ATARI USER
Vol. 3 No. 5  September 1987
£1

CHOPPER RESCUE
Their lives are in YOUR hands!

How to
Convert Basic error numbers into words
Merge machine code into your programs
Escape the clutches of the Leather Goddesses

The biggest, top-selling magazine for all Atari 8 bit users
EXPAND THE CAPABILITIES OF YOUR 8 BIT SYSTEM

US Doubler

Expanding the 1050 disk drive’s strength is what ICD’s US Doubler is all about. A true performer in the area of hardware modifications, this chip set quickly transforms your Atari into a powerhouse, radiating with innovative features never before possessed by a 1050. Features like true double density for greater storage, single and dual density support, an accelerated I/O rate designed to triple your speed when combined with SpartaDOS and full compatibility with existing Atari software.

US Doubler two chip set and fitting instructions

£29.95

SpartaDOS complete with 175 page manual

THE PERFECT COMBINATION – SPARTADOS AND US DOUBLER – ONLY £49.95

SpartaDOS Construction Set

Now you’re no longer limited to Atari compatible printers and modems. The P:R:Connection plugs directly into the serial disk drive port of any 8 bit Atari computer and provides the user with a standard Centronics printer interface and two RS-232 serial ports. It also draws its power from your computer which means one less cord fighting for a power point while its compact size leaves your work space virtually clutter free.

The P:R:Connection’s serial ports use a fully compatible R: handler and resemble those of the 850 interface with the same signals and functions.

P:R:Connection

P:R: Connection and manual

£69.95

Supra’s MicroPrint is a parallel printer interface for the Atari 8 bit series of computers which plugs into the computer’s serial peripheral port and then directly into the printer. It works with most parallel printers and 8 bit software and includes a built-in printer cable.

SupraMicroPrint

£29.95

The SupraDrive AT 20Mb hard disk for the Atari XL and XE series connects directly to the computer’s parallel bus, allowing high speed data transfer rates of 8-10,000 bytes per second (approximately 10-15 times faster than the normal Atari drives).

The SupraDrive AT stores more than the equivalent of 200 single density Atari disks and can access any information within milliseconds. All this adds up to an extremely efficient system for the serious Atari 8 bit owner. The SupraDrive AT is supplied with hard disk interface, built-in power supply, manual and SpartaDOS.

SupraDrive AT ready to plug in and use

£749.95

Rambo XL transforms your 800XL into a mighty 256K computer and makes it memory compatible with the 130XE. Now your XL can support Basic XE extended mode or the standard RAM disk supplied with Atari DOS 2.5. With the RD. COM handler supplied with SpartaDOS you get a 192K RAM disk – enough to duplicate a full double density disk in one pass! You must supply eight 256K DRAMS and the DOS of your choice.

Rambo XL with fitting instructions

ALL PRICES INCLUDE VAT AND DELIVERY

RAMBO XL

P.O. Box 113, Harrogate, North Yorkshire, HG2 0BE, England. Telephone: 0423 67140
News
All the latest from the ever-changing world of 8 bit Atari.

Top Twenty
Which is the top-selling Atari software?

Error Messages
Expand your Basic error codes into meaningful words.

Telesoftware
How to get listings and other programs from MicroLink.

Gadgets
Keep unauthorised people off your micro with this lock.

Reviews
Our evaluation team takes a look at the latest software.

Hints and Tips
Get more enjoyment out of your with our readers’ help.

I/O Channels
Explore and change your Dos with this superb disc editor.

Spreadsheet
Check the weather using the Mini Office II spreadsheet.

Roulac
More amazing exploits with our resident adventurer.

Map
Get to grips with Leather Goddesses: Part 1 of the map.

Whist
A version of the classic game on your Atari computer.

Merger
Put machine code in Basic data statements with this utility.

Special FX
A program to produce scrolling messages on your screen.

Five Liners
More prize-winning mini programs sent in by our readers.

classified
Advertise all your unwanted hardware and software.

Game of the Month
Fly your super helicopter on a dare-devil rescue mission.

Buffer
A detailed review of the time-saving MicroStuffer.

Software Solutions
Our resident expert solves your programming problems.

Mailbag
The chance to get your news, views and name in print.
**Mini Office II**

6 powerful home and business programs in just ONE package – at a price that simply can't be matched!

**WORD PROCESSOR**
Compose a letter, set the print-out options using embedded commands or menus, use the mail merge facility to produce personalised circulars – and more!

**SPREADSHEET**
Prepare budgets or tables, total columns or rows with ease, copy formulae absolutely or relatively, use a wide selection of mathematical and scientific functions, recalculate automatically – and more!

**DATABASE**
Build up a versatile card index, use the flexible print-out routine, do powerful multi-field sorting, perform all arithmetic functions, link with the word processor – and more!

**COMMS MODULE**
Using a modem you can access services such as MicroLink and order a wide range of goods from flowers to software, send electronic mail, telex and tele-messages in a flash – and more!

**GRAPHICS**
Enter data directly or load data from the spreadsheet, produce pie charts, display bar charts side by side or stacked, overlay line graphs – and more!

**LABEL PRINTER**
Design the layout of a label with the easy-to-use editor, select label size and sheet format, read in database files, print out in any quantity – and more!

---

**ORDER FORM**

Please send me Mini Office II for the Atari 400/800/XL/XE (48k required), on 5¼ disc for £19.95

I enclose cheque made payable to Database Software, or debit my Access/Visa card:

<table>
<thead>
<tr>
<th>Card Type</th>
<th>Card Number</th>
<th>Expiry Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Exp. date
Signed
Name
Address

---

**ORDER HOTLINE:**
TEL: 061-489 0171
SEND TO: Database Software, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY
More disc-based games are due

A DISC revolution may be on the cards for Atari 8 bit users. With a new drive due to be launched this month, Atari has begun in depth research into potential boom markets for disc-based software.

This year’s launch of the 65XE games machine, with the option to add a keyboard, encouraged the production of cartridge based software as well as the more usual cassette.

But with the rebirth of Atari’s own software publishing company label and the increasing list of titles, the prospect of producing disc-based games seems more attractive, says the company’s technical director, Les Player. He said Atari had a lot of new 8 bit software going through its testing department at the moment.

This was mainly new arcade games but there were a couple of conversions.

“Most are cassette based, but we are looking to see how soon we can begin to concentrate on disc-based programs”, he said. “If there’s a market, we’re happy to lead the way”.

He explained that in the US cassettes were not used with the 8 bit machines. Over there, discs were the order of the day.

The new drive will be double sided, 5.25in, but pricing and availability details were still being worked out.

Les Player said he had been impressed by the quality of games coming into Atari from smaller software houses and individuals.

“We are really happy to encourage these people. We will have a good look at their work and put it through the testing department. If it’s good enough we’ll put it out on our own label,” he said.

“With the new 65XE selling so well, and a pre-Christmas boom expected, we have got to put out as much good quality 8 bit software as we can. “And if it works out that people want this on disc, then so much the better”.

Deal brings new hardware line

SOLE distribution rights for a range of products from ICD of Illinois has been announced by Frontier Software (0423 67140).

The first product – US Doublor Chip – is a two chip upgrade for the Atari 1050 disc drive which gives true double density for greater storage and an accelerated I/O rate. It is designed to triple the speed of disc operations. Price £29.95.

To complement the Doublor upgrade is SpartaDos which supports 810 disc drives, ram discs and hard discs.

A menu allows rapid transfer, erase and locking and unlocking of files using only the spacebar, Option, Start and Select keys.

A utility package is also supplied and features a 32 character keyboard buffer, intelligent switching between disc densities, sub-directories and a time/date file stamping.

Price £69.95.

Sports simulation

DECATHLON, the new sports simulation from Firebird for the Atari 8 bit, allows up to four players to compete against each other in field events.

The game, from Firebird (01-323 6755), however allows only two players to compete against each other in the track events at any one time.

The 10 events are: the 100, 400 and 1500 metre races, long jump, high jump, shot put, discus, javelin, pole vault and the 110 metre hurdles.

Price £1.99.

FOLLOWERS of Sherlock Holmes will be pleased to hear that US Gold (021-356 3388) has released an Atari 8 bit version of Datasoft’s 221b Baker Street.

The player takes the part of either Sherlock Holmes, Doctor Watson, Irene Adler or Inspector Lestrade – all characters from Conan Doyle’s Holmes stories.

Like all good detective stories the player has to pit his or her wits against other players in order to solve a number of crimes. Price £2.99 on cassette and £14.99 on disc.

Budget nasties

A BOW and arrow is the only weapon available to fight off the scary nasties in Forbidden Forest, just re-released for the Atari 8 bit on the Top Ten budget label.

The player controls a small character who has to venture deep within a creepy scrolling forest-scape.

The quest is to defeat the evil Demogorgon – visible only during flashes of lightning. But along the way there are giant spiders, bumble bees, dragons, phantoms and skeleton soldiers. Price £1.99.

Orc on the rampage

SPELLS and a cast of more than 70 characters are all part of the new adventure game Knight Orc for the Atari 8 bit from Rainbird Software (01-240 8838).

In three parts it sets you loose as an oppressed Orc rampaging across adventureland trying to find a way out.

One object of the interactive game is for the Orc to get its own back on the generations of adventurers who have persecuted it. Each of the 70 characters makes its own decisions and lives its own life.

Communication with the other characters, learning spells and solving puzzles are all a vital part of the adventure. Price £19.95.
Link your Atari to the outside world with...

MicroLink

Electronic mail – The cheapest and fastest form of communication possible. It costs the same to send a message to one mailbox as to 500!

Telex – Link up with 96,000 telex subscribers in the UK and 1.5 million worldwide. You can even send and receive telexes after office hours or while travelling.

Telemessages – Type in your message before 8pm and delivery is guaranteed by first post the next day (except Sunday), anywhere in the UK and USA.

Tele-booking – Reserve train and theatre tickets, check flight details worldwide, or order from a vast range of products – from flowers to floppy discs.

Telesoftware – Download directly into your Atari any program from the ever-growing library now available on MicroLink – both games and utilities.

Company searches – Obtain facts about any British limited company in seconds, and fully analysed financial information on over 100,000 major companies.

Typesetting – Send copy from your word processor together with details of type size and style, and you’ll receive pages ready for printing within 24 hours.

News – Use the powerful search commands to pinpoint vital business information from the world’s leading news services, newspapers and periodicals.

Radiopaging – If you also have a pocket radiopager you’ll be alerted each time an urgent message arrives in your mailbox. So you’re always in touch.

Gateways – Get through to New York in just five seconds – or key into the EEC computer in Luxembourg, which links you to 600 databases throughout Europe.

When you join MicroLink you’ve got the world of communications at your fingertips – 24 hours a day. You’ll have immediate access to ALL the facilities offered by Telecom Gold ... and a great deal more besides.

All you need – apart from your Atari – is a modem, which plugs into your telephone wall socket, plus suitable communications software.

We have provided two possible options on the left.

Whichever equipment you use, you will be able to call MicroLink, open your mailbox, save to disc any messages waiting for you, and disconnect in as little as two minutes.

More than 90 per cent of subscribers can connect to the MicroLink computer at local call rates.

To find out more, fill in the coupon and send it to the address below. You will receive full details of services and costs, together with an application form. Complete this and within days you and your Atari will be able to use all the services of MicroLink and Telecom Gold.

Please send me full details about MicroLink, and information sheets about the following hardware and software options (please tick):

[] Pace package

[] Miracle package

Name:

Address:

Postcode:

Send to: MicroLink, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 6NY.
News

The tender touch

THOSE with a sense of romance and a tender touch
on the keyboard of an Atari 8
bit may welcome Plundered Hearts from Infocom.

The romantic adventure is
set on board the Lafond Deux,
a sailing ship bound for the
West Indies, where the hero-
ine is trying to reach her
ailing father on the island of
St Sinistra.

Pirates attack the ship and
amid the destruction and
plunder the heroine is
snatched from danger by
Nicholas Jamison, the pirate
captain, who not only saves
her life but wins her heart as
well.

Plundered Hearts is an
interactive fiction game that
features drunks, crocodiles
and exotic locations as well
as pirates. It is the first game
from Infocom to be aimed
specifically at women.

The story was written by
Amy Briggs who read dozens
of romance novels and
researched 17th century ships
and costumes to make the
story line as realistic as possible.

Frightening freeways

A FUTURISTIC strategy role-
playing game for Atari 8 bit
machines has been released
by Origin Systems (0666
54326).

In Autoduel the player
drives along the freeways of
the future where the right of
way goes to the driver with
the biggest gun.

Somewhere in a total of 16
cities and outlaw-infested
highways there are clues to
help the player bring Mr Big
to justice, but before that a
series of other missions have
to be undertaken.

The ability to decipher
clues is required along with
the gambling, skills, money, and
a super car. Price £19.95 on
disc.

Competition winners

THE first prize of a full range of
MicroProse titles, a framed Silent
Service poster and a T-shirt goes to
Jason Peasgood from
Wigston.

Second prize goes to Mrs A.
Kinsella of Fairwater who will be
receiving a selection of six
Microprose games, a framed poster
and T-shirt. M. Gall from Etham
will receive the third prize of a
framed poster, copy of Silent
Service and T-shirt.

Runners-up prizes of a copy of
Silent Service and a T-shirt go to:
J.P. Hallin, Chendale Hulme; E.
Stockford, Hemel Hempstead;
C.W. Taylor, Harlow; E. McKenna,
Waterthorpe; A.

Dodderty, Winchester; A.
MacMillan, Carnytne; T.S. Rodwell,
Wisbech; C. McPake, Sandyhills;
C. Marshall, Sheffield; P. Styrin,
Harrogate; K. Harding, Horley;
S. Lock, Bristol; R. McChesney,
Glasgow; G. Mason, Bish-

opthorpe; B.U. Stanway,
Blackpool; P. Bond, Burton-on-
Trent; D. Nayor, Coulson;
S. Briscoe, Market Drayton;
C. Warhurst, Eastfield; S. McFar-
lane, Chelsmford.

A further 50 people will receive
a Silent Service T-shirt: C.
Sandford, Preston; G. Davies,
Romford; A. Dempster, Selkirk;
R. Rowlands, Huddersfield; R.
Vine, Somerset; N. Beaker, Old
Basing; B. Munday, Addlestone;
A. Dewdney, Durham; C. Fenn,
Aberdeen; F. Johns, Plymouth;
D. Smith, St Ebbes; Mr Perkins,
Bordon; A. Clark, Garrowhill;
D. Garnet, Castleford; A. Brown,
Birmingham; S. Tupilin, Market
Rasen; J. Barrett, Underwood;
M. Fynn, Pontefract; A.
Houghton, Elth; S.A. Turner,
Frasenburgh; J. Harrington, London;
C.E. Geoff, Albrighton; S.
Banks, Upminster; N. Abbott, Ipswich;
P. Adfield, Widnes; J.A. Gorrie,
Bedhampton; W. Baysting,
Warminster; E. Wainwright,
Skelmersdale; R. Ashmore, Shef-
field; M. Manning, Basildon; A.
Smith, Selston; G. Ransom,
Wilmislow; B. Masson, Bour-
nemouth; B. Augustine, Hud-
dersfield; M.J. Oliver, Crewe; N.
Yeates, Leek; L. Partington,
Heywood; P. Frost, Wirral; C.
Farnella, Preston; B. Green-
hough, Lymm; T. Weaver,
Seaford; D. Davies, Amluch;
K. Joyce, Sheffield; S. Jaggiani,
Banstead; A. Thompson, Newton
Abbott; M. Standing, Cambrian;
J. Blundell, Maghull; J. Pearson,
Newbury; D. Diblago, Saltash
and M. Watson, Darlington.

Compiled by Gallup/Microscope

Gauntlet holds the top position for yet another month,
de spite nine new entries and one re-entry - LA Swat at
number 19. Budget titles are well in evidence with Master-
tronic having four new titles in the Top 10.
MicroLink in association with 
TELECOM GOLD

High tech facts on tap
MICROLINK is helping to speed the flow of information produced by a leading industrial and commercial monitoring organisation.

The Brussels-based European Registry of Commerce keeps tabs on all the Continent's high tech industries, producing monthly reports on everything from printed circuit board manufacturing to industrial lasers.

It also logs all computer-related new products and patents, gives reports on important exhibitions, seminars and conventions, and underwrites market research projects for clients.

"Most of our 300 subscribers are UK based and they will now be able to receive our intelligence services more quickly and economically thanks to MicroLink electronic mail," said Registry managing director Svend Andersen.

"Eventually we intend to establish an online database so that as soon as our reports are prepared they can be accessed by our clients."
Do you get the message?

LEN GOLDMING makes sense out of Basic's obscure coded advice

IT'S a sad fact of life that most Basic programs don't run correctly first time - even if you've copied them from our listings. Often this is due to relatively minor typing errors such as using the letters O and I instead of zero and one, misspelling a variable name, or typing two numbers together in a DATA line. And an even more obscure cause of error messages is the keyboard. If you write a program on a typewriter and then type it into Basic, the chances are that you've forgotten to end one or more messages with an inverse character, or have left out an inverse asterisk.

If the computer locks up completely, or won't accept any lines of Basic, check your original typing of the program and especially the machine code data statements and all lines which contain variables M, ML and MH.

If you have to correct any mistakes, save the corrected Basic program and then run it to make a new master file. When using or modifying the error message generator, there are a few important points to bear in mind. First, it uses stage one of the vertical blank interval. If your Basic program alters the addresses which control immediate VBIs - notably 546 and 547 - the error routine will stop working. Fortunately most programmers prefer to use the deferred (stage two) VBI, which won't affect the error messages.

Second, the cassette version is set as low as possible in RAM (1792 onwards), to leave maximum space for your Basic programs. This means that you cannot use it in conjunction with any parallel which appropriates this same memory area.

The only common one likely to
cause problems is an RS232 interface, so if you’re using an 850 module just to drive a printer, make sure you don’t switch it on until after the READY message appears. Disc drive users don’t have this problem, since the disc version is assembled to 7424, which is above DOS and the RS232 handler’s memory space. It’s easy to modify the message wording if you’d prefer something like: “Switch the thing on, Dumbo”, instead of “Device does not respond”.

Simply delete the data you want to change and insert your new message, making sure the last program is inverse, then run the program to make a new master file incorporating the changes.

If you want to leave out any messages which could legitimately be generated, replace them with an inverse blank space. This will not print on screen, but keeps the counting system in step.

The inverse asterisks serve a similar function — they allow the routine to step over any numbers which are never used or, in Program I, the ones that can’t be generated by a cassette system alone.

---

**Program 1 - Cassette**

10 BFR=PBK((186-24):POKE 186,BFR+8)
20 BFR=PBK(256,BRM Address of start of buffer)
30 FOR X=0 TO 46:READ D:POKE 53664,X
40 NEXT X
50 REM Load the program temporarily into the reserved buffer space
60 X=0:RESTORE 210
70 REM Load it into the reserved buffer space
80 FOR X=0 TO 46:READ D:POKE 53664,X
90 NEXT X
100 REM Load the program temporarily into the reserved buffer space
110 DIM DC(500):180:RESTORE 350
120 READ D:FOR I=1 TO LEN(DS):POKE BF
130 NEXT I
140 LEN=LEN(DS)+1
150 DATA 1,2,3,4,5,6,7,8,9,10
160 DATA 1,2,3,4,5,6,7,8,9,10
170 DATA 1,2,3,4,5,6,7,8,9,10
180 DATA 1,2,3,4,5,6,7,8,9,10
190 DATA 1,2,3,4,5,6,7,8,9,10
200 DATA 1,2,3,4,5,6,7,8,9,10
210 DATA 1,2,3,4,5,6,7,8,9,10
220 DATA 1,2,3,4,5,6,7,8,9,10
230 DATA 1,2,3,4,5,6,7,8,9,10
240 DATA 1,2,3,4,5,6,7,8,9,10
250 DATA 1,2,3,4,5,6,7,8,9,10
260 DATA 1,2,3,4,5,6,7,8,9,10
270 DATA 1,2,3,4,5,6,7,8,9,10
280 DATA 1,2,3,4,5,6,7,8,9,10
290 DATA 1,2,3,4,5,6,7,8,9,10
300 DATA 1,2,3,4,5,6,7,8,9,10
310 DATA 1,2,3,4,5,6,7,8,9,10
320 DATA 1,2,3,4,5,6,7,8,9,10
330 DATA 1,2,3,4,5,6,7,8,9,10
340 DATA 1,2,3,4,5,6,7,8,9,10
350 DATA 1,2,3,4,5,6,7,8,9,10
360 DATA 1,2,3,4,5,6,7,8,9,10
370 DATA 1,2,3,4,5,6,7,8,9,10
380 DATA 1,2,3,4,5,6,7,8,9,10
390 DATA 1,2,3,4,5,6,7,8,9,10
400 DATA 1,2,3,4,5,6,7,8,9,10
410 DATA 1,2,3,4,5,6,7,8,9,10
420 DATA 1,2,3,4,5,6,7,8,9,10
430 DATA 1,2,3,4,5,6,7,8,9,10
440 DATA 1,2,3,4,5,6,7,8,9,10
450 DATA 1,2,3,4,5,6,7,8,9,10
460 DATA 1,2,3,4,5,6,7,8,9,10
470 DATA 1,2,3,4,5,6,7,8,9,10
480 DATA 1,2,3,4,5,6,7,8,9,10
490 DATA 1,2,3,4,5,6,7,8,9,10
500 DATA 1,2,3,4,5,6,7,8,9,10
510 DATA 1,2,3,4,5,6,7,8,9,10
520 DATA 1,2,3,4,5,6,7,8,9,10
530 DATA 1,2,3,4,5,6,7,8,9,10
540 DATA 1,2,3,4,5,6,7,8,9,10
550 DATA 1,2,3,4,5,6,7,8,9,10
560 DATA 1,2,3,4,5,6,7,8,9,10
570 DATA 1,2,3,4,5,6,7,8,9,10
580 DATA 1,2,3,4,5,6,7,8,9,10
590 DATA 1,2,3,4,5,6,7,8,9,10
600 DATA 1,2,3,4,5,6,7,8,9,10
610 DATA 1,2,3,4,5,6,7,8,9,10
620 DATA 1,2,3,4,5,6,7,8,9,10
630 DATA 1,2,3,4,5,6,7,8,9,10
640 DATA 1,2,3,4,5,6,7,8,9,10
650 DATA 1,2,3,4,5,6,7,8,9,10
660 DATA 1,2,3,4,5,6,7,8,9,10
670 DATA 1,2,3,4,5,6,7,8,9,10
680 DATA 1,2,3,4,5,6,7,8,9,10
690 DATA 1,2,3,4,5,6,7,8,9,10
700 DATA 1,2,3,4,5,6,7,8,9,10
710 DATA 1,2,3,4,5,6,7,8,9,10
720 DATA 1,2,3,4,5,6,7,8,9,10
730 DATA 1,2,3,4,5,6,7,8,9,10
740 DATA 1,2,3,4,5,6,7,8,9,10
750 DATA 1,2,3,4,5,6,7,8,9,10
760 DATA 1,2,3,4,5,6,7,8,9,10
770 DATA 1,2,3,4,5,6,7,8,9,10
780 DATA 1,2,3,4,5,6,7,8,9,10
790 DATA 1,2,3,4,5,6,7,8,9,10
800 DATA 1,2,3,4,5,6,7,8,9,10
810 DATA 1,2,3,4,5,6,7,8,9,10
820 DATA 1,2,3,4,5,6,7,8,9,10
830 DATA 1,2,3,4,5,6,7,8,9,10
840 DATA 1,2,3,4,5,6,7,8,9,10
850 DATA 1,2,3,4,5,6,7,8,9,10
860 DATA 1,2,3,4,5,6,7,8,9,10
870 DATA 1,2,3,4,5,6,7,8,9,10
880 DATA 1,2,3,4,5,6,7,8,9,10
890 DATA 1,2,3,4,5,6,7,8,9,10
900 DATA 1,2,3,4,5,6,7,8,9,10
910 DATA 1,2,3,4,5,6,7,8,9,10
920 DATA 1,2,3,4,5,6,7,8,9,10
930 DATA 1,2,3,4,5,6,7,8,9,10
940 DATA 1,2,3,4,5,6,7,8,9,10
950 DATA 1,2,3,4,5,6,7,8,9,10
960 DATA 1,2,3,4,5,6,7,8,9,10
970 DATA 1,2,3,4,5,6,7,8,9,10
980 DATA 1,2,3,4,5,6,7,8,9,10
990 DATA 1,2,3,4,5,6,7,8,9,10
`
Program II - Disc

10  START=7424:REM Address where code w
ill be loaded
20  COLST=START+3:SH_INT(COLST/256):S
L=COLST-SH+256:REM address to jump to
30  BFR=PEEK(186)-24:POKE 106,BFR:GRAPH
ICS 0:REM Reserve a buffer for the cod
e, so it can be saved in one operation
40  BFR=PEEK(256):REM Address of start of bu
uffer
50  X=B:RESTORE 200
60  READ D$:IF D$='1 THEN 80
70  POKE BFR,16X$:X$+1:GOTO 60:REM Read
machine code into buffer
80  DIM $4000:TRAP 110:RESTORE 390
90  READ D$:FOR Z=I TO LEN(D$):POKE BFR
+Z-1,ASC(D$(Z,Z))=NEXT Z
100  X$=X$+LEN(D$):GOTO 90
110  F$=BFR:POKE F$+2,Z$:POKE F$+1,2:POKE
F$+2,255:POKE F$+3,2
120  POKE F$+4,5:POKE F$+5,SH:REM Write
6-byte footer
130  Y=START+7:Y$=INT(Y$/256):Y$=Y$%256
256:REM Address of last byte before fo
ooter
140  M#=Y$+1:INT(M#/256):M#%256
M new value for MERLO pointer
150  POKE BFR+Y$:ITALIC=POKE BFR+5,Y$:REM In
sert the file end address into header
160  POKE BFR+34,M#:POKE BFR+30,M#:REM
Save new value for MERLO
170  OPEN #1,'B,"AUTORUN.SYS"
180  FOR B=0 TO 7+5
190  PUT #1,PEEK(BFR+B+1):NEXT B
200  DATA 255,255,255,0,29,0,8
210  DATA 76,156,29,165,12,141,25,29,16
5,131,14,26,29,169,24,133,12,169,29,13
3,141,23
220  DATA 13,16,27,29,32,27,29,169,35,1
4,121,2,169,38,147,232,2,173,33,3
230  DATA 135,285,173,34,133,286,160
3,141
240  DATA 23,30,169,29,141,24,30,168,77
162,29,168,6,32,92,228,96,173,15,30
250  DATA 201,29,168,185,240,25,16,3,56
,235,168,170,282,142,15,39,169,19,141
3,36
260  DATA 5,169,38,141,34,1,169,8,141,1
4,38,76,95,228,177,14,58,192,11,248
270  DATA 9,165,145,29,238,14,30,168,1
280  DATA 169,155,161,1,98,86,61,65,83
82,48,55,50,50,12,41,104,159,35,135
290  DATA 285,165,38,133,286,25,16,3,30
300,38,46,56,168,177,283,48,3,200,16
310  DATA 249,280,240,18,160,165,205,24
189,16,38,133,285,165,285,185,133,28
4,76
320  DATA 161,29,168,0,141,17,30,172,17
9,177,285,48,5,239,29,238,17,30
320  DATA 76,287,29,41,57,239,29,19,16
9,141,15,38,169,155,32,239,29,164,1
310  DATA 16,30,169,11,141,14,5,169,16
141,58,136,169,141,69,162,1,142
340  DATA 73,2,282,142,73,3,23,286,228,9
6,8,8,8,8,8,8,8,8,8
500  DATA 8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8
300  REM The error message table starts here.

300  REM THE LAST LETTER IN EACH MESSAG
E. AND THE ASTERISKS AT 799 AND 858 M
UST BE TYPED IN INVERSE (see text).
390  DATA Out of memory
400  DATA Illegal numeric value
410  DATA Too many variables
420  DATA String length exceeded
430  DATA DATA list exhausted
440  DATA Number greater than 32768
450  DATA Tried to INPUT wrong type of var
iable
460  DATA Array or string dimension erro
r
470  DATA Expression too complex
480  DATA Can't divide by zero
490  DATA Non-existent line number
500  DATA NEXT without FOR
510  DATA Line too long
520  DATA GOSUB or FOR Line deleted
530  DATA RETURN without GOSUB
540  DATA Can't make sense of this line
550  DATA Incorrect use of IF!
560  DATA Not enough RAM
570  DATA Can't use channel B or C
580  DATA Not LOAD or DELETE
590  DATA BREAK key pressed during I/O
600  DATA Channel already open
610  DATA Non-existent device
620  DATA Channel opened for output only
630  DATA XIO syntax error
640  DATA Channel not open
650  DATA Can use only channels 1 to 7
660  DATA Channel open for input only
670  DATA End of file
680  DATA I/O error: data record too lo
ng
690  DATA Device does not respond
700  DATA Device malfunction
710  DATA Serial communication fault
720  DATA Cursor out of range
730  DATA Serial communication fault
740  DATA Serial communication fault
750  DATA Can't write to this disk
760  DATA Read/write inconsistent
770  DATA Requested action is impossible
780  DATA Too Little RAM for GRAPHIC
mode
790  DATA ...
800  DATA Serial port already open
810  DATA Concurrent mode I/O not enab
led
820  DATA Illegal user-supplied buffer
830  DATA Serial port can't do 2 things
at once
840  DATA Operation needs concurrent mode
850  DATA ...
860  DATA Drive must be D: or D1 to D6
870  DATA Too many files open
880  DATA Disk full
890  DATA Unrecoverable I/O crash
900  DATA POINT error, or directory scr
ambled
910  DATA Illegal file name
920  DATA POINT data length error
930  DATA File locked
940  DATA Unknown XIO command
950  DATA Disk directory full
960  DATA File not found
970  DATA Can't POINT beyond open file

Get it right!
AS more and more of you are becoming interested in the communications revolution and the advantages of electronic mail we have been receiving lots of letters asking about downloading our listings from the MicroLink mainframe computer.

MicroLink is a vast electronic storage and mail system which is also linked into many other computers giving you access to a whole range of online services. One of the facilities offered is the ability to obtain computer software from the system - otherwise known as downloading telesoftware. Among the programs you can download are listings from Atari User.

But how do you go about it? Well, assuming you are online to MicroLink you can access the download section by typing TS from the main prompt. The main telesoftware menu allows you to choose programs for your particular computer, or to go straight to the latest software.

You can download your programs in one of three modes. The first two are variations of standard Ascii text which are very straightforward to use but can occasionally be corrupted if you get a bad phone connection. The other mode - Kermit - is a special error-correcting protocol but is rather slower in transmitting files.

However, unless your communications software supports Kermit and most 8-bit Atari programs don't, you will not be able to take advantage of this development. If you do have access to a Kermit supporting comms package you can get more information by typing HELP KERMIT at the > prompt.

All of MicroLink's telesoftware can be downloaded in the form of Ascii text files and, in order to do this, all you need is a comms program (sometimes known as a terminal emulator) which has the ability to capture the incoming text and save it to disc or tape for later viewing. You might find this is referred to as spooling to disc in your manual. The Xmodem system provided on some comms software doesn't at present work with MicroLink.

There are many software packages you can use, including the new Mini Office II comms section which is designed specifically to make it easier to talk to MicroLink and similar systems.

Beware of using software which can only store incoming text in a memory buffer. Many of the download files are quite long and would quickly fill up the available ram unless there is a facility to dump (or spool) to disc as the buffer fills up.

MicroLink is a text system and, as such, cannot handle any of the Atari graphics characters or machine code files. To get around this a special system known as Expanded Ascii has been developed.

The procedure for downloading both types of file is very similar. We'll look at the procedure with Mini Office II, but similar procedures apply to all software and your manual will show you the relevant commands for your own.

The latest software is stored in a way that makes it much easier to find the program you want and soon all the software will be stored that way. So let's look at how to download software from this section.

After typing TS enter the appropriate menu number at the first telesoftware menu (currently on number 7). You will then see:

$ SEARCH <A>:sci <K>:ermit <H>:elp <G>:uit

Enter S followed by the type of file you are looking for. So, for example S ATU would find any Atari user program, S ATARI 8B lists Atari 8 bit programs. After confirming your choice you will now see a list of programs available with any relevant information.

Choose the file you want, then to download it enter A followed by the file number given. For example, AF1242 would download file F1242. Both Ascii and Expanded Ascii files are downloaded with the A option.

You are next presented with some details of the program and given a chance to save them as you wish. After this helpfile you are told to prepare to save the program and it's at this point that you turn on your capture-to-disc facility.

On Mini Office II this means typing Control+Shift+R for Receive File, entering a filename and then selecting the mode. This should be 2 for a standard Ascii file and 3 for an Expanded Ascii one. Files with a type shown as A are Ascii and B are expanded Ascii.

You are now ready to begin the download, hit the Start button to begin the capture and press Y+return to tell MicroLink know it can start sending. The text will now be displayed on your screen, with occasional pauses as your Atari sends a block to the disc file.

When the incoming text stops completely, press the Start key to close the capture file and hit Return to tell MicroLink to go back to the menu. If your communications software doesn't support Expanded Ascii you can download it as standard Ascii and then convert it into a binary file. There is a short Ascii program called Expanded Ascii on MicroLink to enable you to do this quickly and easily. See the Help file on that program for more details.

When you have logged off MicroLink you should re-boot your computer and go to Basic. An Ascii file may be loaded by using:

ENTER 'D:filename'.

Expanded Ascii files are usually saved Basic programs and are loaded normally with:

LOAD 'D:filename'.

Some files are machine code binary files and these should be loaded by going to the Dos menu and typing L for Binary Load and then entering the filename. More information about the type of file can be obtained from the help file associated with each program.

This should have given you an insight on MicroLink's telesoftware facility so there's no need to spend hours and hours typing in our programs when you can do it online in minutes.

ANDRÉ WILLEY shows how to download them from MicroLink
ARE you tired of people using your computer without permission? Here’s a gadget that could be useful at home, school, in computer groups, youth clubs or charity organisations.

It locks your computer by blocking the power supply until you enter a secret five-digit code.

There’s no key to be lost, stolen or copied. The choice of code number is entirely up to you and can be changed easily if the need arises.

The gadget fits neatly into your power supply lead.

It doesn’t require software and several fail-safe features are built-in. It can control any Atari 8-bit computer, disc drive or program recorder – in fact, anything that uses either a 5V DC or 6V to 9V AC power supply, at up to 2 amps.

Figure 1 shows the circuit. It’s quite complicated, and you don’t need to understand how it works in order to build and use it, but for electronics buffs here’s the operating theory.

The lock must be able to detect when a digit is being entered, and to discriminate between correct and incorrect entries. These three states are indicated by different voltages on the signal line: No digit = 2.5V, correct digit = 5V and an incorrect digit = 0V (or thereabouts). IC2a and IC2b are wired as comparators, to monitor the signal-line voltage.

If it is held at 2.5V nothing much happens. If it rises above 3.3V, IC2a sends a clock pulse to IC1. If it falls below 1.7V, IC2b sends a reset pulse to IC1.

IC1 is a decade counter with 10 outputs, though we use only five in this application. They are normally held low (0V), but go high (5V) in sequence from 0 to 9 when clock pulses are received at pin 14.

If the count reaches five, pin 12 goes from high to low, and we use this as the success signal. Any incorrect digit along the way will generate a reset pulse (via IC2b) which sets the counter back to zero, wiping out the memory of anything previously entered.

The trick is to ensure that only the correct sequence of five digits can generate five clock pulses in succession. To see how this is done, let’s trace the operation of Figure 1, where the correct combination is 24579.

When you first switch on, C3 sends a brief positive pulse to pin 10 of IC2 and, via D1 and R1, to pin 12 of IC1.

This does two things. First it latches the output of IC2c high, so TR1 turns on and RL1 pulls into its closed position. No current can flow to the computer when the relay is in this state.

Second, it ensures that IC1 is set to zero, so pin 3 will be the only high output.

Now this output is connected to the S1 pin which corresponds to two on the dial. So if you rotate the dial to two and press S2, the 5V at output 0 will appear on the signal line, generating the first clock pulse.

Output 0 now goes low, and output 1 goes high, so the second clock pulse will be generated only if you enter the digit which is wired to output 1 – in this case four. This sends output 2 high, ready for the third digit (five), and so on, until the entire combination has been correctly entered.

When the count reaches five, IC1 pin 12 goes low. This drives the output of IC2c low, and R7 ensures it stays that way. TR1 turns off, so RL1 clicks into its open position. Current can now flow through the relay contacts, and the computer switches on.

Connecting the outputs of IC1 to different pins on S1 will program the lock to accept different combinations. Almost any five-digit code can be used.

Figure 1: The Code Lock circuit diagram

---

Turn to Page 14 ▶
From Page 13

- the only restriction is that no digit may appear more than once.

There are a few components we haven’t mentioned so far. C1 reduces electrical noise on the supply lines which might otherwise cause IC1 to count incorrectly. R2 and R6 produce reference voltages for IC2a and IC2b. C2 helps to de-bounce S2, and D2 protects TR1 from voltage spikes generated by the relay.

C4, BR1 and IC3 are needed only if you want to control 400/800 computers, disc drives, 410 program recorders or other items of equipment which use a 6V to 9V AC supply. The PSU for XL and XE models delivers 5V DC, so it can power the code lock directly.

Figure II shows the PCB pattern for those of you who like to etch your own, but a ready etched and drilled PCB is available from RH Design, as always. Holes for the terminal block and BR1 should be 1mm diameter, fixing holes are 3mm, and all other pads should be drilled 0.8mm.

Now let’s look at construction. Figure III shows the component layout for the version which operates with AC power supplies. If you’re using an XL/XE power pack, omit BR1, C4 and IC3, and fit the two short wire links from A to B and D to E, instead of from A to C and D to F.

Several of the components are polarised, so they must be soldered the correct way round. BR1 has + marked, C4 has an indentation at the positive end, and the diodes have a coloured band to mark their cathodes.

Take particular care that IC1 and IC2 are inserted with pin 1 in the correct position, and that IC3 (if you’re using it) goes with its flat metal side towards C4.

S1 and S2 are mounted on the case, and connected to the board via the terminal block. Fig IV shows how they are wired for the combination 24579. S1 is a 12-way switch, but the recommended control knob has only 11 positions marked (0 to 10). However, if you remove the fixing nut and shake-proof washer, you will see a small ring with a tooth which limits the spindle’s rotation.

Prise this out and move it round until the tooth points at 11, then re-insert it. Now the switch will rotate to only 11 positions, matching the control knob markings.

The contacts on S1 are numbered, so it’s easy to see where you are. One corresponds to zero on the control knob so, when you’ve chosen your combination, add 1 to each digit and solder a wire to the pin with that number. (That’s why in Figure IV, the combination 24579 appears to be wired for 3,5,6,8,10). The common pin is taken via S2 to the signal input, while all unused pins are connected together and taken to the Reset line.

When everything is assembled, fit the unit into its case, then attach the power supply input and output leads. The simplest, cheapest and safest way is to break into your existing lead.
You could fit an extra plug and socket but in this case remember that unless your power supply plug is well taped into the socket the gadget is pointless.

In AC mode, it doesn't matter which way round the two power leads are connected, so long as you get the input and output right.

Note that if you're using an XL or XE power pack, the positive and negative leads for both input and output must be connected the right way round, or you will almost certainly damage the code lock, your computer, or both.

Positive is the striped lead, negative is all black, and Figure V shows the pin connections.

For security reasons, you might like to run a line of white insulating tape around the crack between the case and its lid. It won't keep determined people out, but at least you will know if anyone has been tampering.

<table>
<thead>
<tr>
<th>PARTS REQUIRED</th>
<th>Maplin Code</th>
<th>Maplin Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1 33k orange/orange/orange</td>
<td>M33K</td>
<td>BL19V</td>
</tr>
<tr>
<td>R2-R6 47k yellow/violet/orange</td>
<td>M47K</td>
<td></td>
</tr>
<tr>
<td>R7 100k brown/black/yellow</td>
<td>M100K</td>
<td></td>
</tr>
<tr>
<td>R8 2.2k red/red/red</td>
<td>M2K2</td>
<td></td>
</tr>
<tr>
<td>C1-C3 0.1mfd disc ceramic</td>
<td>YR75S</td>
<td></td>
</tr>
<tr>
<td>C4 3.3mfd 25v axial</td>
<td>FB68Y</td>
<td></td>
</tr>
<tr>
<td>IC1 4017BE decade counter</td>
<td>QX09K</td>
<td></td>
</tr>
<tr>
<td>IC2 LM324 quad op-amp</td>
<td>UF26D</td>
<td></td>
</tr>
<tr>
<td>IC3 uA7805 +5v regulator</td>
<td>QL31J</td>
<td></td>
</tr>
<tr>
<td>BR1 W005 bridge rectifier</td>
<td>QL37S</td>
<td></td>
</tr>
<tr>
<td>D1,D2 1N914 signal diode</td>
<td>QL71N</td>
<td></td>
</tr>
<tr>
<td>TR1 BC108C transistor</td>
<td>Q832K</td>
<td></td>
</tr>
<tr>
<td>S1 1 pole 12-way rotary switch</td>
<td>FF73Q</td>
<td></td>
</tr>
<tr>
<td>S2 Push-to-make switch</td>
<td>FH59P</td>
<td></td>
</tr>
<tr>
<td>RL1 Micro-miniature 6v relay</td>
<td>FM99W</td>
<td></td>
</tr>
<tr>
<td>14-pin DIL socket</td>
<td>BL18U</td>
<td></td>
</tr>
</tbody>
</table>

* Not needed for XL/XE computers - see text

All components available from Maplin Electronic Supplies, PO box 3, Rayleigh, Essex, SS6 2BR

Printed circuit board (order code DBP13) price £2.38 inc VAT and postage. Available from RH Design, 137 Stonelaw Avenue, Harrogate, North Yorks. Tel. 0423 880520.

SOFTWARE EXPRESS
COMPUTER SYSTEMS LTD

The First XLEnt Software

WORD PROCESSOR

Icon driven, fast and friendly.

£29.95

PCW Review May '87
"Honestly believe it is the best word processor seen for the 8-bit ATARI'S."

EUROPE'S LARGEST MAIL ORDER ATARI DEALER

TEN-PRINT £14.95 (DISK)
A printer utility allowing you to print and edit fonts, dump graphic 8 screens.
"Typesetter" compatible.

514-516 ALUM ROCK ROAD,
ALUM ROCK, BIRMINGHAM
B8 3HX
PHONE: 021-328 3585

PLEASE SEND ME YOUR LATEST PRICE LIST
NAME
ADDRESS
I OWN XL XE 520 520ST 1040

September 1987 Atari User 15
Floyd is back!

Program: Stationfall
Price: £24.99
Supplier: Infocom, c/o Activision, 23 Pond Street, Hampstead, London NW3 2PN
Tel: 01-431 1101

"LET'S play a game of Hider-and-Seeker". Now who would say that? Who could almost drive you to drink one minute and in the next stimulate an overwhelming sense of affection? Who would carry out an act of heroic proportions and lay down his life for you? And who, if you were so unkind as to give him an undeserved kick, would mutter "Why did you do that? I think a wire's shaken loose", and go off into a corner and sulk?

It could be no one but Floyd, the scatterbrained robot from Infocom's Planetfall. No one who has met Floyd is ever likely to forget him. And if you haven't had the pleasure, now's your chance.

For the good news is - Floyd's back! That loveable, maddening mass of mischief returns with a bang in Steve Meretsky's brilliant sequel, Stationfall.

The author of Planetfall, in which Floyd made his illustrious debut, won an award for Best Computer Software Designer. Make no mistake, we are talking real quality here.

You don't need to have played Planetfall to enjoy Stationfall (but why play one superb game when you can play two?). As a result of your heroism in Planetfall, you have been promoted.

Before you were just a scrubber of decks and cleaner of grotch cages. In Stationfall you are now... well, although you're a much higher rank, the job is just as mind-numbingly boring.

Your tedious scrubwork has been replaced with tedious paperwork. Forms, forms and more forms. Take today's -- thrill-a-minute assignment, for example.

You have to pop over to Gamma Delta Gamma 777-G Space Station and pick up a supply of Regulation Black Form Binders Request Forms. Ho, hum.

Aboard your ship the SPS Duffy is your former arch-tormentor Blather (who has since been demoted to desk-scrubbing duties) and a trio of robots in the robot pool. There's Rex and Helen and -- yippee -- your old playmate Floyd. You can only take one from the pool and, of course, it's got to be Floyd.

Try picking one of the others and just see what happens. Even if it were technically right to pick Rex or Helen, could you bear to see Floyd's lower jaw begin to quiver as though he were about to cry? I couldn't.

With the aid of the documentation included in the package, it doesn't take too much effort to plot your course and find the way to the massive Space Station complex. The 10 blueprints that are also included with the game certainly come in handy with the mapping once you've arrived.

You and Floyd are not alone on the station for long. In walks another robot, a bit of a bookworm apparently since he's reading a volume of poetry.

Turns out this is Plato who is rather like an older, wiser version of Floyd - fortunately he's just as friendly.

Floyd and Plato are very much in the mould of all good comedy double-acts - R2D2 and C3PO spring to mind. It is one of the great puzzles of this game to watch them at work and play (which they do incessantly, mostly without taking any notice of you).

There are other inhabitants, too - an ostrich and an Arturian balloon creature (shades of Dark Star?). Your mission is certainly turning out to be a far cry from the prosaic paper hunt you thought it would be, even if it does at the moment seem to be lacking in mystery and mayhem.

But it soon becomes apparent that all is not well. The Commander's detailed log makes uneasy reading as it charts a gradual decline of the normally smooth-running of machinery and procedures. The problems all seemed to begin with the arrival of that strange alien craft...

You discover at first hand that things are indeed going very wrong. Automatic sliding doors begin to open much more slowly as you approach but slam shut with an alarming suddenness as you pass, endangering your life.

Roving android mechanics start mistaking you for something that needs a quick bit of spot-welding. And even Floyd acts more strangely than normal.

Stationfall has much going for it. As well as the expected deep level of detail, fulsome prose, wide vocabulary, superb parser, and the usual high standard of Infocom packaging (a Stellar patrol patch and three pieces of bureaucratic bumph are included in addition to the items mentioned above), the adventure itself is a cracker.

There are Footnotes to read (remember Hitchhiker?) and even our old friends the Grues put in an appearance. But above all, Stationfall has the single ingredient which, with one exception, no other Infocom adventure has - Floyd!

Try to Save your game position and Floyd's eyes will light up as he exclaims, "Oh boy, are we gonna try something dangerous now?"

Attempt a Restore and Floyd looks disappointed but understanding - "That part of the story was more fun", he sighs. He has equally tactful comments about quitting, restarting, and many other topics.

Just when you think Infocom has reached the high peak in quality and humour, leaving the rest of the competition in the dust, it ups the stakes: Stationfall is going to take some beating.

Let the last word be Floyd's. When you next go into your local computer store and spy Stationfall, heed these words, when you first clapped eyes on him in the robot pool: "Oh boy, oh boy, oh boy, pick Floyd, pick Floyd!"

Bob Chapple
Golden oldie

Program: Gridrunner
Price: £1.99
Supplier: Mastertronic, 8-10 Paul Street, London EC2A 4JH.
Tel: 01-377 6880

HERE'S another of Jeff Minter's golden oldies. Unlike Hover Bovver, this one belongs to the blast-em-out-of-the-universe-before-they-blast-you-then breed, that is the hallmark of a Minter game.

The screen is filled with a fine-mesh grid along the bottom seven lines of which your craft (the Gridrunner of the title) may move freely.

The main idea is to fire up the grid, destroying anything that moves and anything that doesn't until you've cleared the area. Fortunately, your plasma cannon has a repeat fire facility — and you'll need it.

Public enemy number one, and traversing the grid from the top at a rate of knots, are the Gridsearch Squads. These are segmented caterpillar-like droids which, on reaching one side of the grid, drop down a line and zoom back along it.

They come in assorted lengths and if the leading segment is hit, the squad is reduced by one but keeps on trucking. If any segment other than the front one is blasted, it splits into two independent squads at the point of impact.

In each case, any destroyed segment immediately turns into a pod. These lodge in the nodes of the grid and gradually change shape. When the metamorphosis is complete, they drop a bolt of energy down the grid which are fatal to your craft — a single hit will slow a pod's growth while repeated hits will destroy it.

Pods can be generated another way. Running along the X and Y axes of the grid are the Zapppers. These cheerful little aliens periodically stop and hurl a plasma beam along the grid. When the two beams meet, a new pod is formed. While the Y Zapper's beam is harmful to Gridrunner's health, the X beam is lethal — both should be avoided.

When you've cleared the first grid there are another 30 to follow, each nastier and meaner than the last.

Gridrunner is a classic, a rip-roaring, noisy, mad-accented shoot-em-up. They don't come any more frantic than this — go get it and get gridrunning.

Bob Chappell

Crowd puller

Program: Brian Clough's Football Fortunes
Price: £14.95 (cassette) £17.95 (disc)
Supplier: CDS Software, CDS House, Beckett Road, Doncaster DN2 4AD.
Tel: 0302 21134

ONE of the best things about Football Fortunes is that you don't have to like or understand football to enjoy it. It helps, of course, but if you enjoy Monopoly, then you should get a kick out of this one.

It is in no way an arcade type of simulation, but a computer interactive board game on the theme of soccer management, aiming for success on the field and in the bank.

The pack includes the program disc, a well designed if rather flimsy board, player cards, bank notes, counters and clearly laid out instructions.

Each player types in his name and chooses a team to manage. There is a choice of 10 First Division sides, but any other team can be nominated, even an amateur or school team.

The computer then allocates 11 player cards and two substitutes to each team, each having a nominal value of between one and five points.

Players "throw" the computer dice and move accordingly. There are possibilities for player auctions, increasing attack and defence ratings, selection problems, sponsorship, manager's luck — good and bad — loans, transfers, injuries, wage demands and so on.

The team strengths are reassessed and entered into the computer, which determines the match results. These then come through on the teleprinter, the gate money is allocated and the league table formulated.

Matches are generally decided by the team strength, but there can be upsets. As managers often say on the box: "There's nothing certain in football!"

Points are allocated according to your team's position in the league, its progress through the cup competitions and money held. The winner, naturally, is the player with the most game points at the end of an agreed number of seasons.

CDS has come up with a great game and presented it really well purely as a board game, and it would lose something for being a micro-only game.

The balance achieved is just right, making for a great family game — and no crowd trouble.

Niels Reynolds
Mixed bag

Program: Four Star Compilation, Volume 1
Price: £1.95 (cassette) £9.95 (disc)
Supplier: Red Rat, 11 Fennel Street, Manchester M4 3DU.
Tel: 061-835 1065

FOLLOWING their successes with Crumble's Crisis, Space Lobsters and Astro-Droid, Red Rat has decided to jump on the compilation bandwagon with a collection of four earlier games: Escape from Doomworld, Panic Express, Domain of the Undead and Laser Hawk.

Escape from Doomworld involves you in a mission to save a team of scientists from a planet about to attack Earth.

Game-play is divided into a platform game, a flying shoot-em-up and a bombing run. The platform section has you leaping over Dalek-like robots and electric pulses in order to collect canisters of air, a rocket and a small block marked GO.

Once you have mastered this section you are taken into a game which reminded me of Choplifter. Avoiding enemy fighters and collecting fuel along the way, you must rescue the 12 scientists, returning them to your starting position.

Though not spectacular the graphics and sound are adequate. Although the controls take getting used to I found Escape from Doomworld had an addictive quality and well worth playing.

Panic Express is well named — the train is out of control and you must get to the engine to stop it. Leaping over carriages and avoiding balloons, lightning bolts, laser grids and shark-infested pools you reach your goal.

A note of warning — take care over the last three screens, it took me nearly three hours to get through these to the engine. "Well done: you stopped the train" is the final message — and an anticlimax. Once completed it is not a game I would return to.

Laser Hawk is completely different and as enjoyable now as when I first played it. Great graphics and appropriate sound.

The evil forces of Proc Irae have attacked and you are chosen to launch the counter attack using the most advanced helicopter available — Laser Hawk.

The plan is simple — destroy everything. Points are awarded for blasting buildings and enemy fightercraft while avoiding missiles and lava eruptions.

This is a shoot-em-up pure and simple, it's the best game of the compilation and it soon converted me to a shoot-em-up fan.

Domain of the Undead is disappointing, attempting to be a clone of the arcade Ghosts 'n' Goblins, it falls miserably.

Robert Swan

Fast and furious

Program: Astromeda
Price: £1.99
Supplier: Budgie Software, Rino Marketing, 1 Orange Street, Sheffield S1 4DW.
Tel: 0742 765796

IT may be another space shoot-em-up, but this one makes up in slick graphics and smooth, fast action what it lacks in originality.

Those pesky aliens are at it again — they are about to destroy Starbase Astromeda. Many of your fellow astronauts have been cast adrift in space and it is your task to pick them all up.

While you're about it, you must avoid deadly meteorites and annihilate the marauding alien hordes on your way to smashing their mother ship. And all this before breakfast and with one hand tied behind your back, I suppose?

The game shows an overhead view of a 10-screen-wide playing area, set against black and starry heavens. You pilot your twin-cannoned craft from left to right while the scenery scrolls smartly and smoothly to the east.

In front of the backdrop is a huge and impressive grey, metallic-looking ship, presumably the mother ship. I can't say for sure because I never completed the 10 screens.

When you see the number and speed of the aliens and meteorites coming at you from the right, perhaps you, too, will have a few problems making it through to the climax. Don't forget that you're supposed to pick up your compatriots as they free-fall past your portholes.

There are 10 types of aliens but you do have the capability of dropping one of your wipe-out bombs when the going gets rough. Trouble is, they don't come cheap — you have to amass 10,000 points to get another. You'll also get an extra life at every 10,000 points as well.

The game is for play with joysticks only. Sound effects are pretty good and complement the clean graphics, making a nicely polished product.

One of the better space arcade games around and at a budget price, too. Astromeda is well worth a whirl.

Bob Chappell

With appalling graphics, sparse sound and difficult gameplay you make your way through a haunted graveyard. With four crucifixes and a gun for protection against evil spooks, ghouls, skeletons and bats, you tour the area.

Despite Domain of the Undead, this compilation is very good — a good buy if only for Laser Hawk. I am waiting for volume two.

Robert Swan

<table>
<thead>
<tr>
<th>Sound</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphics</td>
<td>8</td>
</tr>
<tr>
<td>Playability</td>
<td>7</td>
</tr>
<tr>
<td>Value for money</td>
<td>8</td>
</tr>
<tr>
<td>Overall</td>
<td>8</td>
</tr>
</tbody>
</table>
Penalty box

Program: Footballer of the Year
Price: £8.95
Supplier: Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS.
Tel: 0742 753243

Already released on other formats, Footballer of the Year now makes its debut on the Atari.

As a young 17-year-old apprentice footballer you start your career. With a set amount of money and a choice of division and club you make your debut.

You have a set number of goal cards. By using one of them in a game you are given the chance to score goals and increase your season's tally. Sometimes your card will present you with a penalty with the chance to score without any hassle, otherwise you get two defenders rushing at you.

Usually you are given three or four chances a match to score and the final score appears teletype fashion. After the game, you are able to assess the league data including your position this season (goals for the national team, in the FA Cup, League Cup and in the League).

You can change your financial picture by using an Incident Card. You may win on the roulette table or break a leg for instance. Transfer Cards can also be bought, the price depending on which division you are playing in. If the talent scout is not interested you have wasted your money.

Almost everything is text and the poor graphics are all monochrome on an unchanging background. I was disappointed too, by the lack of sound — the occasional cheer would have been nice. The transfer procedure is ridiculous: With a rating of Excellent, in the First Division, and with over 100 goals scored after two seasons I was turned down by a Third Division scout looking for an average player.

Footballer of the Year is quite addictive, but a little too easy to score goals and to get a high rank. At £8.95 I found it overpriced.

Robert Swan

Sound......................n/a
Graphics...................6
Playability.................7
Value for Money...........5
Overall.....................7

Look no further for a super word processor

Superscript

Word processor, five-function calculator, mailing list and spelling checker with 20,000 word expandable dictionary — all in one complete package.

Features include:
- Fully menu-driven — with shortcut commands
- Cut and paste plus full search and replace
- Centre, justify, enbolden and underline text
- Add headers and footers
- Variable auto page numbering
- 225 page manual with step-by-step tutorial

Advanced features:
- Introduce whole passages and perform entire sequences of commands with a single keypress
- Interactive calculator, row and column arithmetic
- Auto-number tab storage, column moving, up to 240 column editing screen
- Supports all main printer types, and can be customized to suit your printing requirements

Everything on one double-sided disc!

Normal retail price £39.95
Special offer price... £29.95

To order please use the form on page 61
Spellbound

HERE are some tips for Spellbound. To light the candle, take it and cast Candelabrum Illuminatus. The candle can then be used to read the Ancient Scrolls. On the ground floor, stand on the yellow puddle and cast Armoris Photonicus to make your armour glow. This means that you can drop the glowing bottle and release the Banshee. Command it to help for hints. Use the broken glass to read the writing on the candle.

Give the javelin to Samson and summon him to the pit. Command him to help and he will place a useful platform in the pit for you to use.

To mend the broken Talisman, give it and the tube of glue to Florin and command him to help. To release Gimbal is complicated, but here goes...

Take the three coloured crystals (red, green and blue) and the white gold ring. Give the Book of Shadows to Orik the Cleric and summon him to the Most Magic Room where Gimbal is trapped.

Holding the ring, the three crystals and the mended Talisman, go to the Most Magic Room and cast the Crystalium Spectralis spell and throw the crystals at Gimbal in any order to release him.

Cast the Release spell and he'll be ready to send the characters home. – Mark Powell, Lewes, East Sussex.

WarHawk

WHEN you get to the fourth screen a flashing spacecraft will appear. If you fire at it once you will find that it changes shape. You can now dock with it. When you do this press fire once and you will now have rapid fire. – Richard Hider, Havant, Hants.

Zorro

WHEN you come to the bell tower jump from the end of the roof and keep Zorro jumping. He will then jump the gap between the door and the roof. Don't forget to collect the key near the sofa. – Stephen Buxton, Normandy, Cleveland.

Starquake

WHEN you enter the transports in Starquake use the following codes to move to various areas of the game:

Cosec Triad
Kernx Atari
Whole Penta
Minim Artic
Crash Salco

– Stephen Banks, Upminster, Essex.

Racing Destruction Set

WHEN you design a track the best area to lay a landmine or oil is on a slope or on the edge of the map. The best cars to choose when playing the game are the fastest, lightest jeep you can get (but not too light – get some weapons and shielding).

If you are driving on paved surfaces with no hazards go for the racing car. If there are a lot of slopes use the street bike. It is possible with a little luck to do a three point turn and go back the way you came. – Patrick Marshall, Harbrough, South Humberside.

Spy Vs Spy II

IT is possible to lay traps around the base of trees and also put up a tree snare. This allows you to trap your opponent, and when he is let down he will land on a trap. The best one for him to land on is a bomb. – Sue Bowling, Hurnbury, Cheshire.
DEDICATED? So are we!

Don't get confused. PAGE 6 is a totally independent magazine for Atari users that will compliment and expand your Atari world.

* Long program listings - not just games but also utilities, applications, education and more in both BASIC and machine code

* Programming articles, hints and tips

* In depth reviews - would you believe we once devoted four pages to one review! That's in depth!

* Comprehensive ST section

   We also have a complete collection of PD software, books and accessories available to subscribers.

CHECK US OUT - you won't regret it.

£1 will get you a sample copy. £7 will get you a years worth (6 issues) and a lot more besides!

Overseas subscriptions £10.50 Air Mail Europe
£16.00 Air Mail or £10.50 Surface outside Europe

PAGE 6, P.O. BOX 54, STAFFORD, ST16 1DR

SUBSCRIPTION HOTLINE
0785 213928
Dos discs at your fingertips

FOR the last two months we have been examining the workings of Dos 2.0 and Dos 2.5, and perhaps some of you will have become a little daunted by the complexity of the bit-mapped data storage system used in order to save space on the disc.

This system of using all eight bits within each byte to represent separate items of information is actually quite simple, but calculating the results can prove long and laborious. If you have tried Bruce Woodland's disc sector editor from the last issue you will have noticed just how incomprehensible some of the data looks.

For those who would like to have a go at modifying the disc format but who don't feel up to working out all the numbers then DISCVIEW is for you. Type it exactly as shown, and save a copy to disc. You can use the Get It Right! checksum program to be sure you haven't made any mistakes. Watch especially for the DATA statements starting at line 21200.

When you run the program it will take a few moments to set up some strings and other variables before presenting the main menu where selections are single-key entry so you don't need to press Return. Each selection lets you examine or edit different portions of the disc, and each has its own set of commands:

D) View/Edit Directory: The eight directory sectors will be read into memory in one operation and you may then scroll through the 64 entries by using the cursor up and down arrow keys. If you hold down Control with these keys the selection will move forwards or backwards by four entries.

The screen will also show the surrounding 8 file entries, with an arrow pointing to the current selection. The upper 16-bit mapped information bytes are decoded at the bottom of the screen. Typing N or E will allow you to change the name or extend while S and T will accept new values for the First Sector and Total Sector Count items, respectively. If you make a mistake in entering any of these you will be asked to re-enter the item. The file information flags shown on the right may be toggled on and off as indicated on the screen menu.

Enter W to write the modified directory to disc, and Escape or Q to quit and return to the main menu.

V) View/Edit Volume Table of Contents: This will read the VTOC sector(s) containing the map of free disc space and allow you to view or modify it. If the disc is in enhanced density then the two VTOC sectors will be combined by DISCVIEW and displayed as one table for your convenience.

Use the cursor keys to move the cursor around the table – hold down Control to move five spaces at a time. You may also use the N and B keys to go on to the next sector or back to the last one. The number of the one you are currently viewing will be displayed at the bottom of the screen, along with the current free sector count. Pressing the spacebar will toggle a sector between being in-use and free.

Enter W to write the VTOC back to the disc, and Escape or Q to quit and return to the main menu.

S) View/Edit Sector Links: This section of the program will allow you to view any sector on the disc, and perhaps alter its forward reference information contained in the last three bytes. You wish to edit the actual data portion of the sector then you should use Bruce Woodland's program from the August issue of Atari User since DISCVIEW was not designed for this purpose.

Once a sector has been displayed you may use the B, F or O keys to input new values for the Byte count, File number or Next sector pointer respectively. The file number should always be the same as that given by the Directory View/Edit section or you will get a 164 error when attempting to access the file from Dos.

You may continue to the next logical sector (following the next sector pointer value wherever possible) by pressing C, but this will not write any modified data back to the disc. Use W for write if you wish to save the data before continuing. Be careful of using the sector write option unless you are sure of your modifications because it does not prompt you before updating the disc. Q or Escape will simply quit the current edit and take you back to the main menu.

B) View/Edit boot sector: The first sector on a Dos 2.0/2.5 disc contains important information about the way Dos will perform. Much of this is not user-alterable, back to the menu.

C) Change drive number: This simply allows you to enter a new drive number (between one and four). The disc in the new drive will then be checked and you will be warned if it is not in the correct format. All future operations will then take place using this new drive.

E) Exit: This will halt the program and return you to Basic. Pressing Q or Escape from the main menu will also exit the program.

DISCVIEW is certainly not the final answer to disc editing – but at least it will allow you to examine the way that Dos works without getting too much of a headache trying to sort out the numbers. As with all programs of this nature, don't forget to only view and edit a backup of your data disc or a wrong keypress could end up ruining hours of work in error.

Well, this concludes our tour through the CIO and disc handler systems, but in a future issue I'll take a deeper look into the operating system to reveal how the Serial Input/Output (or SIO) routines transfer your data to the various peripherals.

Turn to Page 24
MAIN VARIABLES

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUFINS, BUFOUTS, VTOCS</td>
<td>Input/Output sector buffer, VTOC table (combines sectors 360 and 1024)</td>
</tr>
<tr>
<td>BINANDS, BINORS, GSECTS, PSECTS, CATS</td>
<td>Binary AND/OR machine code routine, Get/set sector machine code routine, Put-sector machine code routine, Full directory information (from sectors 361-368)</td>
</tr>
<tr>
<td>HX$, FS</td>
<td>Hex digits 0-F, Temporary filename storage</td>
</tr>
<tr>
<td>ESCS, DS, CS, BS, ULS, TYPE</td>
<td>Strings containing special print characters, 18 or 26 sectors per track (single/enhanced density)</td>
</tr>
<tr>
<td>FREE</td>
<td>Number of free sectors between 1 and 719</td>
</tr>
<tr>
<td>FREE2</td>
<td>Number of free sectors between 720 and 1023</td>
</tr>
<tr>
<td>FREE, SECT, PMBASE, POS0</td>
<td>Total number of free sectors, Working sector number, PMG base address, Register address for Player 0 horizontal position</td>
</tr>
<tr>
<td>CH, ERR</td>
<td>Keyboard character store, Status flag for sector I/O routines (1=OK)</td>
</tr>
<tr>
<td>FILE</td>
<td>Current directory entry number</td>
</tr>
</tbody>
</table>

PROGRAM BREAKDOWN

10-500 Memory check, Draw VTOC map on Graphics 1 screen
2200-2240 Move PMG cursor to new position
2300-2370 Print VTOC sector information
2500-2730 Calculate VTOC and write to disc
3000-3550 View/Edit VTOC (Main routine)
4000-4690 View/Edit Directory (Main routine)
4700-4750 Input new sector number
4900-4980 Modify directory entry flag byte
5000-5470 Input new filename/extension
5600-5650 Input new boot sector (Main routine)
5700-5730 Input new active drive details
5800-5830 Write boot sector to disc
5900-5950 Print four digit hex number
6000-6400 View/Edit sector link data (Main routine)
6500-6570 Enter new value for sector link data
6600-6630 Write sector to disc and move to next logical sector
10000-10020 General road sector routine
10100-10120 General write sector routine
10200-10230 Pause for error message, then return
10300-10340 Check for valid Dos 2.0/2.5 disc and detect density
11000-12105 Plot numerals/text on Graphics 15 screen (for VTOC)
20000-20220 Main menu routine
21000-21250 Initialise variables, machine code strings, PMG, and so on
I/O Channels

From Page 25

6000  REM VIEWEDIT SECTOR LINKS
6010  CS:=SELECTCOLOR 2,14,4;SELECTCOLOR 4,1
6020  "$;" SECTOR LINK EDITOR?;
6030  "$;ULB(1,18);
6040  "$;POSITION 4,6,7 DS;
6050  "$;SECTOR NUMBER;
6060  "$;TRAP 60;SELECT=8;INPUT SECT
6070  "$;IF SELECT<1 OR SELECT>INT(SECT) OR $E=1223 OR (SECT>719 AND TYPE=18) THEN "$;B$:GOTO 6200;
6080  "$;TRAP 40000;POSITION 5,6,7 DS;
6090  "$;GOSUB 10000;IF ERROR<1 THEN "$;
6100  "$;ERROR READING SECTOR?SECT*
6110  "$;GOSUB 10200:GOTO 20000;
6120  "$;POKE 68,2:POSITION 2,5 "$;
6130  "$;FOR Y=10 TO 2 "$;
6140  "$;FOR X=1 TO 16 "$;
6150  "$;A$:BUFINS(Y+16,X,Y+16)X;IF "$;
6160  "$;THEN 1=2 "$;
6170  "$;X:=CHR$(1) "$;
6180  "$;NEXT X "$;
6190  "$;NEXT Y "$;
6200  "$;SELECT:DRIVES 1 "$;
6210  "$;BUFINS 1 "$;
6220  "$;WRITE TO DISK OR QUIBUS" "$;
6230  "$;POKE 69,0;POKE 78,2:GET 1,1,6 "$;
6240  "$;IF CH=81 OR CH=27 THEN 20000 "$;
6250  "$;IF CH=87 THEN 5800 "$;
6260  "$;IF CH=58 THEN 5800 "$;
6270  "$;IF CH=48 AND CH<57 THEN 5800 "$;
6280  "$;If CH<40 THEN 5800 "$;
6290  "$;IF CH=51 THEN 5400 "$;
6300  "$;POKE 751,0;POKE 752,0;POKE 753,222 "$;
6310  "$;HOW MANY BUFFERS (1-255) "$;
6320  "$;TRAP 5700 "$;
6330  "$;DAT=B:INPUT DAT "$;
6340  "$;POKE 752,1;IF DAT>255 OR DAT<1 OR "$;
6350  "$;DAT<INT(DAT) THEN B$:GOTO 5700 "$;
6360  "$;TRAP 40000;POKE 194;DAT:POSITION "$;
6370  "$;POKE 68,2:GET 1,1,6 "$;
6380  "$;WRITE TO EDITOR $ $;
6390  "$;POKE 750,0;POKE 752,0;POKE 753,222 "$;
6400  "$;GOSUB 10000 "$;
6410  "$;IF ERROR<1 THEN POSITION 222:DS; "$;
6420  "$;DISK WRITE ERROR $ $;GOSUB "$;
6430  "$;12080 "$;
6440  "$;GOSUB 20000 "$;
6450  "$;REM PRINT HEX FROM X(10),X(2)(H) "$;
6460  "$;X(10):DAT=INT(X(2)+16);X(2):DAT "$;
6470  "$;POKE (USK(B:BUFINS),(X(2),15))+1:CHR$(X(2) "$;
6480  "$;AT,DAT) "$;
6490  "$;DAT=INT(X(1)+16)+1:CHR$(DAT,DAT) "$;
6500  "$;GOSUB (USK(B:BUFINS),(X(1)+15))+1:CHR$(D "$;
6510  "$;AT,DAT); "$;
6520  "$;RETURN "$;

This is one of hundreds of programs now available on MicroLink

Free for downloading on MicroLink

Leave a message "TRACK"

26 Atari User September 1987

6105  "$;IF CH=81 OR CH=27 THEN 20000 "$;
6120  "$;IF CH<57 THEN SECT=1:GOTO 6080 "$;
6130  "$;IF CH=65 THEN MAX=125:GOSUB 6500:$ "$;
6140  "$;BUFINS(12,128)=CHR$(DAT)+INT(DAT<125)+128 "$;
6150  "$;GOTO 6100 "$;
6160  "$;IF CH=78 THEN MAX=65:GOSUB 6500:$ "$;
6170  "$;BUFINS(12,126)=CHR$(BUFR(ASD,ASC(126,126)) "$;
6180  "$;DAT=1:GOSUB 6100 "$;
6190  "$;GOSUB 6100 "$;
6200  "$;REM GET NUMBER UP TO MAX "$;
6210  "$;GOSUB 750,0;TRAP 658:DAT=8:INPUT DAT "$;
6220  "$;POKE 752,1;POSITION 3,20:DS;IF "$;
6230  "$;DAT=INT(DAT) OR DAT<MAX THEN B$:GOTO "$;
6240  "$;6510 "$;
6250  "$;TRAP 40000:RETURN "$;
6260  "$;GOSUB 10000 "$;
6270  "$;REM WRITE SECTOR AND GO ON "$;
6280  "$;BUFINS=BUFINS "$;
6290  "$;GOSUB 101080:IF ERROR<1 THEN "$;"
ATTENTION ALL 1050 DISK DRIVE OWNERS!!

Announcing the all new ULTIMATE drive enhancement

This Drive enhancement consists of a plug-in PCB, which can easily be fitted with our simple to follow instructions.

The 1050 IS PLATE Disk Drive enhancement offers many features never before available in one UNIT:

- Improved Drive speeds - up to TWICE normal loading speeds (Depending on disk format used).
- Reduction of Drive WEAR and TEAR: now whole tracks can be stored in the internal 16k RAM.
- The IS PLATE can READ/WRITE a whole track in the time it takes a standard 1050 drive to READ/WRITE a single sector (up to FIVE times standard speed).
- Supports double, Dual and Single Densities.
- Sector SKEW is now no longer required to obtain Hi-speed as with US Doubler.
- Other Special features are: Slow down, Fast write, Fast read, Drive write lock, Skew on/off, Fast formatting.
- Fast write with verify. This system is faster than other systems which write without verify.
- A double sided operating system disk is supplied which offers the following: US Doubler, US Doubler, Standard 1050 and Archiver emulation.
- Track Tracer, Diagnostic tester, 48k and 128k Disk Backup utilities.
- The PLATE can be made invisible to software detection by either Slow down or 1050 emulation.
- Supplied with detailed information regarding software drive control to allow you to access the full potential of the PLATE.
- Will run all available disk operating systems (Dos) including: Sparkades, Happy warp speed Dos, and other Hi-speed systems.
- With this system, up to sixteen drives can be connected and used.
- A comprehensive 30 page bound manual is supplied. This includes fitting instructions.
- All registered owners will be supplied with any software updates etc. for the price of Disk and return postage.

Also supplied with

GREMLIN GRABBER II
The comprehensive hi-speed back-up utility disc, complete with manual
(Existing owners please contact manufacturers for update)

This complete package
NOW ONLY
£89.95
inc. Post/Packing and twelve months guarantee
(A SAVING OF £24.95 ON PREVIOUS ADVERTISED PRICE)

The Controller Card
Desktop Management System

For the Atari 800XL/130XE Computers
One of the most powerful features of the ATARI ST and COMMODORE AMIGA is the 'DESKTOP', this system allows the user to have a range of utilities in memory while running commercial software, when you access the desktop system the commercial software will be temporarily frozen. The Controller Card is an internal hardware modification that when installed into your Atari 800XL/130XE will give you the most advanced Desktop Management System available today . . .

DESKTOP MASTER DISK
Snapshot Printer Dumpers with the SHQ
Printout screens from commercial game title pages to graphic application packages. Will handle any graphics mode including mixed graphics modes. Full A4 size printouts, built-in shade selector.
Included is our unique SHQ system which is an ultra high definition bit image printout comparable to a photocopy (for Epson and compatible printers.)

Superdump II Memory Dumper
The perfect utility for software development, just dump the contents of memory where the error occurs then examine and rectify. Can also be used to upgrade your cassette software to disk or make disk to disk backups.

The O.S. Boot Menu
A Desktop resident multiboat menu, by simply pressing the HELP KEY you exit the main program to the menu.

Disk I/O Analyser
A unique and very powerful disk debugging tool which prints out all the relevant information concerning the interaction between the disk drive and computer as the disk software is loading or reading/writing data.

The Control Panel
This utility will allow you to alter a wide range of system parameters such as: Auto scroll, I/O noise, inverse flash, key down, fast cursor/keyboard bounce rate, primary system colours, the system baud rate and the system character set (14 alternative character sets to choose from).

400/800 Operating System Saver
This facility will allow you to save the O.S. from the 400/800 Atari computers to create true emulators or upgrade customised roms such as OMNIVON to disk to run on the 800XL/130XE computers via the Desktop.

Additional Desktop Library Disks
Library Disk #1 - 1029 Snapshot Printer Dumpers
Similar to the SHQ Snapshot printer dumpers but not dedicated for the 1029 printer.
Library Disk #2 - SHQ Professional Print Package
Combines the SHQ Graphics converters and Text enhancers together on one menu disk. The Graphics converter will give your desktop publishing packages (i.e. TYPESETTER 0k) software a printout that matches a photocopy using Epson 8 pin dot matrix or compatible printers with reverse line feed. In fact the only competition we have is a Lazer printer!!!
Library Disk #3 - The Superdump III Toolkit
The ultimate backup system for standard and U.S. Doubler drives. This disk is crammed so full of unique features it would take up the whole of this ad space to describe them . . . Please ring for more info.

MAIL ORDER PRICE LIST (add 10% for export orders)
CONTROLLER CARD WITH DESKTOP MASTER DISK FOR THE ATARI 800XL £99.95
CONTROLLER CARD WITHDesktop MASTER DISK FOR THE ATARI 130XE £79.95
OPTIONAL SWITCH PACK £9.95
LIBRARY DISK #1 £12.95 LIBRARY DISK #2 £16.95 LIBRARY DISK #3 £24.95

FOR FREE INSTALLATION PLEASE ADD £5.50; FOR RETURN P&P INS.
For more information please ring 01-731 1276 weekdays between 10am/7pm
Please make cheques/postal orders payable to:-

Computerhouse
14 Romilly Court, Landridge Road, Fulham,
London SW6 4LL

September 1987 Atari User 27
Micro route to the sun

ANDY DORAN finds a new use for the Mini Office II spreadsheet

MOST people see spreadsheets as boring programs to use for accounts. This means that lots of interesting uses are overlooked. Let's explore a different use of a spreadsheet using Mini Office II.

If you glance through the glossy pages of a holiday brochure you'll see weather reports and tables which give an indication of the amount of sunshine or rain that a particular resort can expect during the summer months. Such a table can be displayed using a spreadsheet — and with Mini Office II the results can also be shown graphically.

Take the typical British week shown in Figure 1. Those figures can easily be entered into the spreadsheet and produce useful figures such as averages.

Now we'll move on to the program. Once you've loaded it you need to make some changes to the default values given. For instance, there is no point in having two decimal places for numbers. To make these changes select Alter screen display from the main menu and you will move to second menu. The options given are clearly explained on pages 49 and 50 of the Mini Office II manual.

You need to alter the number of decimal places to 0 so simply highlight the option decimal places and enter 0 followed by Return. From now on we will assume that you remember to press Return as you make an entry. Once this has been done, pressing Escape takes you back to the spreadsheet menu.

Pressing Escape once more will take you to the spreadsheet itself (at present blank). You use the arrow keys to move the cursor around and at the top of the screen you'll notice the status area.

As the cursor is moved this changes to indicate which cell the cursor currently occupies (such as A1 or B6). When data has been entered other sections of the status line such as contents change to show what is actually needed to enter the labels for Sun, Rain and Temp so use the GOTO function to move to cell A2.

The column width at present is 7 which is not big enough to allow the label Rain (inches) to be entered.

The width of column A (or any other column) can easily be altered by pressing Control+T. You will be prompted for the new column width and once this is done enter 10 to allow room for the label. Now you can enter the labels for Sun, Rain and Temp in the same way as you did for the days.

Now your spreadsheet is labelled and ready for you to enter data — except for one thing. You need to enter some formulae to get the information you were originally looking for — averages and so on.

Use the GOTO command to move to cell B1 and label it AVERAGE. Label cells J1 and K1 MAX and MIN respectively and now move to cell I2. This cell will contain a formula to calculate the average daily sunshine (in hours) over the week. The formula is:

\[ I2 = (B2+C2+D2+E2+F2+G2+H2)/7 \]

Fortunately Mini Office II allows you to abbreviate this formula using # to stand for sum of. So the formula becomes:

\[ I2 = (B2# H2)/7 \]

Pressing Control+F allows you to enter the formula. The left hand side of the formula (I2=) appears in the status area and by typing (B2#H2)/7 you will have entered a formula into cell I2. This will read 0 at first as no data has been entered.

The formulae for cells I3 to I5 are
similar to the one you have just entered so rather than enter them again copy them. Make sure the cursor is in cell I2 and press Shift+R.

A message in the status area tells you to move the cursor to the cell you wish to copy to so move the cursor to cell I3 and press Return. The status area now asks if the formula is to be copied absolutely (exactly the same with no changes) or relatively (similar, but with changes such as B2 becomes B3).

We need to copy the formula relatively so press R for each part of the formula (twice in this case). The new formula I3=(B3+H3)/7 will now be shown in the status area and can be copied to I4 and I5 in a similar way. The formula for MAX is in J2. In J2 you require the formula for the maximum of the numbers between B2 and H2. This is: J2=MAX (B2,H2).

Enter this in the same way as you entered the formula for I2 and copy it into the other cells in the column (J3 to J6).

The formula for MIN is similar to the formula for MAX, except that the less than (<) sign is used instead of the greater than (>) sign so enter the last of our formulas into column K starting with K2=MIN (B2,H2).

It is a good idea at this point to save the spreadsheet. This is done by pressing Escape to return to the spreadsheet menu and choosing the Save spreadsheet option will then cause the computer to prompt:

**D1:**

At this point enter the name under which this file will be saved. It is best to give a descriptive filename so that in future there is no need to guess the contents of the file. Make sure that there is a formatted disk in the drive – and not the Mini Office II disk. If you haven’t already got one a disk may be formatted by using the option from Mini Office II which is available after a directory. Type WEATHER.V01 (as this is the first version of the spreadsheet). Your spreadsheet will now be saved to disk.

Once you have reached this stage most of the hard work has been done. All that remains is to enter the actual data by moving to the relevant cell and typing the number.

For example move to cell B2 and type 2. Return. When you have entered all the data, save the spreadsheet again and you’re then ready to print it.

From the main menu choose Print Part Spreadsheet to move to the print options. You’ll have noticed that your spreadsheet has empty rows and columns at the bottom and right-hand edges. It is wasting time printing the whole thing so choose the option Print Part Spreadsheet and enter the following:

**Rows:** 1 to 5

**Columns:** A to K

The result will be that only the relevant part of the spreadsheet is printed and when this is completed you will be returned to the print spreadsheet menu. Press Escape to return to the spreadsheet menu, and you’re ready to save graphics data.

**Next month we’ll look at how to present this small spreadsheet pictorially. Until then, create some spreadsheets and save them.**
An amazingly easy way out

by Rouloc

HELLO all you fellow adventurers. It's your old pal Rouloc back again to hold court on the world of Adventure. It's good to put my feet up and enjoy a fine ale while I talk to you of high adventure and after the month I have just had it's about time I rested.

For three weeks solid I was fighting the evil gargoyle Mekrah before my trusty sword befell the foul creature. But now on to a subject that all adventurers hate ... mazes.

Why do adventure writers still persist in using the infernal things? We all know how to map them (don't we?) and that once they are mapped the route through them is obvious. So the whole exercise is pointless.

The real reason for the dreaded maze is that the programmer wants an easy get out when he is stuck for another puzzle. Instead of finding another trick he throws in a quick maze just to use up playing time.

There are exceptions, of course, and the original Cave adventure from Crowther and Woods, with its "twisty little passages" and "little twisty passages", is one of them.

It was the first one of its type and also it had the added problem of the pirate coming and taking any objects that were dropped. This made mapping very trying indeed.

In Infocom's Hollywood Hijinx the maze is justified because there's a puzzle attached to it. It takes the form of a hidden map of the maze you have to find and, believe me, if you have had to sit through as many mazes as I have, you would not retain your sanity.

What do you think of the maze situation? Write in and tell me, but in the meantime if anybody is writing an adventure and is about to put in a maze - don't!

Yet more Infocom releases are in the pipeline. Plundered Hearts is a true romance story and there's also a rather weird game which goes by the name of Nord 'n' Bert.

I couldn't make Head or Tail of it but I'm led to believe it comprises eight short stories built around the village of Punster, where everything has a double meaning, and things are not quite what they seem.

It all sounds very strange to me, but rest assured if it's Infocom it's got to be good.

Remember Floyd the loveable little robot in Planetfall? Well the good news is that he has returned in a new adventure written by Steve (Planetfall, Leather Goddesses, Hitchhikers) Meretzky.

Stationfall carries on the story of your meteoric rise since your salvation of the planet Resida which earned you a promotion to Lieutenant First Class. No more scrubwork or bathroom details for you. Instead you are in charge of the paperwork routine, which ensures that all types of forms are in good supply.

The story starts after you have been ordered to go to a nearby space station to collect more forms. The orders are that a duty robot should be assigned to aid you, and as you go to the robot pool to choose one there is old Floyd sitting in his tub playing dice!

The game is quite user friendly and feels quicker and more playable than its predecessor, with some excellent puzzles mixed in with good humour. If you add this to the new-style packaging, which still contains all the usual Infocom bits and pieces, it is a game you will be proud to put into your collection. You can read a full review of Stationfall on page 19 of this issue.

See you next month.

September 1997 Atari User 31
Darryl Canlans from Dublin is stuck in Return to Eden. He keeps getting fried when he tunnels underground and finds the shovel.

The answer, my friend, is that you only have a set number of moves before the Snowball spaceship finds you and blasts you. So start again and go straight to the shovel, then go down and find a leafy cave underground and sleep until the ship passes by.

Kevin replies to Lee's letter about Ultima IV with information on the characters. Iolo will join you in Trinsic, Paladin Geoffrey in Sholom and Shamino in Skara Brae. Also a black stone can be found at Moon-glow's moon gate. When it comes up go and press SEARCH.

M. White is in trouble in Alternate Reality because he keeps running out of food and dying. The reason he cannot enter the arena or the palace is that they are extension discs to be released in the future. As far as eating is concerned, try going to an inn and staying the night.

L.C. Williams has a problem in Sorcerer, which is a real shame as he has 350 points. He is stuck after he enters Belbo's hideout because Fesarr keeps hitting him with a spell. Has anyone got the answer?

Finally Colin Chambers can't work out the weeder puzzle in Return to Eden. Just wait one turn after it arrives for it to discharge its load, then enter it and wait three moves until it arrives in the NW corner, then leave it.

Rich man wants it, the poor man has it.

NOTHING

Our blood is cold; beneath our arms men walk.

TREES

This blind god conquers all.

LOVE

You all know me, you don't trust me yet you give me life.

NEWS

A great healer; beaten, he runs out and flies away.

TIME

When I came you didn't feel me; I am here though you can't see me.

LIFE

A pet to many he belongs, to welcome us he licks our fingers warmly.

FIRE
This is a racy adventure based loosely on the Flash Gordon type of comic strip that dominated the 1930s. It can be played with either a female or male hero and, though not as difficult as most Infocom games, is certainly one of the funniest.
Knockout Whist

OLIVER CHAPPELL
revamps an old favourite

BEAT your Atari computer in this familiar card game. You need a combination of luck and skill – luck is involved when you are dealt your hand, skill as you deduce which cards the computer still has left and you choose the card to lay.

The object of the game is to win tricks so you can choose trumps for the next hand. Once you take all the tricks in a hand you win the entire game.

You start with seven cards – in each subsequent hand you’ll have one less. Whoever takes the most tricks in a hand chooses trumps next time – a considerable advantage. In the event of a draw (you both have the same number of tricks) the computer will randomly determine trumps.

When the game has loaded and is run you will be presented with seven cards – trumps will already have been randomly chosen and indicated in the bottom left of the screen. Also, the message “My trumps” or “Your Trumps” indicates whether the computer or you have control of that particular hand.

To lay a card, press keys 1 to 7 which correspond to the cards displayed from top left. The computer will then display its card, and decide who’s won.

When you have to choose trumps, use Option, Select and Start as explained on the screen.

The game will give you hours of fun as you challenge the computer. Good luck.

PROGRAM BREAKDOWN

10-140 Main routine – sets up variables
1000-1120 Shuffles pack and deals cards
2000-2110 Routine to sort numbers to represent cards
3000-3999 Sets up screen for cards dealt
4000-4100 End of hand routine decides who chooses trumps
4500-4550 Checks if game is won outright
5000-5140 Checks who lays first and prompts them to lay their card
6000-6180 Allows you to lay your card and displays it on-screen
6200-6260 Checks who won trick
6300-6395 Produces sound if computer won trick
6400-6495 Produces sound if you win trick
6800-6840 Checks for wrong keypress
6900-6965 Decides trumps
7000-7230 Works out which card to lay
7990-7999 Tells you they have no tricks
8000-8090 Displays symbol when trumps have been chosen and tells program who should lay first
8100-8160 Deals with computer choosing trumps
8200-8255 Prints trumps and who has chosen them
8300-8399 Lets you choose trumps, obtains trump advice or selects random trumps
8800-8860 Allows you to get computer’s advice about trumps
10000-10070 Introduction screen
30000-30050 Redefine certain characters for the game
The text appears to be a listing of a computer program, likely for an Atari system, as indicated by the Atari 8-bit assembly code. The listing includes instructions such as `POKE 6649, 10`, `POKE 8459, 16`, `POKE 8458, 11.6`, and various other commands for setting variables, performing calculations, and controlling the game's flow. There are also references to other program locations such as `PLT:MYR=8:HCD:CHOO` and addressing memory locations like `20 DIM F$(52), A$(20), B$(20), C$(20)`.

This is a typical assembly code listing, and understanding it would require knowledge of Atari assembly language and the specific details of the game it is implementing. The text is not comprehensible without such expertise.
IF you're frustrated by the difficulty of combining short machine code routines with Basic on the Atari here is a routine to solve your problems.

Writing the code is no trouble, using, for example, an Atari Assembler-Editor cartridge. Atari Basic does allow calls to machine code programs via the USR function. The problem is getting the machine code into memory.

Disc drive owners can do this by using the Dos Loadbinary function (L) to load the assembled object code before loading the Basic program that uses it.

This is, however, a little cumbersome, and you can easily forget to load in the machine code routine before running the Basic program that calls it. Cassette users are not even that lucky: Atari Basic doesn't support Binary load from cassette at all.

You can convert the codes by hand to decimal and poke them directly into memory or into data statements, but this is hard work (not to mention tedious) and takes a long time.

Machine Code Merger overcomes all these problems in a relatively quick and easy-to-use fashion. It takes the assembled machine code from an object file on cassette or disc and creates Basic data statements containing the codes, together with a loader routine. This can be merged with a Basic program so the machine code is loaded by the program itself.

When you run the routine you will be presented with a menu containing three options – Load binary (object code), Write Basic code and Quit.

Select 1 to load-in your machine code routine. You can load from cassette or disc and the program will tell you the start address of the code and the number of bytes it contains. You will then be returned to the main menu.

The second option creates and writes the Basic code ready to merge with your Basic program. You will be asked what Basic line you want the DATA statements to start at. If you just press Enter, the default of line 10000 – which is out of the way of most Basic programs – will be chosen.

You will then be asked if the machine code is relocatable. If you select relocatable, you will be asked for the name of the Basic string you wish to hold the machine-code data in – the default is MCS.

You are then asked for the output device. Any of the standard Atari devices can be used, such as E: to list to the screen, P: to print on a printer, C: to list to cassette, or D:filename to list to disc.

If you have a disc drive then you need only write the filename and can leave off the D: device specifier if you wish. If you hit Return only, the data will be listed to the screen. When the Data statements have been written, you will be returned to the main menu again.

To use the routine you must first assemble your machine-code using any assembler and save the object code to cassette or disc. Then load and run Machine Code Merger. Type 1 to load the object code, then 2 to create the Basic code.

You can list it to the screen first if you wish to see what the code looks like by entering E: or, just as well, as the output device. Then select 2 again at the main menu to write the code to disc or cassette this time entering D:filename or C: as the output device.

To merge this file into your Basic program, first load in your Basic program, then type ENTER “D:filename” or ENTER “C:”. If you then list the program you will see that the loader routine and the machine code data has been added to your program.

At the beginning of your Basic program add a GOSUB to the loader routine (GOSUB 10000, if you have used the default starting line). When the program is run this will load the machine code held in the data statements into memory.

To call the routine use the statement:

USR (start_par1_par2, ...)

The start address (START) of your machine code routine can be found with ADR(MCS) if the routine has been specified as relocatable. The other parameters, par1 and par2 and so on, are variables you may be passing to your routine.

Your routine can also pass a single two-byte (0 to 65535) number back to Basic using the variable X by storing the number in locations (decimal) 212 (lo-byte) and 213 (hi-byte).

Finally, here's some points about the program:

- Machine Code Merger will write two different loader routines and store the machine code differently depending on whether you say your code is Absolute or Relocatable.

- If your code is relocatable (that is, it contains no absolute references to itself) the machine code is stored in a Basic string called MCS. If the routine is not relocatable it is POKEd directly into memory at the address it was assembled with.

You should note that if you do write absolutely located routines be sure to locate them where they will not interfere with Basic (page 6 is usually a safe place to put them).

- The program cannot handle composite object files (ones that have been appended using Dos or programs assembled using multiple origins).

- You can have more than one routine in your program by specifying a different starting line number for each routine you convert. Remember, however, when the routines are relocatable, to make sure that the names of the strings that contain the machine code are different (MC1S, MC2S and so on) before you run your final program.

They can be changed after you have merged them if you did not choose different names when running Machine Code Merger.

MARTIN MALE shows how to include machine code in Basic data
LOAD"GSUB PROMPT:RETURN.
2000 :"? "BASELINE LINE NUMBER TO START
LOADER:"? "ROUTEINE (RETURN = 10000)":
2030 INPUT AS$=
2040 START=10000
2045 IF AS$="=" THEN START=VAL(AS$)
2050 END
define:
2070 :"? "TYPE 1. FOR ABSOLUTE OR "? :" 2. FOR RELOCATABLE"? :"
""MACHINE CODE:
2080 OPEN #2,4,4,4,K:"GET #2,K;CLOSE #2
2090 IF K<49 OR K>58 THEN
CHR$(255);GOTO 1900
195 K=K+48:? K
200 ON GSUB 1000,2000,999
210 GOTO 150
300 REM PROMPT
310 :? "? "PRESS RETURN FOR MENU"
320 OPEN #2,4,4,K:"X
330 GET #2,K;CLOSE #2
340 RETURN
399 END
1000 REM LOAD BINARY FILE INTO MEMORY
1100 :"? "OBJECT FILE LOAD, INPUT
1200 DEVICE:
1300 :? "C=CASETTE D=DISK:";
1320 OPEN #2,4,4,4,4:"GET #2,K;CLOSE #2
1340 IF AS$="C":THEN FLS$="C:";"READY
1360 CASETTE AND PRESS RETURN:";INPUT AS$;
1380 GOTO 1900
1390 IF AS$="D" THEN CHR$(255);:GOTO 1300
1400 END
1500 REM "FLS$=";
1520 PRINT "INPUT FILENAME";";INPUT AS$;
1530 FLS$(3)=AS$;
1540 TRAP 5000
1550 FOR I=1 TO MAXIMUM
1560 POKE 765,12:OPEN #I,4,4,4,4,0,0,0,0
1570 END
1580 FOR I=1 TO MAXIMUM
1590 GET #I,1:CODES$(1)=CHR$(K)
1600 NEXT I
1610 CLOSE #1
1620 IF "FILE LOADED":THEN
1630 ("PROGRAM ORIGIN AT DEC):"
1640 "ORG
1650 "PROGRAM LENGTH (BYTES):"
1660 "MAXIMUM
1670 "GSUB PROMPT
1680 REM OUTPUT BASIC CODE
1690 IF MAXIMUM<1 THEN :? "NO CODE
3228 FOR I=1 TO MAXIMUM/6+1
3230 PRINT #:1; "START+=1":DATA ;
3240 K=K+1
3250 FOR J=1 TO 15
3260 IF K=MAXIMUM THEN PRINT
3270 NEXT J
3280 NEXT K
3290 PRINT #:1; ASC(CODE$(K,C))
3298 NEXT K
3298 NEXT K
3300 RETURN
5000 NEXT ERROR TRAP
5005 POKE 764,255
5010 :"? "ERROR NO:";PEEK(195)
5020 GOSUB PROMPT
5040 RETURN

Get it right!

LINE CHASM 1 LINE CHASM 2 LINE CHASM 3
10 4147 20 3592 30 4326
40 5742 50 4147 100 12699
110 7792 120 4176 130 16973
140 5899 150 4793 160 2374
170 8333 160 3342 190 5667
192 7247 195 1715 200 4342
210 1617 200 2146 210 8319
220 2693 210 5576 220 8729
230 2693 230 5576 230 8729
240 836 1000 6512 1010 7144
1020 6375 1030 7762 1040 15065
1050 6441 1040 3129 1070 6709
1080 1300 1090 1830 1100 4221
1110 4373 1120 2121 1130 6993
1140 16428 1150 4381 1160 6402
1170 3280 1180 3340 1190 6664
1200 1264 1190 1559 1220 3351
1220 6641 1220 6820 1250 2750
1250 1498 1260 4310 1270 11782
1270 15812 1260 1644 1290 2049
1290 5237 1300 2158 1259 14433
1300 5967 1300 7445 1310 2175
1310 2753 1300 8846 1310 3972
1320 7873 1310 1820 1320 6584
1330 1644 1320 3231 1340 3666
1340 6199 1320 9656 1350 2775
1350 2866 1320 1422 1360 4581
1360 5963 1320 5964 1370 2355
1370 2985 1320 2121 1380 2750
1380 1698 1320 5224 1390 5088
1390 7652 1320 6813 1400 7344
1400 6789 1320 4759 1410 5804
1410 1698 1320 5804 1420 5333
1420 4427 1320 7190 1430 6813
1430 7614 1320 8247 1440 7495
1440 5848 1320 1498 1450 871
1450 3846 1320 557 1461 4000
1460 5572 1320 929 1470 2390
1470 9973 1320 5427 1480 4314
1480 1345 1320 1498 1490 3162
1490 5815 1500 4798 1510 2750
1510 1559 1520 5840 1530 1498
WELCOME to the third instalment of Special FX. We'll follow on from last month's article with another DLI and exploit the Atari's scrolling features. The Atari is still the most powerful 8 bit graphics computer and even the ST has no hardware facilities that can simulate effects produced with the dedicated graphics chip, Antic.

So scrolling is this month's subject for a special effect and again, even if you don't understand the theory, you'll still have a Basic program that can be used in your own programs.

Scrolling can be defined as the movement of information around the screen when new material appears on one of the edges. For example, each time you list a Basic program the data scrolls on to the screen from the bottom and off at the top. This is a very simple type of scroll and many computer games have far more complex routines.

Arcade games even have more than one level of scrolling to give a 3D depth effect. Atari User has already covered the subject of scrolling so there is no need for a full explanation but if you missed the articles they are in volume 1 issues 6 and 7 (October and November 1985).

Basic has no reserved word support for controlling scrolling and so all work has to be done with the PEEK and POKE statements. If the scroll routine is written in Basic and not machine code you will then find it is too slow and the result is a jerky screen with very slow movement.

Machine code is the only answer and in fact the Atari only really excels in performance when programmed in machine code.

Now you've heard the bad news don't get disheartened because this program is designed to help you understand it all. Program 1 is in Basic and is a scrolling banner routine that works in a DLI.

All you have to do is put your text string into A$ and call the routine. The machine code finds the text in A$ and starts a DLI running. This continually takes data from A$ and scrolls it from right to left. Once this DLI is set up it works on its own and leaves the rest of the processing time for your Basic program.

A couple of small points about the routine are to make sure the text in A$ is in upper case and terminate it with the @ character. This informs the DLI when to start retrieving data from the start of A$ again.

This may seem a very easy routine to write but the problem with scrolling is knowing exactly where the screen data is. Basic is not the best language for letting you know this so it makes life a great deal harder.

If you do want to explore scrolling then you should use an assembler as its a lot easier. So let's have a look at the machine code. It's all stored in page 6 - that over-used area of memory which is safe from the friendly memory eating Basic.

Listing II is the source code of the program and creates much smoother scrolling. The display list (label DLIST) is a copy of the GRAPHICS 0 display list with a few alterations.

A DLI bit is set at the beginning to allow for the DLI to take place, then the third blank line is replaced with the scroll line. This is in Antic mode 6 or Graphics 1.

The rest of the screen is the same as it is in the operating system. The code is called at label START and here the address of A$ is pulled from the stack and the address of the screen is stored into my display list.

Finally the DLI vector is set to point to DLI1 and NMEIN (SD40E) is set to recognise DLIs. Finally the RTS returns the system to Basic. The next routine DLI1 is then called each time Antic finds a DLI bit set in the mode line it is drawing. In our case this is right at the start of the screen.

The DLI itself keeps fine scrolling the scroll line until it needs to do a course scroll when it takes 40 bytes from A$ and places it on to the scroll line.

In the third part of his series on amazing effects RICHARD VANNER takes a look at scrolling messages
Series

Listing I: Basic Program

10 REM ******************************
20 REM ** START FX #3 **
30 REM **
40 REM ** SCROLLING BANNER **
50 REM **
60 REM ** 
70 REM **
80 REM ** RICHARD VANER **
90 REM **
95 REM ******************************
100 DIM AS(33):GRAPHLICS 0
200 OFFSET B
210 REM
220 REM SET AS TO YOUR STRING AND
230 REM THEN CALL THE MACHINE CODE
240 REM WITH X=USR(1611,ADR(AS))
250 REM
260 REM REMEMBER AS MUST END WITH THE
270 REM & CHARACTER AND ALL TEXT MUST
280 REM BE IN UPPER CASE.
290 REM
300 AS=ASC(CHR$(197)) 87% 0
310 REM
320 REM READ IN MACHINE CODE AND
330 REM POKE INTO PAGE 6
340 REM
350 REM READ DATA; IF DATE=1 THEN GOTO 000
360 REM
350 POKE
1536 OFFSET, DAT:OFFSET+OFFSET+1:SOTO

Listing II: Machine Code Program

0100 ****** ***************
0110 *******
0120 ******* ******
0130 ****** ******
0140 ****** ******
0150 ****** ******
0160 ******
0170 ******
0180 ******
0190 XPLATE = 080
0200 TEMP = $0C
0210 ANTIC = $02
0220 ANIC = $06
0230 HSCROLL = $10
0240 LMS = $48
0250 DL1 = $48
0260 WB1 = $41
0270 VDLS = $280
0280 SDLST = $280
0290 HSCROL = $0484
0300 =
0310 ******
0320 ******
0330 ******
0340 ******
0350 ******
0360 ******
0370 DLIST .BYTE DL1,70,$70 ;2 Blank
0380 .BYTE ANITC+LMS+HSCROLL ;Graphics 1 Scrolling Message Line
0390 SC.POINTER
0400 .WORD SC.40 ;Address
0410 .BYTE ANITC+LMS ;Graphics O
0420 OS.POINTER
0430 .WORD $FFFF ;Screen data
0440 .BYTE 2,2,2,2,2,2,2,2,2
0450 .BYTE 2,2,2,2,2,2,2,2,2
0460 .BYTE 2,2,2,2
0470 .BYTE WB1 ;JumpWait
0480 .WORD DLST .ADDRESS
0490 SC.48 .BYTE 0,0,0,0,0,0,0,0,0
0500 .BYTE 0,0,0,0,0,0,0,0,0
0510 .BYTE 0,0,0,0,0,0,0,0,0
0520 .BYTE 0,0,0,0,0,0,0,0,0

0530 ;
0540 ;Start of code.
0550 ;
0560 START PLA
0570 PLA
0580 STA STRING+1
0590 STA TEMP+1
0600 PLA
0610 STA TEMP
0620 STA STRING
0630 LDA #7
0640 STA YFINE
0650 LDA 80
0660 STA OS.POINTER
0670 LDA 89
0680 STA OS.POINTER+1
0690 ;
0700 ;Set:Display List Pointer
0710 ;To Point to my DLIST.
0720 ;
0730 LDA #-DLIST
0740 STA SDLST
0750 LDA #>-DLIST
0760 STA SDLST+1
0770 ;
0780 ;Set SDL Pointer
0790 ;
0800 LDA #-D1LT
0810 STA VDLSLT
0820 LDA #-DL1T
0830 STA VDLSLT+1
0840 ;Tell Antic to accept DLI Lines
0850 LDA #60
0860 STA D36E
0870 RTS
0880 ;
0890 ;Display List Interrupt.
0900 ;
0910 DLI1
0920 ;SET
0930 PHA
0940 TXA
0950 PHA
0960 TXA
0970 PHA
0980 ;
0990 ;
1000 DLY 0
1010 BPL DLT5
1020 LDA #7
1030 STA YFINE
1040 LDA TEMP
1050 STA XPLACE
1060 LDA TEMP+1
1070 STA XPLACE+1
1080 LDA Y#
1090 LDA XPLACET
1100 DLT3 BASE
1110 LDA XPLACE,Y
1120 CMP #0
1130 BNE DL4
1140 LDA STRING
1150 LDA STRING+1
1160 STA XPLACE+1
1170 LDA Y#
1180 LDA XPLACET
1190 DLT4 BASE
1200 CLC
1210 ADC #20
1220 STA SC.40,X
1230 INY
1240 INX
1250 CPX #5
1260 BNE DLT5
1270 INC TEMP
1280 BNE DLT6
1290 INC TEMP+1
1300 DLT6 LDY #0
1310 LDA (TEMP),Y
1320 CMP #0
1330 BNE DLT7
1340 LDA STRING
1350 LDA STRING+1
1360 STA TEMP
1370 STA TEMP+1
1380 DLT7 LDA YFINE
1390 1400 STA HSCROL
1410 PLA
1420 TAY
1430 PLA
1440 TAY
1450 PLA
1460 RTI
1470 YFINE .BYTE 7
1480 STRING .WORD 0
YTECHNOLOGY SO ADVANCED...

ONLY FROM SILICA

Firstly, there's a personal computer that not only simulates other computers, but also when the user wants to change the computer's memory size, it can do so. This is called the "memory changer". The Silica Shop is pleased to present the first "memory changer" that will be released to the public world. This memory changer is one of the few products that can do this, and it is a very useful tool for those who want to make changes to their computer's memory size. The memory changer is available now from Silica in various sizes. If you are interested in this product, please contact us for more information.

FREE STARTER KIT - Only From Silica

We have a free starter kit for all customers who spend over £100 on any of our products. This kit includes a fully working computer, a software disk, and a user manual. The software disk contains all the necessary software for the computer, and the user manual provides detailed instructions on how to use the computer. The computer is a complete system, and it is ready to use right out of the box. It includes a full set of peripherals, such as a mouse, keyboard, and printer. The computer is a powerful system that can handle all of your computing needs. The software disk includes all of the necessary software for the computer, and the user manual provides detailed instructions on how to use the computer.

DEDICATED SERVICING - Only From Silica

At Silica Shop, we have a dedicated servicing department that is fully equipped to handle any of your computer needs. Our technicians are highly skilled and knowledgeable, and they are dedicated to providing you with the best possible service. We offer a range of services, including repair, upgrade, and installation. Our technicians are fully trained and certified, and they are committed to providing you with the highest level of service. We are a fully authorized service provider, and we are dedicated to providing you with the best possible service. We offer a range of services, including repair, upgrade, and installation. Our technicians are fully trained and certified, and they are committed to providing you with the highest level of service.

Dedicated servicing - Only From Silica

We guarantee that you will be satisfied with the service you receive from our dedicated servicing department. We have a team of highly experienced and dedicated technicians who are available to assist you with all of your computer needs. They are always available to provide you with the best possible service, and they are dedicated to ensuring that you are completely satisfied with the service you receive. We offer a range of services, including repair, upgrade, and installation. Our technicians are fully trained and certified, and they are committed to providing you with the highest level of service. We are a fully authorized service provider, and we are dedicated to providing you with the best possible service.
MINI-PACMAN
from Robin Edwards

HERE'S a version of an old arcade classic. When you run the program a matrix of dots (power pills) is drawn on the screen and you're asked for the level of play—1 is easy and 9 is impossible. Your man appears at the top left of the screen and the ghost at the bottom right. It will automatically start homing in on you.

The object of the game is to eat all 100 of the power pills to give you enough strength to be able to eat the ghost. Movement of your man is via the joystick plugged into port 1. Due to the length of certain lines the commands within them must be shortened as you type them in.

PROGRAM BREAKDOWN
10 Draws Matrix, gets skill level, turns of cursor.
20 Draws ghost and man and checks joystick. Makes beep.
30 Moves man, writes score and stops beep.
40 Moves ghost.
50 Check for collision. Game over routine.

MINI-PACMAN
from Robin Edwards

PROGRAM BREAKDOWN
10 Draws Matrix, gets skill level, turns of cursor.
20 Draws ghost and man and checks joystick. Makes beep.
30 Moves man, writes score and stops beep.
40 Moves ghost.
50 Check for collision. Game over routine.

MINI-PACMAN
from Robin Edwards

PROGRAM BREAKDOWN
10 Draws Matrix, gets skill level, turns of cursor.
20 Draws ghost and man and checks joystick. Makes beep.
30 Moves man, writes score and stops beep.
40 Moves ghost.
50 Check for collision. Game over routine.

MINI-PACMAN
from Robin Edwards

PROGRAM BREAKDOWN
10 Draws Matrix, gets skill level, turns of cursor.
20 Draws ghost and man and checks joystick. Makes beep.
30 Moves man, writes score and stops beep.
40 Moves ghost.
50 Check for collision. Game over routine.

MINI-PACMAN
from Robin Edwards

PROGRAM BREAKDOWN
10 Draws Matrix, gets skill level, turns of cursor.
20 Draws ghost and man and checks joystick. Makes beep.
30 Moves man, writes score and stops beep.
40 Moves ghost.
50 Check for collision. Game over routine.

MINI-PACMAN
from Robin Edwards

PROGRAM BREAKDOWN
10 Draws Matrix, gets skill level, turns of cursor.
20 Draws ghost and man and checks joystick. Makes beep.
30 Moves man, writes score and stops beep.
40 Moves ghost.
50 Check for collision. Game over routine.

MINI-PACMAN
from Robin Edwards

PROGRAM BREAKDOWN
10 Draws Matrix, gets skill level, turns of cursor.
20 Draws ghost and man and checks joystick. Makes beep.
30 Moves man, writes score and stops beep.
40 Moves ghost.
50 Check for collision. Game over routine.

MINI-PACMAN
from Robin Edwards

PROGRAM BREAKDOWN
10 Draws Matrix, gets skill level, turns of cursor.
20 Draws ghost and man and checks joystick. Makes beep.
30 Moves man, writes score and stops beep.
40 Moves ghost.
50 Check for collision. Game over routine.

MINI-PACMAN
from Robin Edwards

PROGRAM BREAKDOWN
10 Draws Matrix, gets skill level, turns of cursor.
20 Draws ghost and man and checks joystick. Makes beep.
30 Moves man, writes score and stops beep.
40 Moves ghost.
50 Check for collision. Game over routine.

MINI-PACMAN
from Robin Edwards

PROGRAM BREAKDOWN
10 Draws Matrix, gets skill level, turns of cursor.
20 Draws ghost and man and checks joystick. Makes beep.
30 Moves man, writes score and stops beep.
40 Moves ghost.
50 Check for collision. Game over routine.

MINI-PACMAN
from Robin Edwards

PROGRAM BREAKDOWN
10 Draws Matrix, gets skill level, turns of cursor.
20 Draws ghost and man and checks joystick. Makes beep.
30 Moves man, writes score and stops beep.
40 Moves ghost.
50 Check for collision. Game over routine.

MINI-PACMAN
from Robin Edwards

PROGRAM BREAKDOWN
10 Draws Matrix, gets skill level, turns of cursor.
20 Draws ghost and man and checks joystick. Makes beep.
30 Moves man, writes score and stops beep.
40 Moves ghost.
50 Check for collision. Game over routine.

MINI-PACMAN
from Robin Edwards

PROGRAM BREAKDOWN
10 Draws Matrix, gets skill level, turns of cursor.
20 Draws ghost and man and checks joystick. Makes beep.
30 Moves man, writes score and stops beep.
40 Moves ghost.
50 Check for collision. Game over routine.

MINI-PACMAN
from Robin Edwards

PROGRAM BREAKDOWN
10 Draws Matrix, gets skill level, turns of cursor.
20 Draws ghost and man and checks joystick. Makes beep.
30 Moves man, writes score and stops beep.
40 Moves ghost.
50 Check for collision. Game over routine.

MINI-PACMAN
from Robin Edwards

PROGRAM BREAKDOWN
10 Draws Matrix, gets skill level, turns of cursor.
20 Draws ghost and man and checks joystick. Makes beep.
30 Moves man, writes score and stops beep.
40 Moves ghost.
50 Check for collision. Game over routine.

MINI-PACMAN
from Robin Edwards

PROGRAM BREAKDOWN
10 Draws Matrix, gets skill level, turns of cursor.
20 Draws ghost and man and checks joystick. Makes beep.
30 Moves man, writes score and stops beep.
40 Moves ghost.
50 Check for collision. Game over routine.
Win £25

Simply send a copy of the program on disc or tape together with the documentation - preferably as a word processed file - to:
Atari User, Europa House, 68 Chester Road, Hazel Grove, Stockport, SK7 5NY.

material returning please enclose a suitably stamped package.
We pay £25 for each one published.

IF you've written any useful or interesting five lines programs why not send them to us to grace our pages?
You should give a full description of the routine and any other details that are relevant.
If you want your

ORGAN II
from Andy Wood

IN the July 1987 issue of Atari User there was a Five Liner called Organ by Len Golding. Well here is another based on that program but with some added features. As with Organ it uses the internal key code for the character pressed but it also uses the underused string array for storage of the pitch values. This shortens the program space and allows the use of semitones within it. A FOR..NEXT loop adds more realism to the decay of any given note and for a little added fun, the colour register 710 is poked when a key is pressed.

PROGRAM BREAKDOWN

10 Sets trap to line 10 and CLR in case of a wrong key input. Location 729 is poked with 1 to speed the delay between key hit and key repeat.
20 Internal key code placed into P. Value of ASC(nS(P,P)) is placed into N. Location 764 is poked with 256 before the setup of a FOR...NEXT loop to detect a key press during decay.
30 Sets sound channel $ to use N for pitch and V for volume. But sound 2 is optional. Also colour register 710 is poked.
40 Waits for key press before continuing.
50 Sets up screen.

20 P:PEEK(764)=$:ASC(NS($,$))$:PEEK 764
30 FOR K=10 TO 0 STEP -.3:ON PEEK(764)255 GOTO 20
40 SOUN D $,$,1,8,V:SOUN D $,$,1,8,V:POK E 710,016:WEND:GOTO 20: NEXT $:
50 GRAPHICS 1:17:17:17:17:17:17:17:
1:$: OR: G16 OR 55:GOTO 255 GOTO 20:GOTO 40

P: Internal key code used to locate character in NS.
V: Volume in FOR...NEXT loop.

PROGRAM VARIABLES

FAST MOVER
from Peter Dean

FAST mover is a program designed to move data a page at a time between specific areas of memory. Occupying just 43 bytes it makes use of the indirect Y addressing mode of the 6502 microprocessor.

Furthermore, the program can gain access to the 8k area of ram beneath Basic rom by a process known as bank-switching. The area begins at location 40960 and allows plenty of data to be stored for later retrieval without affecting user ram.

Unfortunately, the routine uses location 54012 and so is incompatible with the old 400/800 series of Atari computers. When you type the program in make sure you save it first before you run it as it uses a machine code routine placed in page 6 so if the data is typed in wrongly then it may crash and lose your program.

When you call the routine the following parameters must be passed to the stack - The address of the machine-code (which is relocatable and can be stored in a string), the address of the data to be moved, where in memory it will finish up and the number of pages involved (one page equals 256 bytes). So the following expression does all the work:

\[ X=NST(1536, \text{from, to, number of pages to move}) \]

Finally a word of warning: When you use fast mover make sure the area of memory to which the data is sent is not required for any other application.

\[ 10 \text{ FOR } A=1536 \text{ TO } 1576; \text{READ } B; \text{POKE } A,B; \text{NEXT } A \]
\[ 20 \text{ DATA } 160,8,169,255,141,1,211,104,10 \]
\[ 4,135,165,104,135,204,104 \]
\[ 30 \text{ DATA } 135,287,104,133,206,104,17 \]
\[ 8,177,284,143,206,200 \]
\[ 40 \text{ DATA } 286,22,238,205,230,287,282 \]
\[ 50 \text{ DATA } 206,242,169,253,141,1,211,96 \]
ATARI USER CLASSIFIEDS

Ads will be accepted under the following conditions:

- This service is EXCLUSIVELY for the use of private readers. No trade ads will be allowed.
- To avoid encouraging software piracy, all ads will be carefully vetted before they are printed.
- Ads can only be accepted on this form (or a photocopy of it).
- There is no maximum to the number of words you include. If there is insufficient room on the form, continue on a separate sheet of paper.
- The cost is 20p per word, with a minimum of 10 words.
- We GUARANTEE your ad will appear in the October issue (on sale September 30) providing it is received by September 1.

PLEASE PRINT THIS AD IN THE NEXT ISSUE

Name: ____________________________
Address: ____________________________

Cheque enclosed for £________ (minimum £2 for 20 words), payable to Database Publications Ltd.

POST TO: Atari Classifieds, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY. AQ94

NOAHSOFT

Present

PL65

FOR ANY 8 BIT ATARI WITH 48K RAM

A micro-processor program development language designed specifically for the 6502 processor that gives the power and flexibility of assembler without the headache.

PL65 is a procedural structured language that is designed to be used as a replacement for assembler. It is implemented as a single pass compiler which generates pure 6502 machine code output.

KEY LANGUAGE FEATURES

- 4 types of procedure PROC PUNC FUNC$ and INTERRUPT
- 4 primary variable types BYTE INT POINTER and STRING + absolute, BASED and arrays
- Structured program flow statements IF THEN ELSE ENDIF WHILE DO ENDWHILE REPEAT UNTIL FOREVER FOR TODOWHTO STEP NEXT CASE OF END ELSE ENDCASE
- GOTO + unrestricted GOTO's for those who can't break the habit
- Standard includes the complete set of 6502 mnemonics which can be interfaced with high level code for those time critical code segments.
- += much much more.

PL65 allows you to create fast professional programs with high level statements producing code which is 60-100 times faster than BASIC and with the built-in assembler even fast arcade games are possible (no royalties on runtime code).

PL65 is supplied on disk with DOS 2.5 and a powerful wordprocessor style text editor which is packed full of features + library, support files including routines for I/O, graphics, player-missile graphics, sound etc + 130 page programming manual.

All this and more for just £19.95

Send cheques or postal orders made payable to: Noahsoft, 90 LONDON ROAD, DUNSTABLE, BEDS LU6 3EE
CHOPPER RESCUE

By GEOFFREY STOREY

ON a mission into an enemy country five of your marines have been capsized into the sea and you have to fly in to rescue them. You have one of the fastest super helicopters, equipped with the latest armament, and your task is to rescue the men as they struggle ashore.

This may sound easy but you have limited fuel and an enemy bomber is covering the area dropping bombs and large rocks in an attempt to destroy your helicopter and stop the rescue.

Your helicopter is controlled by the joystick plugged into port one and you fire by moving it in the appropriate direction and pressing fire. By shooting downwards you can blast a tunnel to the trapped men.

Once a passage is clear you can move the helicopter through the narrow tunnel. You pick a man up by positioning your helicopter over the man and once he has boarded the craft you fly him to the safe landing platform on the left of the screen.

Watch for the plane which is dropping rocks and bombs - shoot it if you can. Once you touch down on the pad the man will jump out and you can return to rescue the next one. Remember, you can only collect one man at a time.

You start the game with three lives and lose one if you are hit by a bomb or rock or if you crash into any other object on the screen.

The men can also be killed by the bombs and rocks. It's okay to land on a dead man but not surprisingly, you cannot pick him up. If you crash when carrying a man he dies and you lose a life.

There are 10 screens on the first level and you have to collect five men on each one. When these screens have been completed you move to level two where you have to rescue six men... and so on.

After 10 levels the game restarts at level one, but this time considerably faster.

<table>
<thead>
<tr>
<th>Action</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shooting soil or rocks</td>
<td>1</td>
</tr>
<tr>
<td>Picking man up</td>
<td>30</td>
</tr>
<tr>
<td>Shooting the bomber</td>
<td>50</td>
</tr>
<tr>
<td>Taking man to safety</td>
<td>60</td>
</tr>
<tr>
<td>Shooting falling bomb or rock</td>
<td>100</td>
</tr>
</tbody>
</table>

Turn to Page 48
4 From Page 47

10 REM CHOPPER RESCUE
20 REM BY GEOFFREY STOREY
30 REM (c) ATARI USER
40 REM
50 GRAPHICS 2;OPT PLOT; 0,5
60 FOR I=0 TO 247: NEXT I
70 FOR J=0 TO 99: NEXT J
80 FOR K=0 TO 99: NEXT K
90 FOR L=0 TO 99: NEXT L
100 REM *** MAIN LOOP ***
110 POKE 77,8
120 FOR SP=0 TO 4
130 A=USK(L,0,M+20)
140 F=FB(L,0,F+1600)+B THEN SGBUS 5
150 F=FB THEN SGBUS 5
160 I=PEEK(3550)+230 THEN SGBUS 400
170 J=POKE(M,0,P+1) AND PEEK(53778)+017
180 G=POKE(M,0,Z)+0 THEN SGBUS 5
190 A=USK(L,0,M+40)
200 I=PEEK(3550)+45 THEN POKE 556,20
210 I=PEEK(556)+285 THEN POKE 556,4
220 I=PEEK(155)+285 THEN POKE 556,4
230 I=PEEK(356)+285 THEN POKE 556,4
240 I=POKE(356)+285 THEN POKE 556,4
250 I=PEEK(356)+285 THEN POKE 556,4
260 I=POKE(356)+285 THEN POKE 556,4
270 I=POKE(356)+285 THEN POKE 556,4
280 I=PEEK(356)+285 THEN POKE 556,4
290 I=POKE(356)+285 THEN POKE 556,4
300 I=POKE(356)+285 THEN POKE 556,4
310 I=PEEK(356)+285 THEN POKE 556,4
320 I=POKE(356)+285 THEN POKE 556,4
330 I=POKE(356)+285 THEN POKE 556,4
340 I=POKE(356)+285 THEN POKE 556,4
350 I=POKE(356)+285 THEN POKE 556,4
360 I=POKE(356)+285 THEN POKE 556,4

VARIABLES

DIFF
Difficulty of each level
D
Man killed variable
LEV
Holds current screen level
LIM
Number of men left to rescue
MR
Number of men rescued
FU
Fuel limit
MAN
Men rescued on particular level
CM
If you have man CM=1 or 0 otherwise
SC
Score
HI
Lives left
IF
Has bullet been fired flag
SO
Noise parameter for explosion
P
Bomb drop flag
I, CLEAR
Plane move flag
ST
For next loop counters
L
Clear out for player/missiles
PM
Load player/missiles
PMG's memory address
CHSET
New characters memory address
NS/SS
Dummy variable for reading data
S
Display scores
XY.Z
Variable for joystick read
DL
Used for locate function
ST
Start of display list
XI/1
Falling object status
XI/1
Location of PMGs on screen

PROGRAM BREAKDOWN

100-280 Main loop
300-290 Fire routine
360-390 Reduce fuel
400-450 Move aeroplane
500-570 Button pressed-press rockets
600-760 Explode helicopter
800-890 Collision detection
900-990 Bullet collision detection
1000-1070 Explosion routines
1100-1180 Falling bomb and rock routine
1200-1310 Bomb or rock landed
1240-1340 Update score
1440-1470 Pick up man routine
1490-1520 Drop man on safe pad
1540-1570 New level
1590-1730 Bullet hits bomb or rock
1750-1850 Man dies
1860-1890 Tune for completing level
1900-1980 Aeroplane hit routine
2000-2090 Game over
3000-3170 Draw levels
4000-4990 Player missiles and VBI routines
5000-5600 Initialise variables
5610-5990 Pook new character set data
5990-6180 Display list interrupt
6190-6290
Just the stuff to speed your output

ROLAND WADDILOVE assesses a 64k printer buffer designed to increase your system's efficiency

HAVE you ever sat twiddling your thumbs while waiting for the printer to print a long document or listing? Yes? Well MicroStuffer is designed to avoid this holdup altogether by providing a massive 64k printer buffer.

One of the problems of using a computer with a printer is the fact that they both run at different speeds. Computers like the Atari process information at quite a high speed, yet printers can only print the data provided by the micro relatively slowly. This forces the micro to reduce its speed to match that of the printer.

The effect of this is apparent when printing long documents or screen dumps – the micro is tied up for several minutes while the printer clatters away, preventing you from getting on with your work.

To make matters worse, the better the quality of print, the slower the printer runs and the longer the micro is tied up. This is why many printers, and even some software packages, have a draft and final quality print mode.

If you want a rough idea of what the document looks like on paper you use draft mode for speed. When everything is to your liking you use final quality – which may take up to twice as long to print, but the finished article is much more presentable.

A printer normally has a very small amount of ram on board, typically 1k or so, which it uses as a buffer. When there's room a signal is sent to the micro telling it to send some more text. The micro sends characters until the printer again signals the buffer is full and waits for it to print more text. When the buffer has space again the printer requests more text from the micro. It sends this so quickly the buffer fills in no time at all and consequently spends most of its time waiting for the printer to empty it. This time is wasted as the micro can't be used for anything else.

The larger the printer's buffer the more text the micro can dump in it before it becomes full. If it is very large, say 64k as in the MicroStuffer, the whole of the text will easily fit in.

The micro quickly dumps all the text in to the buffer and you can start on your next task straight away. The printer will print all the text in the buffer regardless of what the micro is doing (in fact you can even switch it off) so you can get on with the rest of your work.

So this is the idea behind the MicroStuffer – a large buffer is added between the computer and printer and the micro dumps all the output in it. The printer prints while the micro is free to process the next document, screen dump or report.

The unit is small, unobtrusive and can be tucked away in a corner of the desk. It comes complete with its own power supply.

The socket on the back of the cream coloured case is identical to the one on the printer and this is where you plug in your printer lead. A short cable runs to a plug which fits into the printer's socket.

All you do is plug in, switch on and it's ready to go – it couldn't be simpler. In fact you won't notice it's there – except for the time saved.

There is an on/off switch, and two buttons on the front of the unit. One is a repeat button which reprints the contents of the buffer, the other is a panic button.

If you fill the buffer with text and suddenly discover an error you can hit the Clear button and flush it. You can't do this from the computer.

MicroStuffer isn't cheap, but if you find your time is being wasted waiting around for the printer it could improve your efficiency no end. If you rarely use your printer it isn't necessary, but if you regularly print large documents it could easily repay itself in time saved very quickly.

To it's credit, it isn't micro-specific and will work with any computer and printer combination with Centronics type ports.

Product: MicroStuffer
Price: £49.95
Supplier: Supra Corporation, c/o Frontier Software, PO Box 113, Harrogate, North Yorkshire HG2 0BE
Tel: 0423 67140

September 1987 Atari User 51
**STORT SOFT**
ATARI MAIL ORDER SPECIALISTS

**COMPUTER STATIONERY**

**PRINTER PAPER** - Continuous fan fold, stapled led

<table>
<thead>
<tr>
<th>SHEETS</th>
<th>11&quot; X 5.5&quot;</th>
<th>11&quot; X 9.5&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>600gsm</td>
<td>70gsm</td>
<td>80gsm</td>
</tr>
<tr>
<td>1000</td>
<td>10.95</td>
<td>9.95</td>
</tr>
<tr>
<td>2000</td>
<td>13.95</td>
<td>16.50</td>
</tr>
<tr>
<td>24.00</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**PLAIN LABELS** - Continuous fan fold, stapled led

<table>
<thead>
<tr>
<th>Size</th>
<th>70mm X 39mm</th>
<th>89mm X 36mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>4.15</td>
<td>4.25</td>
</tr>
<tr>
<td>2000</td>
<td>7.50</td>
<td>7.99</td>
</tr>
</tbody>
</table>

Please specify number of labels across (12 or 3)

**DISK LABELS, SLEEVES & WRITE PROTECTS**

<table>
<thead>
<tr>
<th>Label</th>
<th>50s</th>
<th>100s</th>
<th>250</th>
<th>500</th>
<th>1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue</td>
<td>N/A</td>
<td>1.50</td>
<td>3.00</td>
<td>5.00</td>
<td>8.00</td>
</tr>
<tr>
<td>White</td>
<td>N/A</td>
<td>1.50</td>
<td>3.00</td>
<td>5.00</td>
<td>8.00</td>
</tr>
</tbody>
</table>

**DISK SLEEVES**

<table>
<thead>
<tr>
<th>Paper</th>
<th>1.95</th>
<th>3.95</th>
<th>N/A</th>
<th>15.95</th>
<th>33.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tyvek</td>
<td>(Durable)</td>
<td>5.00</td>
<td>8.00</td>
<td>N/A</td>
<td>35.00</td>
</tr>
</tbody>
</table>

**HIGH QUALITY DISKS FROM AS LITTLE AS 33 PENCE EACH. SEE OUR OTHER ADVERTS IN THIS ISSUE.**

**STAR VALUE HARDWARE BARGAINS**

<table>
<thead>
<tr>
<th><strong>520 STFM</strong></th>
<th>£79.95</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>520 STV 1 Meg Drive SF314 I ST Word W/P &amp; Spelling Checker</strong></td>
<td>Price Cut: £39.95</td>
</tr>
</tbody>
</table>

All hardware comes with free dust covers.
All ST's come with 5 public domain disks including CPM emulator and the arcade game.
Megadrives, 5 blank disks to get you going, basic language disk and manuals.

Access: Mastercard/Eurocard/Visa - Just ring 0279 89 500
24 hours a day, 7 Days a week. All prices inc. VAT. P&P
Just write for more information. Cheques etc. Payable to STORT SOFT. (International orders add 10% and rates in pounds Sterling by bank draft or international money order. Write for quote in any other currency.)

18 Crown Close, Sheering, Bishop's Stortford, Herts, CM22 7NX

---

**ARERE YOU MISSING OUT?**
**MONITOR MAGAZINE IS JUST WHAT YOU NEED!**

Filled from cover to cover with:
- Galvanising
  - Games
- Tantalising
  - Tutorials
- Mind-boggling
  - Machine Code
- Lotsa Listings
- Topical Tips
- Realistic Reviews
- 16-Bit and 8-Bit Coverage

Send a cheque/P.O. for £4-00, made payable to the 'U.K. Atari Computer Owners Club', for your four issues subscription now. Or send £1-30p (which includes P&P) for a sample copy, to see what the magazine offers.

Don't delay do it today!!

**THE U.K. ATARI COMPUTER OWNERS CLUB**
P.O. Box 3, Rayleigh, Essex, SS6 8LR

Independent User Group

---

**MICROLINK**

Set up your own closed user group on MicroLink

MicroLink is ideal for transferring instant information 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 the group, they can all be sent 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.**
Packing in the routines

Let's kick off with a question from Roger Bowering of Dartford in Kent. Roger has been using lots of machine code routines, many of which reside in page 6 of memory. He asks if there is any way to enable him to use several routines within one program.

As you know, page 6 is the spare area of memory at $600 which neither Basic nor the operating system access. Because of this many programmers tend to store small machine code routines and data here – but this can cause a conflict if more than one routine needs to be used at the same time.

Well, there are a number of ways round this problem, but they all depend on the way the routine is written. Some of our Five Liner programs will have been assembled to be position independent, which means that they can reside anywhere in memory and still work.

In such cases you simply alter the loop which POKEs the data into memory, adding perhaps 128 to the value.

Don't forget to add the same amount to the USR address used to call the routine. Page 6 is only 256 bytes long, so watch that there is space for everything you want to store there. You should never let your POKEing loop extend beyond location 1791 ($6FF) or you will start to overwrite DOS or Basic's workspace.

A lot of machine code can't be moved in this manner, especially if it involves storing a lot of working data in the page 6 area. Code such as this must be relocated. In order to do this you will often have to reassemble it from the original source code.

In the case of a previously written program this will involve a complicated process of converting the data bytes back into the mnemonic system (which uses LDA, STA, BEE, JMP and so on rather than just numbers) and then adjusting the code to allow you to use it elsewhere in memory.

In effect you will be changing the *= $600 line telling the assembler where to place your final machine code.

A much better idea is that everyone writes position-independent code in the first place. This sort of machine code routine is often stored in a string and thus may be placed anywhere in memory. This leaves the whole of page 6 free – possibly for those odd bytes of non-relocatable data storage?

In order to convert from page 6 to a string (assuming the routine will work in a string) you must first work out the length of the routine, then DIM the string to that length. Next, you must move the machine code into the string using PEEK and subroutines. Finally you must find the new address of the routine with ADR$.

To see this in practice, consider the following:

```
10 DIM CHAR$(8)
20 FOR CH=1 TO 8
30 READ BYTE: CODE$(CH,CH)=CHR$(BYTE)
40 NEXT CH
50 DATA 1,133,212,169,6,135,213,96
```

This would READ the data from line 50 and POKE it into the start of page 6, then run the routine. Memory locations 1536 to 1543 are used, which means that the machine code itself is eight bytes in length. Obviously this is far shorter than any real program is likely to be, but it makes the example very much simpler. In fact, all it does is to tell you how many parameters you used.

To use the routine in a string you would alter it as follows:

```
10 DIM CHAR$(8)
10 FOR CH=1 TO 8
20 READ BYTE: CODE$(CH,CH)=CHR$(BYTE)
30 NEXT CH
40 DATA USR (ADDR$(CODE$),P1,P2,ETC)
50 DATA 1,133,212,169,6,135,213,96
```

Line 1 sets the string up for eight characters, then lines 10 to 30 go through it, one character at a time, placing the DATA values in as CHR$ numbers. Line 40 finds the address of the string (and hence the routine) for use in the USR call. Line 50 is the same DATA as before.

This technique can be modified for the various different methods people employ to store their data, and so long as the routine is relocatable it will work. Don't forget to save a copy before you RUN it, just in case it isn't and it doesn't.

Player missile registers

The next question is from Jamie Cowan from Fenwick in Ayrshire who...
wants to know why many locations in memory seem to have two functions. In particular, he wants to know about the player missile registers at $D000.$

If you cast your mind back to the June issue of Atari User you will remember that I answered a question on shadow registers and how they work. Well, all the locations you are talking about are actually hardware registers — that is to say that they directly control the operation of the computer and don't require the operating system to pass values from them to somewhere else.

Each of these locations is actually a memory-mapped control register for one of the Atari support chips — in this case the GTIA chip. Each time a value is placed into one of these locations it adjusts the operation of the GTIA in the same way as you would adjust the controls of your television set.

In a similar way, locations $D200 onwards control POKEY, $D300 to $D303 control the two PIA I/O chips and $D400 onwards control the wonder-chip ANTIC. Because of the complexity of circuit board and chip design, many registers only work 'one way'. If a register is designated as write-only then you can POKE to it but you won't be able to PEEK the number back again.

This applies to the colour registers at $D3016, the fine scroll registers and many others. In some other cases (read-only mode) you can read data about the functioning of the chip, but you can't write anything. This includes such locations as VCOUNT and the consol key register at $D01F.

Indeed, in many cases one register may have a completely different function when you read it to the one it has when you write to it.

For example, all of the Player/Missile position registers double up as collision detection locations. Thus, if you POKE (write) to $D000 you will adjust the position of Player Zero. Yet if you PEEK (read) it you will find the Missile-One-to-Playfield collision detector.

It is not good practice to try to read a hardware register you have just written to because very often you will receive a completely different answer to the one you expected. Only try to PEEK locations which you know to be available in read mode.

SOFTWARE Solutions

Are you having problems getting your programs to work? Write to Software Solutions, Atari User, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY. We will answer as many as we can within the pages of Atari User but, unfortunately we cannot give personal replies.

STORT SOFT
ATARI MAIL ORDER SPECIALISTS

ATARI 8 BIT PD DISK SOFTWARE

TURBO BASIC - (PLUSE ONLY) About 3 times faster than ATARI BASIC. Many more added features inc some DOS functions done by Turbo Basic. Comes with compiler that speeds up TURBO Basic 3-5 times and ordinary Basic 10-15 times. Comes with a runtime package that allows you to run your compiled Basic program as an AUTORUN DOS disk image. Around 50% more compiler commands inc circle, paint, fill, if, else, do, loop, repeat and more. Also on disk is an excellent art program and a test editor. FANTASTIC VALUE $4.95

TRIDENT II - Simple word processor, excellent features and display options in 80 cols. $9.95

ADVENTURERS COMPANION - Only learn what you want to know by controlling how much is revealed step by step. Solutions to DAVE CRYSTAL CUTOUTS, GHOST TOWN, HITCHHIKERS GUIDE TO THE GALAXY, INFERNO, MASK OF THE SUN, MYSTERY MUNICIPAL, MISSION ASTEROID, PYRAMID OF DOOM, PIRATE ADVENTURE, WITNESS and DEADLINE. $14.95

PIX 8 - (TRANSLATOR) An excellent translator for XL & XE range that gives you the original 42090 operating system so that you can run the inpeferable software. In Machine Code this program gives your XL/XE an extra 40 000 instructions by shifting the painter for high memory to be owned. Location REAL/REAL.S is in out. $29.95

CP15 - (XL APPEND) A dream for those that want to use 15K E to run CP/M software. $39.95

MICRO DISK DRIVE - Additional 40K of disk storage for your 8-bit ATARI! $149.95

MANY OTHER PUBLIC DOMAIN GAMES, UTILITIES, ADVENTURES etc.

ATARI 8 BIT COMMERCIAL DISK SOFTWARE

Wargame Construction Set $18.95
Silent Service $18.95
Soil Flight II $19.95
Neto Commander $19.95
Super Script (XL/XE) $24.95
Gambler (XL/XE) $29.95

THINKING OF UPGRADING TO AN ST? SEND US DETAILS OF YOUR CURRENT SYSTEM WE MAY OFFER A WORTHWHILE QUOTE

See you at the Personal Computer World Show where we will have a 1040ST and Monitor as a prize. Access/Mastercard/Eurocard/Visa - Just Ring 0279 88 5099 24 Hours a day, 7 Days a week. - All prices Inc. VAT. P&P

Just write for more information. Cheques etc. Payable to STORT SOFT. (International orders add 10% and remit in pounds Sterling by bank draft or international money order. Write for quote in any other currency)

18 Crown Close, Sheering, Bishop's Stortford, Herts, CM22 7NX

SOFTWARE Solutions

For the best selection of Software for your Atari Computer or Video Game Console visit

ATARI WORLD
15 Fennell Street, Manchester 4
(Opposite Victoria Station/illighte Car Park)
Tel: 061-834 4941. Open: Mon.-Fri. 10-6. Sat. 10-5.30
Mail order with pleasure. Stamp for catalogue

LET US REVITALISE YOUR ATARI !!

Give your 8-bit Atari new power and explore the fascinating world of computer control with our exclusive range of quality gadgets. Designed for versatility, easy-to-wire software, their applications are limited only by your imagination. Fact, tested and guaranteed — simply plug in and go!!

ideal presents for the computer buff who has everything and with many applications for children or handicapped people. 10 DAY MONEY BACK GUARANTEE

Light switch $12.95
-2 channel Multi controller $22.95
-2 channel Gamepad $22.50
Programmable keypad $16.95
Musical style keyboard $18.95
-2 channel model controller $15.95
-2 channel joystick $17.95

Also available in XIT FORM. Prices include VAT and Postage. Send SAE for illustrated details of these and other unusual hardware bargains.

AVAILABLE ONLY FROM OURSELVES

R. H. Design
PRINTED CIRCUIT BOARD DESIGN, MANUFACTURE AND ASSEMBLY
Unit 3, Stonelaw Street, Stourport Avenue,
HARROGATE North Yorkshire HG1 7NR.
Telephone: 0423 880510
I WAS looking for a computer magazine to help me with my Atari computer when I came across Atari User and I was very pleased with it.

I think the game listings are brilliant – but it can get a little frustrating typing the long listings in. It was then that I saw the advert for free games from MicroLink.

What do I need to get these and how do I go about it? – Steve Spink, West Norwood, London.

Firstly, you will need a modem and the correct cable to go to your computer or interface box.

You will also need communications software, and you will have to join MicroLink. You can do this by filling in the application form in Atari User.

An ideal piece of software to buy to allow access to MicroLink is Mini Office II, as it is designed for ease of use – and the communications software allows very easy access to MicroLink.

You’ll find an article on page 12 of this issue of Atari User explaining how to download software.

 Atari’s new disc drives

AFTER saving up for quite a while to buy an Atari 1050 disc drive I was very upset when I phoned Compumart and they informed me that it was no longer available and

Atari are bringing out a new drive soon.

Could you please tell me if this is correct and how much this new drive will cost?

Also could you tell me if there is a cartridge-based language available that will allow re-numbering, auto-line numbering, trace and a variable dump. – Andrew Read, Doncaster, South Yorkshire.

Atari is bringing out a new disc drive – the XSD51 will replace the old 1050 drive. You may also be interested to know that as well as bringing out the new drive they also plan to bring out a new dot matrix printer - the XMM801.

The XSD51 disc drive is going to be double sided and have twice the storage capacity of the old 1050 drive as well as having a far superior loading time (a speed similar to the 1050 with a US Dubber chip installed).

It will retain full compatibility with present software and probably sell for around £200.

Basic XE is a cartridge based language that will allow you all the commands from Basic you require. It also allows you to obtain a disc directory from Basic without going to Dos.

The cartridge is made by O.S.S (Optimised System Software) and can be bought from several of the advertisers in Atari User for approximately £79.

Not one of ours...

RECENTLY a disgusting piece of software has been circulating around computer clubs in the Leicester area.

It carries the name Jiro Software of Leicester, but this name is in no way to be linked with the actual company Jiro Software and we would like to dissociate ourselves completely from it.

We would also like to say that if the individual(s) concerned can prove that they have a prior claim to the name Jiro Software then we will gladly consider changing our name. – Jirosoft, Claybrooke Magna, Leics.

Suitable for TAB

COULD you please tell me if the Atari computer has the equivalent command to INKEY and TAB on the BBC micro? – Peter Fawcett, Risepark, Nottingham.

Unfortunately Atari Basic does not have an INKEY command.

It is possible for you to make the computer look at the keyboard for an input by opening a channel using the command OPEN#1,4.0,“A” where A is the reference to the key input.

Once this channel has been opened you can then use the GET #1,1A to obtain a value for A. Remember to close the channel to the keyboard once you have finished with it.

Atari Basic does not have a TAB command but does have a POSITION statement. This works in the same way as the BBC micro’s TAB command, for example try using:

10 POSITION 2,3:P=HELLO

The first number is the horizontal position on screen and the second is the vertical position on screen.

Low priced games

I’VE been a dedicated Atari user for over eight years now but now I am getting fed up of the companies selling games for £1.99 – most of them are rubbish.

Admittedly there are exceptions, but on the whole they appear to be killing off the market for good software.

I am unemployed but would rather save the money and buy a piece of software that I was going to get satisfaction from.

In my opinion the Atari is still one of the best computers around, and if the software houses don’t stop selling these silly budget priced games then they are going to kill the market for quality software.

On a milder point, could you please tell me if there are any plans to bring out World Class Leaderboard on the Atari as I am a great fan

Turn to Page 56
of this game. — A.N.F. Hull, North Humberside.

The budget games are designed to sell at a price that is affordable to most people and the quality can be way below the expensive software.

However, software that sells for ten times the price is occasionally no better than the cheaper software. It is really unfair to slate all software houses for dropping prices so that everyone can obtain games without breaking the bank. And it is very unlikely that the sale of budget games is going to ruin the market.

World Class Leaderboard is not available for the Atari computers at moment, and we know of no plans for it to be brought out.

Reviewing the oldies

I WAS very pleased to receive my prize which I won in your birthday competition in Atari User. I just thought I would write to say thank you for the prize and for writing such a great magazine.

My favourite part of the magazine is the reviews section and I was wondering if it would be possible for you to review some of the older games that have been put on the software market again, as there are quite a lot about. — Trisala Morris, Chard, Somerset.

Saving to disc

I AM a novice on Atari computers and I have just bought myself a disc drive, but find that I am totally confused as to how to use it. I have typed in several program listings from Atari User and try as I do I cannot manage to save them to disc. Can you please explain how to do it? — P. Letch, Basildon, Essex.

Firstly, for you to use your Atari disc drive you will need a disc operating system (Dos). This piece of software is the lifeblood of your drive.

Place your Dos disc into the drive and switch on your computer. The disc drive should start and eventually Ready should appear on screen.

At this point type DOS, press Return and your disc operating system will be loaded. A menu will appear and at this point take out your Dos disc and place a blank disc in the drive.

Select option 1 for format disc and follow the prompts. Once your disc has been formatted you will need to write Dos files to it. Do this by selecting option H and following the prompts.

Now switch the computer off and boot your disc up by powering on. When the Ready comes up this time type in the listing and when you're ready to save it to disk type:

```
SAVED: filename.ext
```

The filename can be any name you want to call the program but mustn't be more than eight characters long. The ext is an extender and is used to label the files this is a maximum length of three characters, but you do not need to use it.

It is good convention to use .BAS for Basic files, .TXT for word processor files and so on.

To load a file once you have saved it you type:

```
LOAD "D:filename.ext"
```

Try to remember the filename you chose but, if you forget, type Dos and select the directory option then return to Basic and proceed as before.

Helpful notes

I AM writing to tell you about a discovery I made while using Organ by Len Golding from the July 1987 issue of Atari User.

Once I had typed in the program and run it I found that, while having hours of fun playing tunes, if you press one of the notes and then press Help the note will be repeated until you either change the note or take your finger off Help. — C. Ringlewall, Bromley, Kent.

Matter of opinion

I DISAGREE completely with the review you gave Arkanoid in the July issue of Atari User. It is reviews like this that make software houses — in this case Imagin — wonder why they even bother to write or convert software for the last few atarions left on this earth.

It is not as good as the ST version, but I think it is still one of the better pieces of software for the 8 bit Atari. And so think most of my

THOSE BOUNDER CHARACTERS

I OWN an Atari 800XL and enjoy typing the listings from your magazine. In the June 1987 issue of Atari User you published a game called Bounder.

Is it possible to obtain the characters printed on line 22 on an 800XL? I am having a lot of trouble finding them. — A. Powley, Peckham, London.

The characters that appear on line 22 in the listing for Bounder are obtainable on an 800XL. You must use a combination of keys to obtain them.

These key combinations need the use of the Control, Inverse key and various other keys.

Here is a list of the Atasci codes for the characters you are looking for.

In the first set of quotes the Atascii for the characters are as follows: 104, 162, 6, 153, 5, 169, 7, 32, 7, 228, 96.

In the second set they are 104, 160, 98, 162, 228, 169, 7, 76, 7, 228 respectively.

By looking up the Atascii codes of these characters in one of the many tables available you'll be able to see the key combinations you need to obtain the characters.
RIGHT LOUD AND CLEAR

Ideal to experiment with, so
I made the needed modifi-
cations to the program,
which are unfortunately too
long to list in this letter.
I am now the proud owner
of a talking Get It Right!
computer. So could you
please give my regards to
Len Golding for his won-
derful gadget. I am sure it
will give me many more
hours of fun. – Peter Webb,
Acklam, Cleveland.

● We are always happy to
hear from Atari users who
have success with their
projects and the idea of a
speaking Get It Right! is
certainly very original. If you
have any more ideas on
this subject then let us know.

Faulty recorder

I BOUGHT an Atari 800XL
and tape recorder from
Dixons and have had noth-
ing but trouble with it. When
the first one broke I took it
back to the shop and they
replaced it.

But when the replacement
broke not long after and I
took it back they would not
replace it saying that they
did not stock it any more.

When I checked a friend’s
deck I discovered that his is
an Atari 1010 and mine is a
Phonemark. Have Dixons
made a mistake or is there a
fault with Phonemark
tape decks? – R. M. Hollyoak,
Richmond, Surrey.

● Dixons have not made a
mistake in giving you a
Phonemark tape deck as
quite a lot of the 800XL
package deals had this par-
ticular recorder in it.

Unfortunately, although
they work, they are not the
best tape deck to use with
your Atari – the Atari 1010
is the better of the two.

Atari now makes a new
tape deck, the XC12 data
recorder, which is of a very
high standard and it can be
bought from several of the
advertisers in Atari User for
around £32.

Tasty fruits

I HAVE just finished typing
in the excellent Fruits pro-
gram from the March issue
of Atari User. It took about
five days to type in all those
data statements but in the
end it was worth it.

So to all you gambling
fanatics out there who have
seen the listing but have
not put it off it because of
the size, I recommend you
type it in because, as Atari
User mentions, it will
certainly satisfy your gam-
bling habit!

I give the program 8 out of
10 and congratulate David
White.

How does the Insert
command on AtariArtist
affect the loading of a pic-
ture file with the Dump 15
program published in the
July edition of Atari User?

And will the Insert
command work with a
cassette system, as I have
produced a picture and
would like to use the loader
routine from the Dump 15
program. – A. Fisher,
Fairwater, Cardiff.

● The Insert option on
AtariArtist is an un-
documented feature of the
program.

When a file is saved using
the SAVE command it is
saved in tokenised form
with the colour register
information, but when the
Insert option is used the file
is saved as a 62 sector file to
drive 1 but with no colour
information.

This option will not work
with a cassette system as
the program defaults to
drive 1 automatically when
the file is saved.

The loader routine from
Dump 15 is slow due to the
fact that it has to calculate
the printer plots for each
line.

It would therefore be
unsuitable for you if you
only want to load a single
picture file.

Data mistakes

I HAVE typed in the disass-
sembler listing from the July
1985 issue of Atari User and
found that when I ran it it
came up with the message
“Wait a moment!” followed
by an error – 8 at line 90.

When I checked the pro-
gram line 90 was typed in
correct according to your
listing. I hope you can help
me with my problem. –
Martin Ritchie, County
Down, Northern Ireland.

● Most problems with list-
ings come from the same
source – typing error. Error
8 at line 90 indicates that
you are attempting to read a
alphabetical character for a
numeric value.

This means that some-
where in your data state-
ments you have made an
error and you will probably
find that you have placed an
extra comma in the data.

Remember that error
reports do not always report
the actual line where the
error is.

Controller board fitting

IN the June 1987 issue of
Atari User there is an adver-
sement for the O.S. Con-
troller board by Com-
puterhouse. The list of its
functions seems endless
and some of the utilities
seem too good to be pos-
sible.

All in all it would appear
that this is a must for all
Atari computers. Could you
please tell me if it fits inside
a 130XE or does it plug in
the back. – Craig Buckton,
Normanby, Cleveland.

● The board sits on the
motherboard of your com-
puter and requires the
removal of two chips. This
task is a little tricky, but as
long as you take care when
you do it there should be no
problem.

If you can’t solder it in
yourself then Computer-
house will fit it free. The
board is software controlled
and allows you to alter the
parameters of the operating
system. We hope to review
it soon.

September 1987 Atari User 57
Now - the COMPLETE
Mercenary Compendium

Here's all you need to get the last ounce of fun and excitement out of one of the most talked-about games of 1986. This is what this package contains:

**Escape from Targ.** A unique combination of flight simulation, adventure and arcade action. PLUS high speed 3D vector graphics! You crash-land on planet Targ's Central City and you have but one aim - to escape!

**Targ Survival Kit.** For help when you need it most. Includes maps of Central City and its subterranean complexes. And a novelette, "Interlude on Targ", with more hints and tips.

**The Second City.** Thought you'd got away? Then load in this extra data set and think again! No hints or clues this time - you're on your own!

<table>
<thead>
<tr>
<th>Suitable for</th>
<th>Product</th>
<th>Format</th>
<th>RRP</th>
<th>Special Reader Offer</th>
<th>YOU SAVE</th>
<th>Offer Including Subscription</th>
<th>YOU SAVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atari XE/XL*</td>
<td>Mercenary Compendium</td>
<td>Tape</td>
<td>£14.95</td>
<td>£12.95</td>
<td>£2</td>
<td>£17.95</td>
<td>£9</td>
</tr>
<tr>
<td>Atari XE/XL*</td>
<td>Mercenary Compendium</td>
<td>Disc</td>
<td>£17.95</td>
<td>£14.95</td>
<td>£3</td>
<td>£19.95</td>
<td>£10</td>
</tr>
</tbody>
</table>
Lose yourself in the magical world of Kerovnia!

This fascinating adventure features the most sophisticated parser around: You can type complex sentences and interact with the many characters, including some very intelligent animals.

This superb package includes a 44-page novel and a cryptic help section.

"The program took three man years of programming time to produce — and it shows. The Pawn is the stuff from which cults are made."
— Anthony Ginn, writing about the Atari ST version in the May 1986 issue of the Atari User

<table>
<thead>
<tr>
<th>Suitable for</th>
<th>RRP</th>
<th>Special reader offer</th>
<th>YOU SAVE</th>
<th>Offer including subscription</th>
<th>YOU SAVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atari 800/130 with minimum 64K plus 1050 double density disc drive</td>
<td>£19.95</td>
<td>£14.95</td>
<td>£5</td>
<td>£21.95</td>
<td>£10</td>
</tr>
</tbody>
</table>

TO ORDER PLEASE USE THE FORM ON PAGE 61
Play football’s first interactive computer and board game

Brian Clough’s Football Fortunes is a football management game with a difference – it combines an excellent range of computer-based features with a fascinating board game.

The result for the players is a package which is as much fun and as skillful to play as other best-selling board games, combined with the flexibility and speed of play which only a computer can supply.

**CONTENTS INCLUDE**
- Atari software
- Playing board
- Five coloured counters
- 112 Player cards
- 10 spare Player cards
- Six immunity cards
- Pack of money

**FEATURES**
- Two to five players
- Four skill levels
- Variable game length
- Computer die
- Teleprinter
- Constantly updated league tables
- Assessments of each manager’s performance

<table>
<thead>
<tr>
<th>Suitable for</th>
<th>Product</th>
<th>Format</th>
<th>RRP</th>
<th>Special reader offer</th>
<th>YOU SAVE</th>
<th>Offer including subscription</th>
<th>YOU SAVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Atari with 48k</td>
<td>Brian Clough’s Football Fortunes</td>
<td>Tape</td>
<td>£14.95</td>
<td>£11.95</td>
<td>£3</td>
<td>£19.95</td>
<td>£7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Disc</td>
<td>£17.95</td>
<td>£14.95</td>
<td>£3</td>
<td>£22.95</td>
<td>£7</td>
</tr>
</tbody>
</table>

**TO ORDER PLEASE USE THE FORM ON PAGE 61**
Protect your Atari...

with this luxury dust cover
for your Atari XE or XL.
It's made of clear,
water-resistant vinyl and
bound with strong cotton
Only £3.95

...and your Atari Users

A year's supply of Atari
User can be kept in this
handsome chocolate
brown binder
Only £4.95

Annual subscription

New
UK £12 7001
Europe (incl. Eire) £15 7003
Overseas (Airmail) £20 7004

(Commence with issue)

Renewal
UK £12 7002
Europe (incl. Eire) £15 7701
Overseas (Airmail) £20 7702

Back Issues

1987 Jan 7409
Feb 7410
Mar 7411
Apr 7412
May 7413
June 7414
July 7415
Aug 7416

Back Issue Magazine Bundle
March 86 – Dec 86 (10 complete issues)
7051
£7 U.K.; £8 Europe; £16 Overseas Airmail

Disc Storage Box

Holds up to 60 5.25" discs £4.95 7098

Dust Cover

£3.95 UK 130XE 7031
£4.95 Europe/Overseas 800XL 7060

Atari User Binder

£4.95 UK; £5.95 Europe; £11.95 Overseas Airmail 7029

Valid to September 30, 1987
All prices include postage, packing and VAT
Overseas orders dispatched by Airmail.

The Pawn

With sub 8.95 7035/7036
Without sub 11.95 7037/7038

Jewels of Darkness/Silicon Dreams

With sub 12.95 7039/7040
Without sub 11.95 7041/7042

Superscript

Atari XL/XE Disc £29.95 7097
Add 22 for Europe/£5 for Overseas

New

Brian Clough's Football Fortunes

With sub 8.95 7053/7054
Without sub 10.95 7055/7056

Mini Office II

Disc 400/800/XL/XE £19.95 7050
Add 22 for Europe/£5 for Overseas

Mercenary Compendium

With sub 8.95 7063/7064
Without sub 11.95 7065/7066

Readers in Europe (inc. Eire) add 22 for £5 for Overseas

add £4 per item unless otherwise indicated

Order at any time of the day or night
Send to: Database Publications, FREEPOST, Europa House,
68 Chester Road, Hazel Grove, Stockport SK7 5NY.
(No stamp needed if posted in U.K. Please allow 28 days for delivery)

Telephone Orders: 061-429 7631
Orders by Prestel: Key '99, then 6145505300
Microlink/Telcom Gold 72: MAC 001

Don't forget to give your name, address and credit card number
ENQUIRIES ONLY: 061-450 0171 9am-5pm

Payment: please indicate method (w)

Access/Mastercard/Eurocard/Dinerscard/Visa

Expiry Date

No.

Cheques/Eurocheques made payable to Database Publications Ltd.

Name

Address

Post Code

TOTAL

Signed

Tel.

Expires

A19
ATARI 400/600/800/XL/XE UTILITIES AND GAMES

HOWFEN DOG 3 - The best menu driven flaggame management system yet. Holds up to 40 programs per disc displayed on a colourful menu. Run the program you want at the press of a button. 8 Functions including multi stage tapes to disc, disc to tape, disc to disc. Extra function to answer all your disk menu systems (multi boot etc). All Howfen DOS works in any density - at warp speed in 680. No other program needed. £17.85.

DOS DISK - Excellent autorunner for ordinary or bad sectored discs. Remasters bad sectors and recalculates them. £12.85.

KOPY KART - Transfer your favorite cartridge software to disc or tape. Comes complete with cartridge adapter (please state tape or disc). £25.85.

KOPY T4 - Back up single/multi stage tapes easily. £7.85.

AUTOMEN - Automatically lists every line on disc (basic or binary) and will run them at the press of a button. Works in any density - any DOS. £9.85.

DOS-MOD - Modifies your system to work in true 16K density when used with 1050 with double mod or Happy. Gives 16K capacity on each side of the disc. £9.85.

GAME$ - A large selection of used ORIGINAL software on tape, disc and cartridge at now price or less.

5 tree games with all orders £30.

For full details of this range of tape/disc/cartridge utilities and games send large SAE to:

HOWFENDS SOFT
145 BANKSIDE, WESTHOUGHTON
BOLTON, LANCs.
Overseas add 1.75 to all orders.

CUT PRICE SOFTWARE

AT ST SOFTWARE

<table>
<thead>
<tr>
<th>Name</th>
<th>KIT</th>
<th>DISK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Golf of Thrones</td>
<td>£24.95</td>
<td>£19.95</td>
</tr>
<tr>
<td>Juggler of Darkness</td>
<td>£24.95</td>
<td>£19.99</td>
</tr>
<tr>
<td>The Pawn</td>
<td>£24.99</td>
<td>£19.99</td>
</tr>
<tr>
<td>Eagles Nest</td>
<td>£24.95</td>
<td>£19.99</td>
</tr>
<tr>
<td>Archil</td>
<td>£24.95</td>
<td>£19.99</td>
</tr>
<tr>
<td>SCX Christmas</td>
<td>£45.95</td>
<td>£35.95</td>
</tr>
<tr>
<td>Defender of Crown</td>
<td>£45.95</td>
<td>£35.95</td>
</tr>
<tr>
<td>Star Tail</td>
<td>£23.95</td>
<td>£19.95</td>
</tr>
<tr>
<td>Colosseum</td>
<td>£35.95</td>
<td>£25.95</td>
</tr>
<tr>
<td>Lastram</td>
<td>£34.95</td>
<td>£26.99</td>
</tr>
<tr>
<td>World Games 1889</td>
<td>£38.95</td>
<td>£31.95</td>
</tr>
<tr>
<td>Star Tail 2 White</td>
<td>£24.99</td>
<td>£19.99</td>
</tr>
<tr>
<td>Garuban</td>
<td>£24.95</td>
<td>£19.95</td>
</tr>
<tr>
<td>Subtle Sm</td>
<td>£24.95</td>
<td>£19.89</td>
</tr>
<tr>
<td>Saint Seves</td>
<td>£24.80</td>
<td>£18.89</td>
</tr>
<tr>
<td>Rootsmen</td>
<td>£24.80</td>
<td>£18.39</td>
</tr>
<tr>
<td>Aardshunt</td>
<td>£24.80</td>
<td>£18.85</td>
</tr>
<tr>
<td>Heliomn</td>
<td>£24.95</td>
<td>£19.95</td>
</tr>
</tbody>
</table>

(Orders now - Gauntlet from US Gold. Atari 800. Cass £7.25, Disc £11.95)

This is just a small selection from our stock. Mail order prices apply. VISA. Overseas orders please add £1.00 per tape. Please make cheques/P.O.s payable to C.P.P. Visa and Access orders welcome by phone.

CUT PRICE SOFTWARE (Dept 5) Uni 6, Slot Horse, Riverway, Harlow, Essex, CM19 2DW

Tel: (0279) 24433 (24 hr. Answerphone) or 31956 during office hours.

ATARI 400/600/800/XL/XE UTILITIES

CHECK OUT OUR LATEST SUMMER PRICES

GAME PROGRAMMER'S UTILITY PACK comprises a set of game development utilities suitable for the Atari 800/400/800XL/XL/XE. Suitable for arcade development and includes such utilities as PRG2DISK, DISK2PRG, format disk, etc. £37.95.

DISK-TO-DISK UTILITY - is the very latest disk backup system available. A BOXED VERSION comes in a special box with a manual and three spare disks. DISK-TO-DISK UTILITY - 3 DISKS, £8.95 Post Free. lady's package.

TWO DOUBLED SIDED DISKS AND MANUAL - £22.95 Post Free (only £19.95 GAME$).

DISK TO DISK UTILITY - transfers all of your computer programs and disk images from cassette to cassette. £15.95 Post Free from GAME$.

MEMOLOADER - if used with our Tape-Disk utility you can place TEN transform disk images onto ONE disk. The game may then be loaded into RAM before saving the tape. £14.95 Post Free.

NEW SOFTWARE - TURBOCHARGER XL/XE - this disk is packed with a host of useful utilities and editors. £14.95 Post Free.

ORDERS TO EASTER FARE - £37.05 Post Free and includes all the above utilities and a free 64k run your program disk with all orders over £20.

Visa or Access orders welcome by phone.

J.R. DAVIS (Dept AU)
10 INGHAM AVENUE, HOLMER
HEDNESFORD, H.M. 9RD
Tel: (0432) 82666

Now on Sale

"DARG" FROM THE PLANET DARGON

$3.99 Cassette

$7.99 Disc

From your local software house or:

STV
9 Chiswick Walk, Birmingham B37 6TA
(please enclose 40p postage & packing)

TASKMASTER

Auto-convert your tapes (Single, Multi, Long-block etc.) to autotool disk. The powerful utility, includes assembler, editor, monitor utilities, for both new and experienced disk owner.

£29.50 plus VAT

RAMBIT II

Re-record your tapes (Single, Multi, Long-block etc.) to load around 600% FASTER with supplied cassette interface, kit £15 (state cos model) or fitted £22 all inclusive.

Both utilities are suitable for 64K, 660KXL, 680KXL, or 130XE. Sold subject to non-infringement of copyright.

Send SAE for details or P.O. Cheque payable to:-

"RAMBIT"
16 The Green, Thursty, Boume,
Lincs. PE10 1DB
NEW LOWER PRICES AND...
EVEN BETTER SERVICE!
Now ALL Goods Despatched SAME DAY by 1ST CLASS POST - FREE!

PRINTERS

AMAZING PRINTER DEALS SAVE £££'s
Phone now for details of our Easy Payment Scheme on all these printers.

- ATARI 5M 004
  - 80 Column – Dot Matrix
  - 80 CPS
  - Friction & Tractor Feed
  - 12 Month Warranty
  - ONLY £189.00
    - SAVE £10!
  - FREE – Atari Writer PLUS Word
  - Processor Disk WITH ALL Printers
  - FREE POSTAGE – All Printers
  - EASY PAYMENT SCHEME – Now Available

- Panasonic KX-P1081
  - 80 Column – Dot Matrix
  - 120 CPS – Draft Mode
  - 24 CPS – NLO Mode
  - Friction & Tractor Feeds
  - 12 Month Warranty
  - ONLY £209.00
    - SAVE OVER £70!

- MP 165
  - 80 Column – Dot Matrix
  - 165 CPS – Draft Mode
  - 95 CPS – NLO Mode
  - Friction & Tractor Feeds
  - Full 2 year Warranty
  - ONLY £229.00
    - SAVE OVER £30!

All of these Excellent Printers need the "Graphics AT" Interface to connect to your Atari 8-bit Computer. SAVE £20 – Buy the "Graphics AT" with your Printer for ONLY £39.00 (Normally £59.00)

DISKS & STORAGE

TOP QUALITY 5½" BULK PACKED DISKS
- Fully Guaranteed
- Individual Certified 100%
- Error Free
- Supplied in strong white card boxes per 10
- Complete with envelopes, User Labels, Write protect labels etc
- ALL POST FREE!

<table>
<thead>
<tr>
<th>Density</th>
<th>Single Sided</th>
<th>Double Sided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thin Density</td>
<td>£15.95</td>
<td>£33.95</td>
</tr>
<tr>
<td>Quasi Density</td>
<td>£15.95</td>
<td>£33.95</td>
</tr>
<tr>
<td>Normal Density</td>
<td>£19.95</td>
<td>£44.95</td>
</tr>
<tr>
<td>Double Density</td>
<td>£26.95</td>
<td>£53.95</td>
</tr>
</tbody>
</table>

- DD100L DISK STORAGE BOX
  - Smoked Perspex-high Impact Plastic
  - Holds up to 100 Disks
  - Hinged Lockable Lid (2 keys)
  - Rubber Feet – Dividers
  - ONLY £10.95

- JOYSTICKS
  - THE MICROPHASER
    - All three of our Joysticks include the following features:
      - Dust Fire Buttons
      - 8-Way Arcade Quality
      - Micro Switches for Precision
    - MICROPHASER
      - ONLY £9.95
    - MICROBLASTER
      - ONLY £12.95
    - JOYBALL
      - ONLY £9.95
  - £9.95 £12.95 £9.95
  - ALL JOYSTICKS – POST FREE!

How to Order...

- Simply list your order, name and full address with a cheque or postal order made payable to Compumart and post to our address opposite.
- Phone any of our 3 order lines (24 hours) and order using your credit card. Please give your full name and address, telephone number, details of your order and the name of the magazine you are ordering from.
- All goods are usually despatched same day – 1st class post – FREE OF CHARGE!
- For SPEEDY GUARANTEED NEXT DAY DELIVERY by SEACORP, please add 5% to goods total.
- All prices include VAT (17.5%) and include postage.
- All goods are currently despatched from 02/05/86, subject to availability.
- All goods are guaranteed.
PIRATES OF THE BARBARY COAST

Action, adventure and derring-do on the high seas

Back in time we take you. Back to the days of swashbuckling action on the high seas where you become the Captain of a 15 gun trading frigate. Whilst docked in Casablanca, your ship is attacked and plundered by "Bloodthirsty the Pirate" a blood-thirsty rogue who terrorizes the seven seas. He has taken your daughter Katherine and demands 50,000 gold pieces for her safe return.

In Pirates Of The Barbary Coast experience the thrill of battle under sail, the atmosphere of exotic locations. Use all of your cunning, bravery and guile to fight and trade for the release of your daughter.

Combining skill, strategy and action.

Pirates Of The Barbary Coast is the Pirate simulation game.

Pirates Of The Barbary Coast
Another great entertainment package from

Commodore 64/128 Disk £9.95
Atari 800 Disk £9.95
Atari ST Disk £12.95

Cascade Games Ltd., 1-3 Haywra Crescent, Harrogate, North Yorkshire HG1 5BG, England, Tel. 0423 525525