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ATARI USER

Vol. 2 No. 7 November 1986 £1

Inside
this
issue



**Video to
micro: The
missing link
arrives**



Simple steps to brighter backgrounds

Build your own musical keyboard

Illuminations: A game of strategy

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THE CITY is a role-playing fantasy game in which you are abducted by a mysterious and bad wizard in a room with only one exit. Through the journey you see The City. The game depicts changing worlds representing levels of darkness. At the moment you pass through the portal the wizard leaves. In The City you will encounter all sorts of strange and wonderful beings. The rich terrain and sea, one life, and another than fantasy incorporated into the game.



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Datasoft



Vol. 2 No. 7 November 1988

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All the latest happenings in the ever-changing world of Atari computing.

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£25 for you!

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Euro link set up

AT&T users can now have instant access to Europe's most influential database, thanks to a new permanent electronic link to Luxembourg.

It has been set up by MicroLink in conjunction with the EC's Directorate General for Information Market and Innovation.

The venture provides a direct link between the main MicroLink computer and that of Eurobase/Diana, which is part of a far-reaching project by the European Commission to create a "Common Market of Information".

And it means that MicroLink now has access to more than 600 European databases.

New databases available to MicroLink subscribers through the European link contain information from many sources which are not available through any other online host.

They range from facts on research projects, reports and organisations to an online directory to help find the right hardware and software.

Among the facilities on offer is a multilingual terminology database of scientific and technical terms containing more than 300,000 words and over 50,000 abbreviations.

It is being updated at the rate of 2,000 new terms a month.

The European connection came only weeks after MicroLink achieved a similar world first - a transatlantic hook-up with the giant American database *Melebase* which contains a dynamic section for Atari users.

"Our latest link-up will prove invaluable in opening up new computing and business opportunities in Europe for Atari users", said Derek Mackin, head of MicroLink.

All program listings in Atari User are now available for free downloading on MicroLink, the UK's fastest growing electronic mail service. They join hundreds of programs already available in the teleconference section, one of the most popular areas of MicroLink.

Mac emulator for ST starts rumpus

A PLUG-IN cartridge giving ST users access to some of the most sophisticated software on the market has gone on sale in the UK.

West Coast manufacturer Data Pacific is selling the device for \$60 - about £25.

When plugged into a 10400ST with monochrome monitor it effectively turns the machine into an Apple Macintosh.

This means the ST can run programs such as Macintosh Plus, MacWrite, MacPaint, MacDraw, PageMaker, LaserWriter, Excel, Lotus 1-2-3, and the Quark suite of software. As

well as providing access to an entire new range of top-flight business software, the device also opens up the possibility of professional standard desktop publishing on the ST range.

The product was first shown in America earlier this year but has already withdrawn when Apple threatened legal action.

This was because the original design incorporated two Macintosh icons necessary for an effective interface between software and ST.

But Data Pacific has now re-released the device without the icons for sale by mail order.

Purchasers have to persuade their local Apple dealers to supply them with the icons from the official Apple spares list.

Apple Computer is said to be dumbfounded by Data Pacific's decision to go ahead and launch the product - particularly since it enables the ST to run Macintosh programs faster than Apple's computer does.

David Small, the man behind Data Pacific, is unconcerned and insists his product does not infringe any Apple copyright.

But Atari User sources in the UK say they expect Apple to head Data Pacific into court in the near future.

ALL CHANGE AT ATARI UK



GXT: Robert Harding



At Bob Glasnow

A MAJOR reshuffle has taken place within the executive ranks at Atari UK. Out goes general manager Max Sandbridge and sales boss Bob Harding. In comes Bob Glasnow, a former Commodore man, to take over the number one spot.

However, company officials insist that all the changes have been voluntary. And that removal of a corporate blood bank is without foundation.

"A certain camaraderie factor has kept in hand", explained an Atari spokesman.

"It just so happens that two of our key executives revealed they would be leaving our headquarters in Slough on the same day".

Max Sandbridge has been offered the key role of running the Atari operation in the Far East. He has been asked by Jack

Tranter, chairman of the Atari Corporation, to become the supreme of the critical manufacturing side.

As such, his area of responsibility will encompass the company's Taiwan factory which employs 1,500 people.

However, Bob Harding is to sever all connections with the company, opting instead for a new job in the brown goods sector.

Atari UK's new general manager is 37-year-old Bob Glasnow, a former Commodore executive.

Glasnow is a Jack Tranter appointee, as was Sandbridge before him. He was previously general manager of Commodore UK, before becoming vice president of Commodore

PICK YOUR CHRISTMAS PRESENT EARLY AT THE ATARI SHOW

CHRISTMAS will come early this year for those Atari users who go along to the Royal Horticultural Hall in London at the end of this month.

More than 100 stands will be loaded with new products and bargain buys from the leading Atari suppliers.

The spacious 20,000 sq ft exhibition hall will play host to big names like Software Express, Twister, COS, Microdeal and Advanced Systems & Techniques.

This means that the top Westminster location is set to see a repeat of the success at the first Atari Computer Show last March which attracted 18,000 visitors.

Once again exhibitors have guaranteed there will be no shortage of new and exciting releases for the entire range of 8 and 16 bit Atari machines.

From recently formed Aeron-

aut Marketing comes the 300 and 1200 Kbit Super Trinitas Phaser 3221 resident at a special show price of £345 which includes a choice of software and 88232 cable.

Advanced Systems & Techniques is launching ST titles General Ledger Accounting for £40.95, animating program Make-it-move for Neochrome and Degas screens priced £39.95, and previewing a new graphics tablet which will cost under £100.

First Software is launching several software titles for the ST together with a range of new books.

Software includes PC Based Designer, a computer aided design program for circuit boards, and Obase II is on offer for the first time at £115.

The new books are Obase II Tricks and Tips priced £14.95, Graphics and Sound £12.95,

Machine Language £12.95 and Graphic Applications £11.95.

Microdeal is launching its space shuttle flight simulator Shuttle II for the ST at £24.95, and previewing Kanata Kid II which is said to have the most magnificent graphics ever devised for the ST.

Also from Microdeal come Trivia Challenge, the popular pub game, and Bulletin Board V2, multitasking software which allows the user to carry out work on his board while it is in use.

For 8 bit owners Tynesoft is bringing out Jet Set Willy at £7.95 and Draw Master, an art editing program, at £14.95.

The Atari Christmas Show takes place Friday, Saturday and Sunday, November 28 to 30.

Opening hours are 10am to 5pm Friday and Saturday, 10am to 4pm Sunday.

Level 9 quits BBC for an ST

AFTER four years of using a BBC Micro to compile the words and pictures for its adventure games, Level 9 Computing has switched over to an Atari ST.

"Our games are now as complex that a program would take several minutes to compile on a BBC", manager Margaret Austin told *4 new Users*.

"But on the ST it just takes seconds".

All future Level 9 games will be produced for the ST and enhanced with digitised pictures based on designs by artist Geoffrey Doreen.

Level 9 entered the ST games market in September with Jewels of Darkness, a £19.95 compilation of previous releases Colossal Adventure, Adventure Quest and Dungeon Adventures.

The first Level 9 game designed specifically for the ST is Knight City which goes on sale in January priced £19.95.



IMAGINE if you can, pool or snooker played in a true 3-D environment and you have a slight idea of what English Software's first release for the Atari ST is about.

But, apart from a regular-made to track coloured balls into holes, Obase II seems little resemblance to its traditional table-top forebears.

For instance, it is played inside a revolving cube and the balls when struck travel through air instead of on a surface.

It adds up to 262,144 possible viewing angles, 2.5 million different directions of shot, and 2.5 million angles of shot.

Drains sounding like a

mathematical nightmare, the game for one or two players is described by its publisher as "relaxing and entertaining". *Star* price £79.95.

The accent on America

ATARI 8 bit users looking for some American-flavoured entertainment are being offered two new programs by Strategic Simulations.

Gettysburg: The Turning Point is a recreation of the famous battle in the American civil war.

Players can keep track of

CAD for circuit boards

AN interactive computer aided design tool which automates the planning and design of printed circuit board layouts has been launched for the £2057 and 104057.

Produced by First Publishing in conjunction with Data Becker, PC Board Designer is aimed at small electronics engineering firms, independent electronics engineers and hobbyists.

Its main feature is its automatic routing capability - traces are automatically drawn on the screen or, if required, redrawn. Price £295.

Trimbase upgraded

AN upgrade of its Trimbase system for the Atari ST has been released by Talent Computer Systems.

Version 1.42 can handle both daisy-wheel and matrix printers. It can send a report to a file rather than have it printed directly, allowing Trimbase to be linked to independent word processing equipment.

Other features include the ability to move directly from module to module without dropping into desktop, widening of class names to include lower case letters, and removal of the security procedure expert when defining new record cards or changing existing definitions.

Trimbase Version 1.42 costs £89.95.

included artillery pieces, men and ammunition for each unit. Price: \$59.95.

Followers of the American sporting scene can update their major league match-up statistics using the 1985 Baseball Data Disc covering all American League and National League teams. Price: \$15.

An event NOT to be missed!

Atari Christmas Show

**Royal Horticultural Hall
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Friday November 28 10am-6pm
Saturday November 29 10am-6pm
Sunday November 30 10am-4pm

The first ever Atari Show last spring was an outstanding success. From all over Britain Atari enthusiasts flocked to London to find out all they could about their favourite machine.



Soon the second-breaking *Atat Show* will be back – with three days devoted to the exciting developments in this expanding market. Make a note in your diary NOW to make sure you don't miss this most Christmas extravaganza!

- All the latest software from publishers in both the UK and USA
- New hardware releases from Atari and other major companies
- Experts from Atari User and Atari ST User to answer your questions
- Experience the fascinating world of computer communications
- Everything on show from stocking fillers to complete Atari systems.

Whether you're a new user or a seasoned addict, you'll find the show overflowing with ideas to help you expand your computing horizons!

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JOY AT KONIX

FOR the first time since it launched its Speed King joystick for the Atari, manufacturer Konix is producing enough units to meet demand.

"Since January, when the product came on to the market, UK orders have outstripped supplies three times over," says managing director Wye Halloway (pictured above). "In the

summer we even had to turn down an order for 80,000 joysticks - and this was despite fulfilling orders in the UK for 100,000 units".

But now the situation has been remedied and production capability has been increased to 80,000 units a week compared with January's 3,000 a week.

"I'd like to thank all our customers for their patience over the last few months", said Halloway.

FROM PAGE 9

International in charge of the company's factories in Hong Kong.

Born in the North of England, Gladwin is married with two children.

One of his first tasks at the firm will be to reorganise Atari UK's marketing department following the departure of Rob Harding.

Atari UK has gone to great pains to point out that the recent changes in no way reflect problems.

"Max Rutherford has moved on after performing the role for which he was appointed - to get the company on its feet here", said an Atari spokeswoman.

"Now Bob Gladwin will take over from them..."

Atari bounces back into profitability

FROM being on the verge of collapse less than three years ago, Atari has fought back to profitability.

And now the company is preparing to set the seal on its return to financial stability by offering its shares on the open market.

Atari has registered with the US Securities and Exchange Commission for the sale of 4.5 million shares.

This is expected to raise about \$60 million.

Equally important, it will mark Atari's remarkable comeback from near collapse to the status of a public company.

For a positive response to the stock offer from private investors and financial institutions will secure the ultimate accolade of respectability and acceptance.

And it will be further proof for the previously sceptical computer industry of the ability and leadership of Jack Tramiel and his sons.

The stock offer prospectus says sales of Atari computers and video games are currently worth \$200 million a year. And

profits for 1988 so far total \$12.4 million.

Tramiel and his family will still own half the company if the public takes up the 18 per cent on offer.

And the Tramiels will have cleared off the outstanding \$38 million debt left over from their purchase of the firm from Warner Brothers in 1984.

A leading American financial observer told Atari (Atari's debt as a public company will unveil its full financial standing and market strategies for the first time.

"At last we'll get a chance to look at what they've got and what they've really done".

Michael Murphy, editor of a leading stocks and shares publication said: "This latest development in the Atari saga does an amazing story - I think Jack Tramiel has pulled it off".

Starquake for 8 bits

ARCADE adventure Starquake - a chart-topping hit in its various forms for other releases - has become the first Atari 8 bit release ever from Boulder Box Software.

Starquake is set on the edge of the galaxy where a highly unstable satellite has been emerging from a black hole.

Bleat, a biologically operated being, is chosen for a mission to stabilise the planet by rebuilding its core.

The Atari version has more than 400 different locations featuring anti-gravity lifts, teleport systems, planet surfaces, security doors, sub-planet exploration, propulsion packs, and planetary beings.

Starquake costs £8.95 on tape, £12.95 on disc.

ST Editing package

AFI editing package for creating and maintaining AFS resource files on Atari ST computers has been released by Kims Software.

Called K-Resource, it is implemented to make full use of Gem features and includes a built-in full function command editor.

There are options for auto wrap which aligns objects in character sized grid, auto size in which string/text object sizes are automatically calculated, and compatibility which helps create files that work on colour

and monochrome monitors.

K-Resource operates in both high and medium resolution and will produce output files for inclusion in E. Pencil, Modula 2 and Fortran 77 programs, enabling symbolic reference to resource objects. The package is also compatible with most other resource editors.

Resource files can be copied, renamed and deleted without leaving the program. All tree and object icons are supported, including menus, tree strings, tree images and icons. Price £39.95.

DATA CREATOR from JEFF DAVIS

THIS useful routine will read a predetermined number of memory locations and force-write their values into DATA statements.

To give you an idea as to the efficiency of the program, the whole of Page 8 will be converted to DATA in under 15 seconds. 5000 memory locations can be handled in under 4 minutes – considerably faster than typing them in by hand! This will appeal primarily to assembler programmers wishing to write machine code routines to be accessed from Basic. After assembling the object code can be saved to disc using the DOS 5 option. Afterwards, re-boot Dos with Basic present and use the L option to load the object code back into memory. Finally, run the Data Creator to place your code into DATA statements for your Basic programs.

The program works by firstly requesting you to enter the starting line number, which should be greater than five to avoid overwriting. Next you enter the start and end addresses of the machine code program you want converting. The routine then FEELS the memory locations within that range, eight at a time, and arranges them into DATA lines prefixed with a line number. The ever popular Return Key Mode is used to enter each line straight into the Basic program as it runs.

Since the program creates eight values per line, the final line may contain a few extra numbers that were not required. These may be ignored or removed depending on your preference. Once the routine has finished, delete lines one to five and SAVE or LIST it to tape or disc.

```
1 DIMENSION MY (1000)
2 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
3 PRINT "DATA STATEMENT 1,2,3,4,5,6,7,8,9,10"
4 DATA 1,2,3,4,5,6,7,8,9,10
5 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
6 PRINT "DATA STATEMENT 11,12,13,14,15,16,17,18,19,20"
7 DATA 11,12,13,14,15,16,17,18,19,20
8 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
9 PRINT "DATA STATEMENT 21,22,23,24,25,26,27,28,29,30"
10 DATA 21,22,23,24,25,26,27,28,29,30
11 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
12 PRINT "DATA STATEMENT 31,32,33,34,35,36,37,38,39,40"
13 DATA 31,32,33,34,35,36,37,38,39,40
14 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
15 PRINT "DATA STATEMENT 41,42,43,44,45,46,47,48,49,50"
16 DATA 41,42,43,44,45,46,47,48,49,50
17 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
18 PRINT "DATA STATEMENT 51,52,53,54,55,56,57,58,59,60"
19 DATA 51,52,53,54,55,56,57,58,59,60
20 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
21 PRINT "DATA STATEMENT 61,62,63,64,65,66,67,68,69,70"
22 DATA 61,62,63,64,65,66,67,68,69,70
23 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
24 PRINT "DATA STATEMENT 71,72,73,74,75,76,77,78,79,80"
25 DATA 71,72,73,74,75,76,77,78,79,80
26 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
27 PRINT "DATA STATEMENT 81,82,83,84,85,86,87,88,89,90"
28 DATA 81,82,83,84,85,86,87,88,89,90
29 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
30 PRINT "DATA STATEMENT 91,92,93,94,95,96,97,98,99,100"
31 DATA 91,92,93,94,95,96,97,98,99,100
32 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
33 PRINT "DATA STATEMENT 101,102,103,104,105,106,107,108,109,110"
34 DATA 101,102,103,104,105,106,107,108,109,110
35 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
36 PRINT "DATA STATEMENT 111,112,113,114,115,116,117,118,119,120"
37 DATA 111,112,113,114,115,116,117,118,119,120
38 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
39 PRINT "DATA STATEMENT 121,122,123,124,125,126,127,128,129,130"
40 DATA 121,122,123,124,125,126,127,128,129,130
41 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
42 PRINT "DATA STATEMENT 131,132,133,134,135,136,137,138,139,140"
43 DATA 131,132,133,134,135,136,137,138,139,140
44 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
45 PRINT "DATA STATEMENT 141,142,143,144,145,146,147,148,149,150"
46 DATA 141,142,143,144,145,146,147,148,149,150
47 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
48 PRINT "DATA STATEMENT 151,152,153,154,155,156,157,158,159,160"
49 DATA 151,152,153,154,155,156,157,158,159,160
50 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
51 PRINT "DATA STATEMENT 161,162,163,164,165,166,167,168,169,170"
52 DATA 161,162,163,164,165,166,167,168,169,170
53 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
54 PRINT "DATA STATEMENT 171,172,173,174,175,176,177,178,179,180"
55 DATA 171,172,173,174,175,176,177,178,179,180
56 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
57 PRINT "DATA STATEMENT 181,182,183,184,185,186,187,188,189,190"
58 DATA 181,182,183,184,185,186,187,188,189,190
59 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
60 PRINT "DATA STATEMENT 191,192,193,194,195,196,197,198,199,200"
61 DATA 191,192,193,194,195,196,197,198,199,200
62 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
63 PRINT "DATA STATEMENT 201,202,203,204,205,206,207,208,209,210"
64 DATA 201,202,203,204,205,206,207,208,209,210
65 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
66 PRINT "DATA STATEMENT 211,212,213,214,215,216,217,218,219,220"
67 DATA 211,212,213,214,215,216,217,218,219,220
68 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
69 PRINT "DATA STATEMENT 221,222,223,224,225,226,227,228,229,230"
70 DATA 221,222,223,224,225,226,227,228,229,230
71 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
72 PRINT "DATA STATEMENT 231,232,233,234,235,236,237,238,239,240"
73 DATA 231,232,233,234,235,236,237,238,239,240
74 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
75 PRINT "DATA STATEMENT 241,242,243,244,245,246,247,248,249,250"
76 DATA 241,242,243,244,245,246,247,248,249,250
77 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
78 PRINT "DATA STATEMENT 251,252,253,254,255,256,257,258,259,260"
79 DATA 251,252,253,254,255,256,257,258,259,260
80 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
81 PRINT "DATA STATEMENT 261,262,263,264,265,266,267,268,269,270"
82 DATA 261,262,263,264,265,266,267,268,269,270
83 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
84 PRINT "DATA STATEMENT 271,272,273,274,275,276,277,278,279,280"
85 DATA 271,272,273,274,275,276,277,278,279,280
86 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
87 PRINT "DATA STATEMENT 281,282,283,284,285,286,287,288,289,290"
88 DATA 281,282,283,284,285,286,287,288,289,290
89 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
90 PRINT "DATA STATEMENT 291,292,293,294,295,296,297,298,299,300"
91 DATA 291,292,293,294,295,296,297,298,299,300
92 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
93 PRINT "DATA STATEMENT 301,302,303,304,305,306,307,308,309,310"
94 DATA 301,302,303,304,305,306,307,308,309,310
95 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
96 PRINT "DATA STATEMENT 311,312,313,314,315,316,317,318,319,320"
97 DATA 311,312,313,314,315,316,317,318,319,320
98 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
99 PRINT "DATA STATEMENT 321,322,323,324,325,326,327,328,329,330"
100 DATA 321,322,323,324,325,326,327,328,329,330
101 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
102 PRINT "DATA STATEMENT 331,332,333,334,335,336,337,338,339,340"
103 DATA 331,332,333,334,335,336,337,338,339,340
104 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
105 PRINT "DATA STATEMENT 341,342,343,344,345,346,347,348,349,350"
106 DATA 341,342,343,344,345,346,347,348,349,350
107 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
108 PRINT "DATA STATEMENT 351,352,353,354,355,356,357,358,359,360"
109 DATA 351,352,353,354,355,356,357,358,359,360
110 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
111 PRINT "DATA STATEMENT 361,362,363,364,365,366,367,368,369,370"
112 DATA 361,362,363,364,365,366,367,368,369,370
113 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
114 PRINT "DATA STATEMENT 371,372,373,374,375,376,377,378,379,380"
115 DATA 371,372,373,374,375,376,377,378,379,380
116 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
117 PRINT "DATA STATEMENT 381,382,383,384,385,386,387,388,389,390"
118 DATA 381,382,383,384,385,386,387,388,389,390
119 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
120 PRINT "DATA STATEMENT 391,392,393,394,395,396,397,398,399,400"
121 DATA 391,392,393,394,395,396,397,398,399,400
122 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
123 PRINT "DATA STATEMENT 401,402,403,404,405,406,407,408,409,410"
124 DATA 401,402,403,404,405,406,407,408,409,410
125 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
126 PRINT "DATA STATEMENT 411,412,413,414,415,416,417,418,419,420"
127 DATA 411,412,413,414,415,416,417,418,419,420
128 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
129 PRINT "DATA STATEMENT 421,422,423,424,425,426,427,428,429,430"
130 DATA 421,422,423,424,425,426,427,428,429,430
131 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
132 PRINT "DATA STATEMENT 431,432,433,434,435,436,437,438,439,440"
133 DATA 431,432,433,434,435,436,437,438,439,440
134 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
135 PRINT "DATA STATEMENT 441,442,443,444,445,446,447,448,449,450"
136 DATA 441,442,443,444,445,446,447,448,449,450
137 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
138 PRINT "DATA STATEMENT 451,452,453,454,455,456,457,458,459,460"
139 DATA 451,452,453,454,455,456,457,458,459,460
140 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
141 PRINT "DATA STATEMENT 461,462,463,464,465,466,467,468,469,470"
142 DATA 461,462,463,464,465,466,467,468,469,470
143 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
144 PRINT "DATA STATEMENT 471,472,473,474,475,476,477,478,479,480"
145 DATA 471,472,473,474,475,476,477,478,479,480
146 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
147 PRINT "DATA STATEMENT 481,482,483,484,485,486,487,488,489,490"
148 DATA 481,482,483,484,485,486,487,488,489,490
149 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
150 PRINT "DATA STATEMENT 491,492,493,494,495,496,497,498,499,500"
151 DATA 491,492,493,494,495,496,497,498,499,500
152 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
153 PRINT "DATA STATEMENT 501,502,503,504,505,506,507,508,509,510"
154 DATA 501,502,503,504,505,506,507,508,509,510
155 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
156 PRINT "DATA STATEMENT 511,512,513,514,515,516,517,518,519,520"
157 DATA 511,512,513,514,515,516,517,518,519,520
158 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
159 PRINT "DATA STATEMENT 521,522,523,524,525,526,527,528,529,530"
160 DATA 521,522,523,524,525,526,527,528,529,530
161 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
162 PRINT "DATA STATEMENT 531,532,533,534,535,536,537,538,539,540"
163 DATA 531,532,533,534,535,536,537,538,539,540
164 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
165 PRINT "DATA STATEMENT 541,542,543,544,545,546,547,548,549,550"
166 DATA 541,542,543,544,545,546,547,548,549,550
167 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
168 PRINT "DATA STATEMENT 551,552,553,554,555,556,557,558,559,560"
169 DATA 551,552,553,554,555,556,557,558,559,560
170 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
171 PRINT "DATA STATEMENT 561,562,563,564,565,566,567,568,569,570"
172 DATA 561,562,563,564,565,566,567,568,569,570
173 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
174 PRINT "DATA STATEMENT 571,572,573,574,575,576,577,578,579,580"
175 DATA 571,572,573,574,575,576,577,578,579,580
176 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
177 PRINT "DATA STATEMENT 581,582,583,584,585,586,587,588,589,590"
178 DATA 581,582,583,584,585,586,587,588,589,590
179 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
180 PRINT "DATA STATEMENT 591,592,593,594,595,596,597,598,599,600"
181 DATA 591,592,593,594,595,596,597,598,599,600
182 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
183 PRINT "DATA STATEMENT 601,602,603,604,605,606,607,608,609,610"
184 DATA 601,602,603,604,605,606,607,608,609,610
185 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
186 PRINT "DATA STATEMENT 611,612,613,614,615,616,617,618,619,620"
187 DATA 611,612,613,614,615,616,617,618,619,620
188 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
189 PRINT "DATA STATEMENT 621,622,623,624,625,626,627,628,629,630"
190 DATA 621,622,623,624,625,626,627,628,629,630
191 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
192 PRINT "DATA STATEMENT 631,632,633,634,635,636,637,638,639,640"
193 DATA 631,632,633,634,635,636,637,638,639,640
194 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
195 PRINT "DATA STATEMENT 641,642,643,644,645,646,647,648,649,650"
196 DATA 641,642,643,644,645,646,647,648,649,650
197 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
198 PRINT "DATA STATEMENT 651,652,653,654,655,656,657,658,659,660"
199 DATA 651,652,653,654,655,656,657,658,659,660
200 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
201 PRINT "DATA STATEMENT 661,662,663,664,665,666,667,668,669,670"
202 DATA 661,662,663,664,665,666,667,668,669,670
203 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
204 PRINT "DATA STATEMENT 671,672,673,674,675,676,677,678,679,680"
205 DATA 671,672,673,674,675,676,677,678,679,680
206 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
207 PRINT "DATA STATEMENT 681,682,683,684,685,686,687,688,689,690"
208 DATA 681,682,683,684,685,686,687,688,689,690
209 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
210 PRINT "DATA STATEMENT 691,692,693,694,695,696,697,698,699,700"
211 DATA 691,692,693,694,695,696,697,698,699,700
212 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
213 PRINT "DATA STATEMENT 701,702,703,704,705,706,707,708,709,710"
214 DATA 701,702,703,704,705,706,707,708,709,710
215 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
216 PRINT "DATA STATEMENT 711,712,713,714,715,716,717,718,719,720"
217 DATA 711,712,713,714,715,716,717,718,719,720
218 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
219 PRINT "DATA STATEMENT 721,722,723,724,725,726,727,728,729,730"
220 DATA 721,722,723,724,725,726,727,728,729,730
221 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
222 PRINT "DATA STATEMENT 731,732,733,734,735,736,737,738,739,740"
223 DATA 731,732,733,734,735,736,737,738,739,740
224 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
225 PRINT "DATA STATEMENT 741,742,743,744,745,746,747,748,749,750"
226 DATA 741,742,743,744,745,746,747,748,749,750
227 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
228 PRINT "DATA STATEMENT 751,752,753,754,755,756,757,758,759,760"
229 DATA 751,752,753,754,755,756,757,758,759,760
230 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
231 PRINT "DATA STATEMENT 761,762,763,764,765,766,767,768,769,770"
232 DATA 761,762,763,764,765,766,767,768,769,770
233 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
234 PRINT "DATA STATEMENT 771,772,773,774,775,776,777,778,779,780"
235 DATA 771,772,773,774,775,776,777,778,779,780
236 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
237 PRINT "DATA STATEMENT 781,782,783,784,785,786,787,788,789,790"
238 DATA 781,782,783,784,785,786,787,788,789,790
239 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
240 PRINT "DATA STATEMENT 791,792,793,794,795,796,797,798,799,800"
241 DATA 791,792,793,794,795,796,797,798,799,800
242 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
243 PRINT "DATA STATEMENT 801,802,803,804,805,806,807,808,809,810"
244 DATA 801,802,803,804,805,806,807,808,809,810
245 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
246 PRINT "DATA STATEMENT 811,812,813,814,815,816,817,818,819,820"
247 DATA 811,812,813,814,815,816,817,818,819,820
248 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
249 PRINT "DATA STATEMENT 821,822,823,824,825,826,827,828,829,830"
250 DATA 821,822,823,824,825,826,827,828,829,830
251 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
252 PRINT "DATA STATEMENT 831,832,833,834,835,836,837,838,839,840"
253 DATA 831,832,833,834,835,836,837,838,839,840
254 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
255 PRINT "DATA STATEMENT 841,842,843,844,845,846,847,848,849,850"
256 DATA 841,842,843,844,845,846,847,848,849,850
257 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
258 PRINT "DATA STATEMENT 851,852,853,854,855,856,857,858,859,860"
259 DATA 851,852,853,854,855,856,857,858,859,860
260 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
261 PRINT "DATA STATEMENT 861,862,863,864,865,866,867,868,869,870"
262 DATA 861,862,863,864,865,866,867,868,869,870
263 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
264 PRINT "DATA STATEMENT 871,872,873,874,875,876,877,878,879,880"
265 DATA 871,872,873,874,875,876,877,878,879,880
266 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
267 PRINT "DATA STATEMENT 881,882,883,884,885,886,887,888,889,890"
268 DATA 881,882,883,884,885,886,887,888,889,890
269 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
270 PRINT "DATA STATEMENT 891,892,893,894,895,896,897,898,899,900"
271 DATA 891,892,893,894,895,896,897,898,899,900
272 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
273 PRINT "DATA STATEMENT 901,902,903,904,905,906,907,908,909,910"
274 DATA 901,902,903,904,905,906,907,908,909,910
275 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
276 PRINT "DATA STATEMENT 911,912,913,914,915,916,917,918,919,920"
277 DATA 911,912,913,914,915,916,917,918,919,920
278 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
279 PRINT "DATA STATEMENT 921,922,923,924,925,926,927,928,929,930"
280 DATA 921,922,923,924,925,926,927,928,929,930
281 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
282 PRINT "DATA STATEMENT 931,932,933,934,935,936,937,938,939,940"
283 DATA 931,932,933,934,935,936,937,938,939,940
284 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
285 PRINT "DATA STATEMENT 941,942,943,944,945,946,947,948,949,950"
286 DATA 941,942,943,944,945,946,947,948,949,950
287 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
288 PRINT "DATA STATEMENT 951,952,953,954,955,956,957,958,959,960"
289 DATA 951,952,953,954,955,956,957,958,959,960
290 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
291 PRINT "DATA STATEMENT 961,962,963,964,965,966,967,968,969,970"
292 DATA 961,962,963,964,965,966,967,968,969,970
293 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
294 PRINT "DATA STATEMENT 971,972,973,974,975,976,977,978,979,980"
295 DATA 971,972,973,974,975,976,977,978,979,980
296 FOR I=1 TO 1000:MY(I)=INT(RND*255):NEXT I
297 PRINT "DATA STATEMENT 981,982,983,984,985,986,987,988,989,990"
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These are the average PCW benchmarks

292 London Road, Westcliff-on-Sea Essex
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Pod power

Program: *Thrust*
Price: £4.99
Supplier: Feedlot, Wellington
 House, Upper St Martin's
 Lane, London, WC2H 8QG.
 Tel: 01-279 6750

THRUST is a little like a combination of the Lunar Lander and Asteroids games of old. You control a triangular shaped craft which can be rotated clockwise and anti-clockwise and thrust forward by firing its rockets.

Controlling the craft from the keyboard is tricky at first - you have to learn just when to fire the rockets to overcome inertia - but it soon becomes easier with practice.

The idea is to steal Raptor pods, which can be captured with a tractor beam. To do this

you must position the ship just above a pod, lower, activate the tractor beam (by pressing the Option key) and then thrust away with the pod in tow.

The programmer must have a degree in physics because the pod hangs beneath the ship like a pendulum and swings realistically from side to side as you manoeuvre the craft through the tortuous tunnels.

Should the swing become uncontrollable you will surely be dragged into a barren wall.

You defend yourself against enemy fire by shooting at and disabling their power plant, using your shields for extra protection.

Fuel can be taken aboard using the tractor beam, and bonus points can be gained by both capturing a pod and



sending the power plant's reactor into a critical phase.

Success at the first level leads you into more dangerous zones where you may encounter reverse gravity or worse.

Thrust was first released on the Commodore 64, and still immediately to number one in the charts.

However the Amstrad version is a disappointment. The graphics are fairly crude, the

sound is only average and there is no joystick option.

Despite that, the game does offer a good challenge and has a certain addictive quality. **Bob Chappell**

Sound	4
Graphics	4
Playability	5
Value for money	4
Overall	4

Programming aids

Products: XDS-80 Column chip (XDS-80)
 XDS-10000 chip (XDS-10000)
Supplier: Computer Support, 26 Beacon Road, Abbey Wood, London SE7 8BW.
 Tel: 01-371 1339

IN the States you can buy almost any sort of hardware or software additions you require for your 8 bit Amstrad, but there has long been a lack of such support in the UK.

Now London based company Computer Support can fill that gap. XDS is its modified operating system, and forms the basis of many of its products.

It will allow most old 400/800 programs to run correctly on an 8L or 8E because it basically converts the raw OS back into a reasonable facsimile of the older version and uses the extra bits now available to good effect.

It includes a whole host of extra features such as 820

based cassette tapes and holding the bank select status open itself.

Most of its features are simply window dressing, but it really comes into its own when linked with other programs - such as the 80 column version and utilities.

The 80 column XDS chip allows you to select 80 column mode simply by holding down the Select key on power-up.

The 80 column display is based on a Graphics 8 screen in black and white and is reasonably readable on a cheap monitor. On a TV, though, you could end up with eye strain.

But be warned - the 80 column mode may not work with your particular word processor or database.

Ultiman is another option available with XDS and it provides a permanently resident machine code monitor. This can be called from Basic, or by holding down Select and pressing the Reset key. The display shows you



the current status of the processor, plus the contents of the current program counter and a section of memory.

It has the facility to view, disassemble and alter memory, load and save given disc sectors and run programs.

There is no breakpoint facility, but there is a very limited single step mode. This should be very useful to the machine code programmer who wants to check and modify his code before running it.

The 1/3000 version uses the extra banks to avoid corrupting the main screen display and zero page locations, which is a

major failing of the older versions.

You could consider using the Computer Support register board to allow you to port back the original OS and two new chips into your machine and switch them in and out as required.

This is very useful when you bear in mind that some games will not run at all with an XDS chip in place.

These chips are of limited appeal to the straightforward games player, but if you are a programming enthusiast they could be right up your street - if a little on the expensive side.

André Willey

Running repairs

Program: *War Chopper*
Price: £7.95 (recommended), £5.95 (usual)
Supplier: Best Bit, Farnell
 Exeter, Devon, EX4 3DA
 Tel: 081-633 1000

TWO nations separated by sea are in conflict. One decides to attack, sending out warships and missiles against the other.

You are the defender of the attacked nation. Flying a helicopter, you must seek out the enemy ships and destroy them before they slip you.

The view is from above with the land and sea stretching and scrolling over several screens. Your copter has some ammunition but to get more you must visit a factory on the far side of the island.

The ammunition is produced from raw materials gained from the wreckage of

enemy ships. Two destroy ships to get ammunition so you can go out and destroy more ships, and so on.

To gather the raw material you land your chopper on a sinking ship and ferry the wreckage to the factory.

The more debris you carry the more fuel you use up. Further supplies of fuel can be obtained by landing on either of two fuel dumps, though they may be damaged by enemy fire.

Repairs to the dumps and your war-copter can be made by calling for aid from Repair Control which may in turn be damaged but can soon repair itself. All very circular isn't it?

Repairs are made at a speed commensurate with the amount of damage. If Repair Control is destroyed, the game is over.

The scrolling of the scenery



as your copter flies around is efficiently done.

Moving the joystick left or right rotates the copter while pushing forward sends it on its way. Pulling back launches a missile and hitting the button fires bullets.

A command bar at the top of the screen is activated by pressing the Select and Start keys. This bar lets you land, take off, display fuel and load carried, call the repair ship, drop debris and pick up ammo

from the factory.

Graphics and sound are fairly simple and, although there are one or two new elements, the game is hardly original. Even so, it's a reasonable enough attempt.

Ben Chappell

Sound	7
Graphics	7
Playability	7
Value for money	8
Overall	7

Pre-emptive strike

Program: *Raid Over Moscow*
Price: £8.95
Supplier: CD Gold, Unit 2-5,
 Mallory Way, Watford,
 Hertfordshire, WD 17 7AT
 Tel: 027-336 2088

LIKE the successful Beachhead programme, *Raid Over Moscow* is a multi-screen game. One of the good things about it is that the entire game fits in memory — some of that painful multi-loading needed here.

Another welcome feature is the demo. This not only lets you see parts of the game you might otherwise never get to, but also allows you to play out any of those scenes simply by taking over control during the demo.

As a squadron commander of the US defence space station, it is your task to stop a nuclear attack by knocking out

Russian launch sites and then leading an assault on the Soviet Defence Centre in Moscow.

Not exactly in the best possible taste, would you say? Best forget the truth and just enjoy the game as an arcade shoot-'em-up.

Game 1 is probably the toughest. You must fly as many vertical takeoff fighter planes out of the station hangar as possible.

Due to the plane's semi-weightlessness and having to control three thrusters as well as open the hangar doors, this part is far from a doddle.

In game 2, you fly your craft at low level from left to right across the screen. You must shoot enemy craft and missiles and avoid being shot down yourself.

You're among the missile sites in game 3. Here you're facing forwards and must



knock out the few sites by launching rockets through their window sills.

Game 4 sets you in Moscow, hiding in a trench facing the defence centre. Armed with a rocket launcher — a silent one, to boot! — you must hit the towers of the building and the soldiers who are taking pot shots at you from behind two walls.

The final game places you inside the reactor room where you had the grenades at a moving maintenance robot. It

told you to forget the silly plot!

The graphics and sound are not particularly exciting but with three skill levels and five different shoot-'em-up games, you certainly get a decent run for your money.

Stephen Wooler

Sound	7
Graphics	7
Playability	8
Value for money	8
Overall	8

Three in one

Program: *Greenber: Aka*
Release: 2
Price: £9.99 (recommended)
 £7.99 (offer)
Supplier: Datacube, Suite 014
 Grove Farm, Highgate
 Road, London, N10 9PL
 Tel: 01-442 7750

This is probably one of the best collections released. Thus, there are only three games – *Aka*, *Chase*, *Bricks* and *Flag* and *Flag* – but there's not a dud among them.

Aka is a good old-fashioned space shoot-em-up, using graphics and sound to great effect. Up, left and right, and chasing round the planets in a flying saucer you destroy mines that are closing in on mother Earth.

Dismissing you from this mission of mercy are a fleet of crack fighters. There are 34 levels to progress through and

you can start on any one you like.

Your weaponry fires in eight different directions and you can raise shields for short periods for added protection. Bonus saucers are gained as you proceed through the game.

Should you lose all your saucers, the mission terminates with the spectacular explosion of Earth.

The smooth scrolling action, multi-levels, music and other sound effects all add up to a classic game.

Flag and *Flag* is a sort of Q-Bert with a difference. The idea is to guide a kangaroo and a monkey over a series of tiles suspended in mid-air.

Many tiles are marked in a special way and all of these must be touched – they then change colour – before the clock runs out.

When the kangaroo is in, it



hops above the tiles. When it's the monkey's turn, it swings underneath the tiles – and that is really disorientating.

Apart from falling off, other hazards include sticky tiles and a perishing too keeper. There are 38 levels.

Finally, *Bricks* is a game for up to four players in which you endeavour to paint all the rooms in eight buildings. No skill levels are available.

A time limit, elevators, ladders, bushes, rollers, flying buckets, dumb buckets, safe rooms, blends the best, the

Bucket Checker and steam pipes are just some of the elements in this fast moving game.

Overall, an excellent compendium in which each game offers a wealth of entertainment. Every player should have this in his or her collection.

Bob Chappell

Sound	8
Graphics	8
Playability	8
Value for money	8
Overall	8

Fast and furious

Program: *Sun Star*
Price: £9.95 (recommended)
 £7.99 (offer)
Supplier: CMC, 9 Kings Road,
 Coventry's Road, London
 E15 9HQ
 Tel: 01-432 2818

GAMES that are able to convey the impression of high speed can certainly quicken the pulses of even the most jaded player. And *Sun Star* can certainly do this.

Sun Star is your space vehicle, the screen your cockpit. But you won't be flying through outer space – no twinkling stars and flashing nebulas in this one.

Instead, you skim over the surface of a massive grid, moving as slowly or as fast as you like.

The main part of the screen

is taken up with your forward view. Long and short range scanners at the sides assist navigation.

The idea is to zoom around the grid trying to avoid thumping into the blue grid walls, yellow obstruction pulses and red escape pulses. Contact with any of them puts a strain on your limited energy.

You are looking for white disrupter pulses. Repeated firing at one causes it to get bounced off and move elsewhere on the grid, leaving behind a moving green energy crystal. You have to pass above this to grab it before it disappears.

Having collected 10 greenies, you head for a revolving warp gate and blast a laser bolt into the orange hyperwarp coil in order to warp to the next grid. The plan

is no different than most and a good excuse for doing lots of looping and zooming around.

Movement is really fast when you let the thrusters put on your machine and the feeling of motion is quite exhilarating.

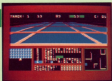
The graphics are pretty basic – all you have here, when you get down to it, are loads of squares, some with different colours. But fancy graphics don't always make the best

space games.

The qualities of *Sun Star* lie in the chase against time, the high speed and the furious but atmospheric sound effects. Fast, noisy and simple – that's all for this.

Douglas Woodier

Sound	8
Graphics	7
Playability	8
Value for money	8
Overall	8



ATARI computers have always been renowned for their spectacular graphics capabilities, and there has been a never-ending stream of art and design programs for the 8-bit range.

The most commonly used ones include the Tandy Tablet, GAO and the old faithful Micropainter and Paint.

All have their relative merits, but also a common failing — if you can't draw you are stuck. There was no simple way to transfer a photograph or other form of picture to the computer.

Now Digital Video has come up with a solution with its Computerized video digitizer. It will convert any picture from a video camera or a recorder into a form the computer can store and display.

There are two main types of digitizer — colour and monochrome — and Computerized falls into the latter category. Although the pictures are only mono some very good results can be obtained.

The video way to Atari graphics

Fingers all thumbs? André Willey finds the answer for those who cannot draw well.

The package consists of a small black box which plugs into the first and second joystick ports, a disc containing the software and a small manual.

Plug the lead from your video recorder or camera into the black box via a phone socket, and you are ready to go.

After booting the disc you are confronted with a multitude of options on the main menu.

First you adjust the sync

control by selecting the first option and tuning the knob until the screen lets you know the picture is in sync.

The manual then tells you to adjust the brightness. I found that this should be set to different positions for the different types of camera, but none of that later.

Once set up you can start to digitize your own pictures.

The modes available each take a different length of time to complete the process, possibly because the unit does

a complete scan of the picture for each gray level required.

The more gray levels you want, the longer it takes.

Normal capture is the quickest at six seconds, and this gives you a Graphics II screen with a high contrast image of dark and light pixels.

There are two other Graphics II modes — four level and eight level — which take about 25 and 50 seconds respectively and give a shaded texture to the picture.

The Atari high resolution



The pictures above were digitized with a Canon VCR video camera. Two from black and white photography in Graphics II, and the Clock in Normal Mode from a 1.2in model 40.



Graphics II: Normal Mode



Digitised with the equipment shown on the cover



colour modes have not been forgotten, with options for both a high and low contrast capture on to a Graphics 15 screen.

They use the four colours available as black, white and two grey tones, and take about 18 seconds to complete.

These screens are compatible with the Microcomputer format, so you can enhance them later with the Touch Tablet or any similar package.

The final mode allows you to capture a full Graphics 9 image, with 16 grey levels, but at the expense of horizontal resolution.

This mode took more than a minute and a half to complete, but was usually worth the wait.

The other menu options allow you to load and save pictures and create a disc directory.

A nice feature was the inclusion of help screens for

every option, which could prove very useful to the beginner.

The disc also has a number of demonstration pictures for each of the modes - some of which we've printed to allow you to compare the same image digitised in different ways.

I found the best results were most often achieved by using the Graphics 9 capture, but a little experimentation could yield good results in most modes.

The brightness requirements seemed a little odd - for the same video image, the more grey levels required, the darker the brightness control needed to be.

This was a little annoying when trying to find which mode worked best with which images.

The results were fine when using a video camera on a tripod, but most video recor-



The Computerised Time Executive

ders do not produce a good enough freeze frame to allow you to capture a good image from tape.

This was most noticeable in the Graphics 9 mode because this takes longer to complete.

Computerised performed well, and presented some very passable results as you'll see from the illustrations. If you

want to get seriously into graphics on your 8 bit Asci you should take a good look at this product.

Product: Computerised
Price: £119 (plus vat)
Supplier: Data Computing, 3
Blythess Avenue, Dundee,
DD2 1ER.
Tel: 0382 68113



Graphics 9: 8 Level White



Graphics 15: High Contrast



Graphics 9

Here's the key to programming musical games

Part 6 of LEN GOLDING's series on
using your Atari to control devices



THIS month's project is a simple keyboard which can be used for playing live music – or as a programming aid to help you add music to your Basic games or educational programs. It has a two-octave range (E to E) which is adequate for most popular tunes – and it's very easy to build.

We've opted for a stylus system, which means you can play only one note at a time but this keeps the cost down and simplifies construction and programming.

A diode matrix decodes the signal

from each key into a five-bit binary word which is sent to pins 1, 2, 3, 4 and 5 of the joystick port. Last month's project explained the technique in some detail, so we won't go into it again.

A short driver program converts the five bits into a decimal number between 0 and 31, which can then be used in any music program you care to write.

Figure 1 shows the printed circuit board pattern, reduced in size so that it will fit on to the magazine page. Its actual dimensions are 230mm x

85mm, so you'll need to enlarge it if you want to make your own PCB. Alternatively you can buy the professionally produced version from RHO design.

Construction could hardly be simpler. Figure 2 shows the board layout – make sure all the diodes are oriented with their black or coloured bands towards the keys. A bending jig – see Figure 10 – will save time and ensure that the diodes all sit neatly into place.

Although type 1N914 is specified, almost any silicon signal diode will

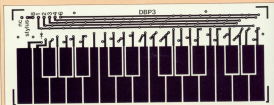
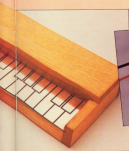


Figure 1. PCB layout pattern



work and you may be able to pick up a job for fairly cheaply – Tandy stores sell a pack of 50 for about £2.50.

The stylus is made from a standard test probe and is connected by a flexible lead to the point marked stylus on the PCB. The terminal marked NC is not connected to anything.

When everything is soldered together, fit the joystick lead and stylus using a cable clamp or Pclip to take the strain. Plug the gadget into Port 1 and run Program 1. You should see a zero displayed on the screen.

Touch the stylus to the lower 'E' pad at the left-hand side of the keyboard and the number should change to one. The next key (F) should produce two, and so on up to the top E, which should return 25.

If any are at fault, make sure that all the diodes connected to the offending key are wired the right way round. Also check that the solder has correctly joined each component lead to its intended track, and that no blobs of solder have bridged the gaps between tracks.

Mounting the PCB in a case

requires a bit of care. The keys must be supported along their length, and you'll want to hide the solder blobs somehow. The prototype case was made entirely from a 6ft length of 25mm x 5mm planed Remin. This size can often be found among the hardwood mouldings and bauldings in large DIY stores.

Programming is straightforward. Four of the five bits are returned at address 632, while the fifth appears at address 644. Our software must



Figure 11: Circuit showing the position of the diodes on the reverse of the PCB

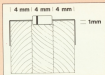


Figure 30: The ladder 3-bit

combine these into a single five-bit word, and store the result as a decimal number from 0 to 26. This can be accomplished by Program L, but it's more elegant and faster to use a short machine code routine.

Program I shows one way of doing this. Lines 10 to 40 contain a machine code routine (Program IV gives the source listing) which decodes the keyboard's output fifty times a second during the vertical

blanking interval. The result is stored in address 1701, and can range from 0 (no key pressed) to 26 (top 61). Lines 50 to 70 set up a matrix P which contains all the pitch values in ascending order.

Line 80 generates the sound, using the number held in 1701 as an index into the matrix to retrieve the appropriate pitch value. For example, key 6 will select matrix entry number 6 and this value (144), used in a

SOUND statement, produces the note A.

The program also resets address 77 to 0 every time a key is touched. This prevents the screen colour rotation which would otherwise occur after about ten minutes.

Program II shows one way of recording and playing back your tunes. Add these lines to Program I, deleting the existing line 80. This program waits for your first note, then stores its pitch and duration in two matrices named PITCH and TIME respectively.

Duration is calculated by using the real-time clock at address 10. This address increments automatically every fifth of a second, so it's easy to time an event by checking the before and after values. In Program II the counter is set to 0 whenever you touch a note, and read again when you move the stylus. The count value at that moment is stored in matrix TIME and indicates the note's

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To conclude this series on the player missile graphics system, we will now take a more detailed look at playfields, the backgrounds that all the action takes place on.

The player missile system recognises 4 playfields – numbered 0 to 3, which means that if you use a graphic mode with more than 4 colours things can get tricky. The system normally works with playfields that are set by colour registers 708 to 712, and drawn by the use of COLOR commands 0 to 3.

If, for example, you enter graphics mode 12, then only 4 out of the 8 colours in this mode can be used as playfields for the purposes of the player missile system. The fifth colour can still be displayed on the screen, but cannot be involved in any collision-detecting routines.

Using collision detection and priority on modes with less than 4 colours is fairly straightforward – though of course the number of playfields is restricted. There are two exceptions to this rule – the GTIA graphics modes 9 and 11 cannot normally be used to detect playfield collisions.

Graphics mode 10 is very strange. This is a 9 colour mode, but only colours set by registers 704 to 707 (and not 708 to 712 as in other modes) are recognised as playfields. Registers 704 to 707 also control the player and missile colours, so players and missiles will take on the same colour as the corresponding playfield number.

To help you design playfields for

STEPHEN WILLIAMSON ends his series on player missile graphics by taking...

A LAST TRIP ROUND THE PLAYFIELDS

Inclusion in your player missile programs, this month's program is a utility which can be used to draw playfields in graphic modes 3, 5, 7 or 15 – all 4 colour/d playfield modes. The playfield designs can then be saved to disc or cassette ready to be loaded back into your programs.

Playfield Designer is a much improved version of the Computer Car Wars program from October 1985 issue of Atari User. A display line interrupt routine (lines 1030 to 1120) has been included so that the text window at the bottom of the screen will not change colour when the colour registers are altered. Extra commands have also been added.

When you run the program it first asks you to choose the resolution of the graphics screen – 40 x 20 pixels (Mode 3), 80 x 40 pixels (Mode 5), 160 x 80 pixels (Mode 7) or 160 x 160 pixels (Mode 15).

After a few seconds delay for the

initialisation routines, a cross appears at the centre of the screen. This is a player and acts as a cursor.

Commands are accessed by pressing the key indicated in inverse letters in the text window. A key prefixed by \$/ means that the appropriate key must be pressed at the same time as the Shift key is held down.

To exit from some commands (such as Draw or Fill), press the joystick fire button. The full details are given in the accompanying panel.

At the bottom of the text window the current X and Y coordinates of the cursor are displayed (X is the horizontal coordinate, Y the vertical). This is useful for working out routines for use in Basic programs that involve the DRAWTO and PLOT statements. By taking note of the X and Y coordinates, the data for these Basic statements can be calculated.

The load and save routines contained in Playfield Designer can

Color (C) This changes the colour of the current playfield. Colours are numbered from 0 to 15 as shown in Figure 1. Brightness must be within the range 0 to 14, even numbers only – an odd value will default to the even number 1 below. Press RETURN after entering in the colour and brightness values.

Draw (D) A pixel is plotted beneath the cursor. Move the cursor around the screen by means of a joystick in order to draw a design.

Erase (E) Erases any pixel that is beneath the cursor.

Fill (F) Used to fill in enclosed areas. A line is drawn from beneath

the cursor and to its right until it touches another pixel. By moving the cursor around the inside of a shape this command acts as a paintbrush to fill in the area. If the Fill command is used outside of an enclosed area then the line will wraparound the screen. This can be used, for example, to colour the whole width of a section of the screen.

Line (L) Press the joystick fire button and a pixel will be plotted beneath the cursor. This is the beginning of the line. Move the cursor to another part of the screen and press the fire button again and a line will be drawn from the beginning point to the cursor.

Change (X to 3) Keys 0 to 3 change the playfield which the program operates on. Playfield 0 is the same colour as the background so, unless you are drawing on top of another playfield, no pixels will be visible on the screen. You can change the colour of Playfield 0 to alter the background colour.

Circle (O) When key 0 is pressed a pixel is plotted beneath the cursor which is the centre of the circle. Move the cursor either horizontally or vertically (but not diagonally) to another part of the screen and press the fire button. The distance between the current cursor position and the centre of the circle is the radius.

This year's PCW Show marked the first anniversary of the revitalised Atari UK and the area devoted to Atari products reflected the company's position in the market.

Taking pride of place between the business and home sections of the show, Atari had sub-let over 1000 square metres of stand space to the companies that keep the Atari business alive – the third party hardware and software manufacturers.

New products on display on the Atari stand included the XEP-80 80 column base for the 8 bit range. About the size of a 10SD disc drive but half the height, it connects into either joystick port one or two and gives an 80 column screen on a black and white monitor. Programs can access the screen by using the "60" driver. The XEP-80 also incorporates a catronics standard parallel printer interface. Hopefully software companies will soon be adopting their word processors and spreadsheets for the XEP-80.

On the 8 bit software side, Atari was showing Star Raiders II – the follow up to the first game that Atari produced for the 8 bit range six years ago, which has you in command of an Atarian space ship, battling against the evil Zylon fleet in deepest space.

On show for the first time were the new 2080 and 4160 80's with 2 and 4 megabytes of memory respectively. Running all programs for the 520 and 1040 80's, the new additions to the ST range are claimed to be fully compatible with their older counterparts.

The much talked about tilting chip also made an appearance inside a 1040ST. Two 1040s were displayed side by side, running exactly the same animation demonstration – a flock of birds flying across the screen. The 1040 containing the tilting chip was running the program about four or five times faster in a very impressive demonstration of the tilting's automatic speeding up abilities.

By the side of another ST was a box that looked deceptively like a hard disc but was in fact the Atari IBM PC emulator. Atari is currently working on making the emulator as compatible as possible with IBM programs. When the emulator can run a so-called "wish list" of IBM



Invitation to sample the delights of a host of new developments

Atari revitalised

programs, including Lotus 1-2-3, it will be released for an estimated £300-£400. Atari expects this to be before the end of the year.

On the ST software side, Atari was demonstrating Fastcom, its Gerni-based comms package. In addition to

modem and YDU commands, a future version will even allow use of BBC BASIC machine code using BBC Basic's built-in assembler.

At one point in the show, Leonard Tarnal (who is interviewed in this issue of Atari User) could be seen demonstrating Microsoft Write as a delighted crowd of passers-by. Microsoft Write is the ST version of Microsoft Word which has been very successful on the IBM PC and Apple Macintosh. The ST implementation does not include outlining, but does include all of the facilities of professional word processing programs, including foot notes and multiple fonts.

Also on the Atari stand were several companies demonstrating their new pieces of software. Microprose was showing its Silent Service submarine simulator which has just been converted for the ST. Microprose promised that most of its other bestselling titles would also be converted for the ST, but was reluctant to give specific details.

Microsoft was previewing its Art and Film Director packages for the ST. Art Director is a professional drawing and painting program which

By
**ANDREW
BENNETT**

offering all the standard communications features it supports split baud rates for connecting Prestel and other 1200/75 systems.

Atari also demonstrated completed versions of several pieces of software that have previously only been seen in test-only states. These included Necrozone and the much awaited ST version of Star Raiders.

In one corner of the stand an ST sat in front of what looked like a BBC computer's screen display. This was in fact the first showing of Atari's BBC Basic emulator. This very clever program allows use of BBC Basic programs on the ST, which will help Atari to sell STs to the educational market. The emulator provides all of the BBC Micro's colours, screen



Just a few of the many and varied stands at the show.

includes such tools as smudge, smear, rotate and distort. It also features colour cycling for animation effects and will show a picture on screen in gray scales so that you can see what the printed work will look like.

film Director allows you to create every element of an animated sequence on screen. It includes such commands as cut, invert, zoom and even slow motion. Music and sound effects can also be added to complete your films or presentations. Both packages will sell for £49.95 and will be available from the beginning of this month.

Next to the Atari stand G&T was demonstrating 1st Word Plus, its new word processor for the ST costing £99.95. 1st Word Plus is based on 1st Word, which is bundled with all STs, but it includes footnotes, a built-in spell checker and mail merging, as well as allowing graphics to be pasted into documents. To complement 1st Word G&T has released a mail merge program called 1st Mail, which costs £19.95.

G&T has also signed a distribution deal with American software house Amic. This will make Amic's ST programs easier to buy in the UK, including the much sought-after CAD-3D: a 3D drawing program from Tom Hudson, the author of Omega.

On the Advanced Systems and Techniques stand two new ST memory expansion boards made their debut. The first allows £303T owners to upgrade their machines to 2Mb of memory and the second lets 1040 owners upgrade to 4Mb. Both boards will cost approximately the difference between your present ST and a 3080

or 4160 model.

Star attraction of the Computer Concepts stand was the Fast ST Basic cartridge. Fast ST Basic is far more powerful than Atari's version of Basic, being faster, integrable with Gerni and featuring a range of debugging facilities. Computer Concepts was also selling a new cartridge called BackPack, which contains nine disk accessories. Both cartridges are reviewed in this month's Atari ST User. FastBasic sells for £89.90 while BackPack costs £49.95.

Software Punch from Liverpool was demonstrating its 20Mb hard disc units and Boffin its ST word processor. Boffin costs £39 and has a built-in graphics editor which allows

murder mystery in a spooky castle. Leather Goddesses has you kidnapped by evil women from Phobos, one of the moons of Mars. It can be played in any of three modes which range from rule to level. The program's descriptions and adventures become more adult as you progress through the modes. Watch Brilling's column for more details soon.

Softtechnics followed up its successful Rhythm spreadsheet with another desk accessory, a word processor called DeskWrite. Not only is DeskWrite extremely easy to use, but it is available from within any other Gerni program that you might be using.

Beyond had designed its stand to resemble the bridge of the starship Enterprise, for the preview of its latest game - Star Trek. The game features superb digitised pictures of the various crewmembers. Beyond is producing the game to commemorate the 20th anniversary of the TV series. The game hits the shelves this month on the ST with hopefully an Atari 8 bit version following soon.

Lamsonoff was demonstrating the 8 and 16 bit versions of Colourspace plus its range of 8 bit games. Owner Jeff Miller could be seen with a large grin on his face - a result of seeing the latter demonstration. Apparently ST Colourspace will run faster with the latter titles. He also hinted at the possibility of Colourspace II for the ST range.

Overall the show demonstrated not only Atari's commitment to its whole product range, but also the wide support provided by third party companies. On both the 8 and 16 bit fronts, Atari's future looks assured.

Atari's future looks assured

you to design diagrams and pictures for pasting into your documents.

Even outside the specific Atari area there was plenty of interest. Ajapint and Activision could be seen showing off new and old titles for the Atari 8 and 16 bit ranges. Gathering large crowds on the Rastan stand was Starblaster, the new 3D game loosely based on the Star Wars theme.

Activision was displaying several new games for both Atari ranges. Most notable of these were Hacker II, the follow-up to the successful Hacker, and two new games from Infocom: Moonmist and Leather Goddesses Of Phobos. In Moonmist, you play an amateur detective who must solve a

BIG TOP GOES ON-LINE

COMPUTER communications have transformed the business operations of Britain's largest travelling circus.

MicroLink membership means that the American Circus - so-called because of its three-ring, US style presentation - can utilise the very latest tele and electronic mail facilities.

But more importantly, a cellular radio-link to the public telephone system indicates that the "office" is no longer cut off from the outside world when the 30-wagon circus is travelling hundreds of miles between venues.

The computer and modem in the administrative trailer means that even when the show goes on the road there is constant communication with headquarters and with booking agencies in the town ahead.

"Using the Radio Volsat system and MicroLink we can do business just as efficiently as any permanently-based entertainment, like theatres, for instance", says Ian Rutten, administrative director of the circus.

"With 12 shows a week and up to 3,500 people at each under our Big Top, you can imagine what a difference FDS, telex and e-mail have made to running our operations.

"We are on the road from March to November and again over the Christmas/New Year season so you can see why I believe very strongly in the value of computer communications as a business resource".

Technology aids race relations

AS community relations officer for Hillingdon, the third largest London borough, Chander Rai has a big job on his hands.

His main function is to see that, in accordance with the Race Relations Act of 1976, there is no race or colour discrimination by employers in his area.

The size of his task can be seen from Hillingdon's 230,000 population and its concentration of large-scale employers such as Heathrow Airport - 50,000 work there - British Airways, Rank, Xerox, BMI, Heinz and

Express Dairies.

Fortunately, Indian-born Mr Rai has MicroLink's electronic mail and telex facilities to help keep him in touch with the many firms, union branches, council and local government departments he has to deal with.

Large numbers of the general public also come to him with questions.

Since Mr Rai - Hillingdon has a large, racially diverse

population living in an area that endures some of the extremes of run-down tower blocks and the shoddier social

housing.

"But we have excellent community relations here, and we intend to keep things that way."

"We are greatly helped in this respect by our computerised case record system and by other new technology advances such as MicroLink."

Transatlantic link

MEMORANDUM has made history with the first direct transatlantic computer link-up.

With the aid of a communications satellite, Memorandums and global American database information have set up a complex electronic gateway enabling the exchange of messages between offices in all parts of the US and UK.

"It allows Memorandums not only to send

messages to America, but also to take advantage of a vast array of services offered.

Stock market watchers can access instant information on share movements from Dow Jones, and there are over 40 sections for doctors, dentists, lawyers, writers and other special interest groups.

Leading news agency Associated Press supplies a 24-hour-a-day global information service.

Wildlife lifeline

THANKS to MicroLink, UK birdwatchers were able to follow the progress of a unique Japanese wildlife bird-raising event.

The 24-hour Birtchen was held to raise money to buy land for a breeding preserve for Japanese cranes.

Organisers hoped for five million yen through sponsorship

of 16 teams who spent a full day and night scouting the Japanese countryside for different species of birds.

Taking part was MicroLink subscriber Yachi Ishikawa. Armed with a mobile phone, acoustic coupler and portable micro, he was able to send regular reports to the MicroLink computer.

Phones' wasted weeks

A MIM survey by British Telecom has revealed that the average businessman wastes the equivalent of one week a year failing to communicate by telephone.

Statistics show that one in five messages left is either misinterpreted or lost, and four out of five calls find the number engaged or the other person unavailable.

As a result more and more business people are turning to electronic mail as a means of ensuring their messages reach their destinations - and the fastest growing of these systems in the UK is MicroLink.

According to the BT survey the average business person makes 2,500 calls a year, two-thirds of them to individuals who, for some reason, are unavailable at the time.



Accent is on pure adventure

By Brillig

ON my inquiring why I had seen so little correspondence from readers of late, one of my YTS filing grooves shamefacedly confessed that he had recently filed away a huge pile of unanswered letters after a briefcase liquid celebration of his pet budgie's birthday.

Following a rigorous search of my office suite of caves, a large pile of missives was discovered filed under K (Kries for help). Said apprentice has been duly reprimanded and told to desist from lunch-hour limboing of Brillig's Best India concoction, adapted from an ancient recipe for leather tanning and molasses and often used in the treatment of flaccid bats. As I warned him, even a half-pint of my famed brew requires a convalescent period of no less than two weeks.

So if you haven't yet seen your

request for assistance answered in these pages, please be patient - all my apprentices are on double overtime trying to catch up.

Those of you wanting help this month range from Conrad Dilce of Ultergallen who's had trouble in the PlayOff, to J. Bessington who wants to know about the map that she's found behind the guarded door in Enchanter. Hopefully the clues I've provided will give you a game without giving it away!

My thanks to Kevin Crosses of Leicester for his hints on Guasimodo and to Mike Moulton of Halesowen and Dave Fox of Kensing for their tips.

CLUES CORNER

THE PAYOFF

Can't get the bit back when the drill breaks?

STW DZOM RQFK OOL

What use is the list of numbers?

NPO DTRD BWYI HWAO YSLI ETT

Trying to get into the car in the car park?

KKXK HTSA HWNO SMOZ

Can't open the safe?

WOT ANS MOCE HTRD FYSA BURN EATH SATS O

Want to get past the guard dog?

RARM RWB NWT DARM GURD

Consumers proving an obstacle?

WU MUTS DCTY M

Trouble with the fire escape?

RQOD BAP GONE HTRD QDWR WRE POND QDWR JTL QSRU TFM BAGE WDM

Sticky problem with the window?

PMUJ NMT HPA PWWE NKCY TSEL CAWR TSMF RPS

LORDS OF TIME

Can't get past the cave people?

ELPO DREV ACER TTAN MGA

WV ANNE HTSU RMAI GEND

RBEH TTAR OARY NCHT EWAV

Want aie from the bartender?

DLOG FOTE GQAN EYTH MEV M

Need access to the starship?

TELT NUAG EMTD JNRA EWEI

JAWR ATSW ELLA REAT YRAA C

ENCHANTER

■ SMOD RTNE CSUL SNAR

TEMT POFA MAB/ T

■ LICH BASH TWB WQAM EYTH

NDT KDPO NISA RQGN AGNI

TEVEN NQCY RT

■ SMOD RTNE CSUL SNAR

TEMT POFA MAB/ EYTH EYTH

MEYNT

HULK

Can't leave the dome?

EDIS FUDO GREN TPL ETIS
NOTT UGMS UP

Want to go somewhere else other than the underground room, field and dome?

TSEWGDNE HTI REYN EMO
DARE SUYI REVE NHHV

SNOWBALL

Stuck after leaving the coffin?

■ NPUT NISW OTTU BQMS

UPNE HTWT ROND G

■ NPT GQOT NQPU QDWE HTW

PDIC FVBI RTAR QYHT QDSD G

■ HTRD NQGN EYTH NQUT

RQMD PMO G

MORDON'S QUEST

Pygmy proving a pest?

YMGY PLU KQSH TEY PWOL

RYKA MSCI NYEN QNAS NYON

TOOR MABH JVV

Can't cross a plant, a problem?

YMGY PHTY WYMA LQCE EF

[illegible]

I ACCIDENTLY bought *Start Right* and *Kick Start* for my Atari 800XL. The instructions for both cassettes are exactly the same regarding loading procedures.

Both say "Press Play on cassette, then switch on computer and hold down the Start button, then press Return and the program will load".

When I first did this with *Start Right* I thought perhaps I had made a mistake. I then started again and got the same results.

At first I thought I had bought a faulty cassette, until I started all the loading procedures again, except this time instead of just pressing the Start button when switching on the computer I held down both the Start and Option keys, and my programs loaded.

Is this just a misprint or are the cassettes supposed to load under these instructions? — **M.J. Ailly, London SE23.**

■ The normal load procedure with the 800XL is to hold down both Start and Option while you switch on. The Start key tells the computer to do a tape load and the Option key tells it not to use the built-in Basic language.

When some of these games came out — before the XL series was released — Basic was on a separate cartridge which could be inserted or removed at will, but now the Option key takes care of that for you.

Unless a game specifically states that it requires Basic to be present, hold down both

Start and Option for all tape loads.

Getting it right

IS it possible to alter the Get It Right! chessboard program so that you can check a section from the middle or end of the game being typed in instead of waiting for it to be checkmated from the start each time?

That is, if you find you have made typing errors several times between, say, line 1500 and 2000 then after correcting the typing mistakes you have to wait for lines 10 to 1000 to come up on the screen before you can check your amended area.

It is possible to LIST "C:" 1000-2000, or any other lines you want to check, instead of waiting for the lot to be run through?

I hope you can help as it gets a bit tedious if you happen to make a mistake towards the end of a long listing. — **R. Edwards, Worcester, Gloucestershire.**

■ You can indeed use Get It

Right! to checksum certain portions of a program.

This is very useful when you already know that 99 per cent of the program is correct, and you just want to re-check a couple of lines.

To do this use LIST "C:" as normal, but follow it with a comma and the line number range you want. For example:

LIST "C:",100,100

would list only lines 100 to 100, and

LIST "C:",100

would list line 1000 only.

You can then feed the tape to Get It Right! exactly as before.

80 column extensions

I TYPED in the 80 column text and graphics programs from the August 1986 issue of Atari User into my 130XE and was very impressed with the results.

I intend to buy a word processor — either Paperclip or Superstrip — and a database. In these any way in which I

could obtain an 80 column display from these software items on the TV or monitor? — **R.N. Tarnes, Heme Bay, Kent.**

■ Most commercial programs do not recognise any of the third-party 80 column add-ons at present. However, now that the Atari 130X-80 is on its way we can look forward to 80 column versions of the more popular word processors and spreadsheets.

Some allow 80 columns already, but you'll have to check which kind of 80 column board they support.

Plugs and ports

IN the Gadgets article in your August 1986 issue you mentioned that when you use pins 3 and 4 it is possible to print 1, 2, 3, 4 and 5 from the second board. Does this mean it would be possible to install the second printer plug too?

Is port 3 and 4 on the 400/800 usable at the same time for the same or other purposes?

Is it possible to turn one port to output while the other is used for input?

In the parts list you did not mention where you got the case you showed. It looked like there was room for two PCBs. — **M. van Nieuwen, Heerlen, The Netherlands.**

■ If you omit the power supply components from the second board you may also miss out the second power plug. Connect the mains supply to the 240V AC connectors on both boards.

Also connect the 12V and 0V terminals marked Auxiliary Output on each board to its counterpart on the other.

Happily bitten by the bug

I DISMANTLED my 4000XL/1200 bit for my car last Christmas and I must admit became quite immersed myself.

But if I had not discovered your magazine and taken out a subscription I know my interest, and perhaps also that of my son, would have waned.

I would like to thank your company that advertise in your pages. My son acquired some 400/800 games that would not load into the XL, so I

ordered XL Fixer from Brooksoft of Birmingham.

Also when the tape came — within three days — it would arrive before completely loading. I sent it back with covering letter, and just over a week later we received the new XL Fixer that worked fine, accompanied by a letter of apology and a free games tape that my son was over the moon with.

And yesterday we have just

received our 1025 printer supplied by Compuserp of Loughborough. It arrived in 48 hours after the order was placed!

We now have a 1080 also drive as well, bought from Simons with another 800XL, plus software for the same price that a new 1080 would cost from most dealers. Yes, we have certainly been bitten by the bug. — **Mervyn Davies, Gloucestershire, Essex.**

board.

If you read the first article in the series — *Amal User*, June 1988 — you will see that you can make each pin on the joystick port act independently of the others.

One pin may be used for input with seven outputs, or any other combination.

If you want to use pins 3 and 4 on an Atari 400/800, just use Port B at location 54017, and the Port B Control register at 54018. They function exactly the same way as their Port A counterparts.

Don't attempt this if you are using an XL or XE, as Port B is used to control the operating system and Basic — POK! them wrong and you can say goodbye to your program.

Cases are available from Magpin Electronics.

Getting gadgets

I WAS looking through my Atari User magazine the other day for something to do when I came upon the first part of Ken Gribble's new series about gadgets showing how to construct a simple digit scanner into the joystick port.

Seeing there were no com-

pilements I decided to do it, so the very next day I went to Tandy's to obtain the parts.

Surprisingly the man said they had never stocked the parts. Would you please tell me where they are obtainable as I am quite keen on making this right scanner. — P. Stawert, Worsley, Middlesex.

■ If you can't get the parts from Tandy, pop into your local M.H.Smith, and get a copy of the Magpin Electronics catalog. They should be able to provide you with everything you require.

Out in the cold

THE Atari 800X, has been on the market for at least three years now. Why is the software for the Atari still only written in 48K?

Whenever I load in a game on my 800X, it's in 48K life in the machine.

For this reason there are games, like *Star Flight 2*, that lack digitised speech, even though the Commodore did version had this luxury.

Old 400/800 owners don't have to be left in the cold, a 48K and 64K version of the

same game would ensure we are using our machine's memory to the full. This has already been done on *Monopoly* from Hasplog.

Finally, it seems that some software houses like Elite still don't want to know the Atari.

To prove we are ready to buy their software, every one of us Atarians must write to these anti-Atari software houses and ask them for software releases.

But remember every letter counts, so if you want to play *Centurion*, or even *Ghost 'N Goblins* in the near future on your Atari, get writing to them.

— Markham Farmer, Wavertree, Liverpool.

■ We can only echo what you have said — if you want to see Atari versions of all of those wonderful new games you've been drooling over on the Commodore 64 and the Spectrum, then write to the companies concerned.

There is no point writing to us about it as we have no hold over what software houses decide to release. What will make a difference is a flood of your letters on their desks.

The same applies to the 48K/64K debate, but don't forget that it costs the software houses more to produce two versions of a game, which might push up

the price.

Roughly 20 per cent of the Atari market consists of old 400 and 800 owners, so they can't afford to ignore the old machines completely, nor would we wish them to.

Printer interfaces

IS it possible to link an Atari 1027 printer to an Atari 520 ST? — Michael Woods, Chadderton, Oldham.

■ Sorry, but the answer is a plain and simple no. The 1027 uses a special form of serial interface specially designed for the Atari 8 bit range, whilst the ST uses a Centronics parallel interface. Sorry!

Boot error

I OWN a 1027 and a 1050 disc drive with which I have a problem.

Every time I boot up a disc, the drive busy light comes on and the computer beeps away for a second, then comes up with a "BOOT ERROR".

This only happens with my

It's apologetic time folks! Last issue's Player Missile Graphics article by Stephen Williamson featured two programs and unfortunately the lines from Program 1 were accidentally repeated instead of the first

ten lines of Program 1.

For those of you who are having trouble getting the checksums to match, here are

the correct lines for Program 1.

The checksum printed was correct, and after you've typed these lines in it should match.

Our thanks to Mr. E. Miller of Blackpool who pointed this out — a Turbo is on its way to him.

Player Missile Graphics

```
10 REM *****
20 REM *****
30 REM *****
40 REM *****
50 REM *****
60 REM *****
70 REM *****
80 REM *****
90 REM *****
100 REM *****
110 REM *****
120 REM *****
130 REM *****
140 REM *****
150 REM *****
160 REM *****
170 REM *****
```

```
200 REM ** LOAD NUMBER 000 54018 **
210 FOR J=0 TO 40:READ A:DATA 1,2,3,4
220 NEXT J
230 A=54018:PRINT:PRINT:PRINT:PRINT
240 GOTO 500
250 FOR J=0 TO 40:READ A:DATA 1,2,3,4
260 NEXT J
270 FOR J=0 TO 40:READ A:DATA 1,2,3,4
280 NEXT J
290 FOR J=0 TO 40:READ A:DATA 1,2,3,4
300 NEXT J
310 FOR J=0 TO 40:READ A:DATA 1,2,3,4
320 NEXT J
330 FOR J=0 TO 40:READ A:DATA 1,2,3,4
340 NEXT J
350 FOR J=0 TO 40:READ A:DATA 1,2,3,4
360 NEXT J
370 FOR J=0 TO 40:READ A:DATA 1,2,3,4
380 NEXT J
390 FOR J=0 TO 40:READ A:DATA 1,2,3,4
400 NEXT J
```

```
410000 J
420000 REM *****
430000 REM *****
440000 REM *****
450000 REM *****
460000 REM *****
470000 REM *****
480000 REM *****
490000 REM *****
500000 REM *****
510000 REM *****
520000 REM *****
530000 REM *****
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920000 REM *****
930000 REM *****
940000 REM *****
950000 REM *****
960000 REM *****
970000 REM *****
980000 REM *****
990000 REM *****
1000000 REM *****
```


ATARI USER Mailbag

We welcome letters from readers - about your experiences using the Atari console, about tips you would like to pass on to other users... and about what you would like to see in future issues.

The address to write to is:

Mailbag Editor
Atari User
Europe House
66 Chester Road
Hazel Grove
Stockport SK7 5NY

own formatted" discs which contain FMFS SYS files. Could you please help me? - **Richard Powell, Sheffield.**

■ It sounds as though your discs have not been properly formatted. Boot up your DOS Master Disk (DOS 2.5 if you can get one, otherwise use DOS 3 if you must).

If this won't work, your drive is definitely at fault. If READY comes up, type DOS. When the DOS menu appears select the option for FORMAT (disc), and tell it which drive to use.

The drive should rotate and "tick" for about half a minute, then stop.

Try to duplicate your DOS disc on to the new disc following the instructions in the manual.

Now try to boot-up your new disc. If this doesn't work, take your drive back to your dealer as it may well be faulty.

Magic formula

RAMM read the letter in the September issue by S.G. Pass, who complained about the lack of the Fan function. I would like to complain about the lack of the ACS (anti-rattle) and the ASH (anti-static) function.

The good news though, is that I consulted a friend of mine who gave me the following formula:

$ASN = (ATN \times (1 + (5 - \pi) \cos(190 - \alpha - ASN))) \div \pi$

where $\alpha = 0.1$.

Note that ATN is already in the computer.

I hope that some readers will find these useful. - **Wall Teufels, Handsworth Wood, Birmingham.**

Checking checksum

I HAVE a problem with **Cavern Escape**. When I try to hit "C" it is tape to checksum it, it's all right for the first column of checksum numbers.

Then the machine it makes when it is saved and played get

very low and the checksum program says it is finished.

Is it my recorder or have I mislaid everything up somewhere?

Also, how can I stop the checksums going off the screen as soon as the disc lines are printed up? - **Sarah Houghton, Milnes Kaynes, Rucks.**

■ It sounds to us as though the tape has not been LISTED properly. Make sure that you are following the instructions to the letter.

If that is not the problem, it could be a mistake in your typing of the Get it Right! program, or a fault in the recorder.

You can use Controls 1 to start and stop the listing at will, or type in the extra lines we printed in the October 1988 Mailbag.

Shedding new light

I READ in the September mailing that you can get a light pen for £16.50 with software, but do you need special software to use a light pen?

I have a joystick operated drawing program and I wondered if I could use a light pen with this?

Could you also tell me if there is a drum synthesiser available on cassette? - **A. Patterson, Basingstoke, Hants.**

■ A light pen functions very

differently from a joystick or a touch tablet, and so needs special software.

Your normal joystick-based drawing programs will not work with a light pen, so it's a good idea to make sure that software is provided if you are thinking of buying one.

3 Bit Systems in Dorset, Dorchester, do a drum synthesiser called **Glidrum** on tape or disc which features real digitised drum sounds.

Hair restorer

I WAS typing in **Penne Butler** from the September issue of Atari User and it was getting late so at the 3540 I stopped and saved it to tape.

Then I loaded Get it Right! and off the checksum, I was pleased to find I had only made two slips so I tried to load the program back in but I kept an getting error 143 at line 0.

I am using an 800XL and a 400 tape recorder and I heard something about if I typed LPRINT it would clear the head buffers so I tried it and still got error 143.

Could you tell me if there is any way of retrieving the program as I am pulling my hair out? - **A. Miah, Frinton.**

■ The LPRINT trick is only applicable to the old 400/500 machines, and in any case must be done before SAVING, not before loading.

It sounds as though your

tape has not saved correctly and there is no way to recover it if this is the case.

Try loading the program back from the LISTED version you saved with the checksum. First type NEW, then use ENTER "C" to load it back in again.

Cassettes and copyright

I AM thinking of buying the 1080 disc drive, but also I received my 800XL I have been a cassette user, so all my programs and games are on cassettes.

Would I be able to transfer my cassette games to disc, that is, of course, making sure that I wouldn't infringe the copyright? - **Karl Westerdale, Winsford, Cheshire.**

■ The problem is that you would actually be doing just that! In your case you have bought the cassette games and now want to transfer them to disc for your own use.

This is a fair enough aim, and one that software companies would not object to.

However, if they made their tapes so that this sort of transfer was easy then they would also be encouraging the pirates to do the same, so most commercial tapes are protected against this sort of copying.

There are programs which claim to copy a cassette game to disc, but we rather doubt their effectiveness on the more recent protection methods, and you would probably be wasting your money.

Faulty keyboard

MY 800XL keyboard has gone wrong. The semi-cable key seems jammed because it constantly repeats after any key is pressed.

Is this due to the Revision B Basic, because I tried the test in your March issue and the answer was YES?

Will the Rambo program fix

the July issue were this long?
With regard to the solution of the Play key on the 1000 data recorder I glad the key does together again using superglue.

Then, knowing the repair job would not last very long under constant use I swapped it with the pause key. — **James Ryan, Southampton.**

■ This sounds more like a fault repaired than a Basic problem. There are no known bugs that behave like that, so you'd be better off taking it back to your dealer for repair.

Printer programs

I AM amazed by the numerous letters condemning the apparent lack of software for the Atari 1000 printer. It is true that the Printpage program will not work but most others, up with only slight differences.

I have two screen dumps (Micro-Painter and Touch-Tek) and about four other programs which work fine.

Superwriter has a built-in printer driver for the 1000 and Rubber Stamp, Paperwriter and so on will all work if the saved screen is printed using a separate screen dump.

Using these utilities, fonts of all styles and sizes can be obtained and also most graphics (acceptable). — **Alan Whalley, Buckle, Bedfordshire.**

High scoring

IN Bruce Lee, third screen, for an unbelievably high score wait at the bottom of the screen for both the enemy. Climb up the rigging about five minutes then fall off (by moving joystick left or right).

Quickly try to grab the rigging. If you have done it right you should be stuck in an endless loop of trying to fall and trying to hold on.

If you get the enemy underneath you they will not be able to touch you, but you

I AM trying to sustain a DOS 2.0 on my own working and extra functions are installed.

I have written a small program to read in and POKE the new values (location 16385 decimal, or hexadecimal) into memory.

Whenever I check that these values are in memory, using the memory monitor published in a past issue, they are all there and the Atari values are also correct.

When I call up DOS 2.0 the old values are there, but when I return to Basic and call up the monitor, my values are the same ones which I have POKE'd.

Is there something that I have missed, or is there a checkroom which stores the values and then converts them back?

Another problem arises when I use the Micropanel utility program. This file loads in Paint picture files to the screen, in the top left. Should

avoid the stuffing out of them. — **S.R. Suggie, Mansfield, Notts.**

Emulating the others

MY son would like to know if it is possible to buy an emulator for the BBC Micro and/or Spectrum computers. If so, is it possible to load and save Basic programs for these computers on the Atari 1000?

Finally, can we obtain Cobot (on or disc) for the Atari? Any idea how much these would cost? — **P.B. Jakubovic, Leeds.**

■ There are no BBC Micro or Spectrum emulators (apart the thought...) for the Atari 1000.

If you want a more advanced version of Basic look no further than Basic XL, from OSA. Contact one of the big mail order companies for

this happen?

An additional problem is that I am writing a DOS-type utility program and one of the systems is to go to DOS. This program is heavily protected, and I wish to keep it that way, but when I return from DOS it leaves the year in Basic, which I do not want.

Are there some POKE's which will allow DOS to jump back to the start of my Basic-machine code program?

— **Barry Finlayson, Garforth, Co. Ayr.**

■ Your problem is being caused by the fact that there are two parts to the DOS system.

The first, DOS.SYS, is held in memory permanently, taking up about 5k. The second part, DUP.SYS, is only loaded in when you type DOS, and contains all of the menu system.

This means that every time you type DOS all of your POKE'd corrections are being

overwritten as DUP.SYS is loaded into ram again.

If you want to edit the menu or editing the file DUP.SYS rather than POKE-ing into memory, be careful not to increase the length of the lines, or the machine code may be corrupted.

A Paint picture is in Graphics 7, and a Micropanel picture in Graphics 15.

As the only difference between the two is that Mode 7 pixels are twice the height of mode 15 ones, the screen memory for a mode 15 screen is twice as large as that for Mode 7.

So when you load a Mode 7 screen dump into a mode 15 display it only fills the top half.

There is no easy way of making a Basic program to run from the DOS menu, but why not stick out the DOS menu completely and use XIO commands from Basic instead? Nearly all DOS functions can be simulated in this way.

information.

If you want to run BBC Micro or Spectrum games on the Atari, then the only solution is to write to the software houses concerned and push them into having Atari conversions written.

There is really no point in trying to implement Cobot on a 48 or 64k system, and there are not yet enough 128Kbs available to make it practical to write one for the 128k Atari.

Basically, Cobot was written with large mainframes in mind and is an extremely inefficient language at the best of times — and a waste of time and money at the worst.

You would be much better off buying a more micro-oriented language such as Action!

Coldstarts and Resets

PLEASE could you tell me the

POKE command to switch the computer off and back on again? Also the command to do the system reset? — **Simon O'Hara, Skipton, Leeds.**

■ Actually, it's not quite that simple. There is no POKE to turn the computer off — although there is a little switch at the back!

You can do what is called a coldstart, which means that the computer will clear everything from memory and start up again as though it had been turned off and back on again. This can be achieved by using:

A = US\$000000

Don't forget to save your program first, because it will be wiped out. You can make System Reset do the same thing by typing:

POKE 500,1

We printed some other methods for handling the System Reset button in the August 1985 Atari User. These allow you to re-run the program when Reset is pushed.

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