari to put it in. – B. James, London.

It appears that you have a BBC joystick in the place of an Atari one.

There is no way that this joystick will work because apart from the fact that the sockets are different the BBC Micro uses an analogue input and the Atari digital. You need to buy a standard Atari joystick.

How to Get It Right

I OWN an Atari 130XE and I enjoy typing in the listings you publish in Atari User. But I would like to know how to use your Get It Right program.

I think it would be a good idea to publish the listing for Get It Right again for those people who missed it when you printed the listings. – Sharon Boodle, Manchester, Lancs.

In the August 1986 issue of Atari User we printed a revised version of Get It Right and it is very simple to use. After you have typed in the program listing make two copies of it: A CSAVE version and an Asci version.

The latter is obtained using the LIST"D/C;" command where D/C indicates a disk or cassette version.

When you have saved your program in this form simply load in your GIP program and run it. A menu will be displayed and you just choose the first option. Then you will be asked for the filename of your program and the GIP will then load it and display a checksum of the listing.

Once this has been obtained you simply compare this to the one in the magazine making a note of any that do not match. You can then reload your program and make any changes needed.

The GIP listing and instructions also appeared in the December 1985 and March 1986 issues of Atari User. Unfortunately it begins to be repetitive and annoying to readers if we publish it too often.

We have plans, however, to publish a new enhanced version in the near future.

Expanding a modem

I OWN an Atari 800XL with disc drive and now wish to expand into a new area. I have decided to purchase a modem and saw a Modem 1000 advertised in a magazine with BBC cables. Will this connect to my Atari without modification? – Christopher Coyle, Suffolk.

The Modem 1000 will work on your Atari but not with the leads being offered. You will need a special one to connect from the micro's serial port to the modem and you will also need communications software.

This software is readily available. You will find the communications module of Mini Office II an ideal program to start with.
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– Anthony Ginn, writing about the Atari ST version in the May 1986 issue of the Atari User

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