ØRIC USER MONTHLY

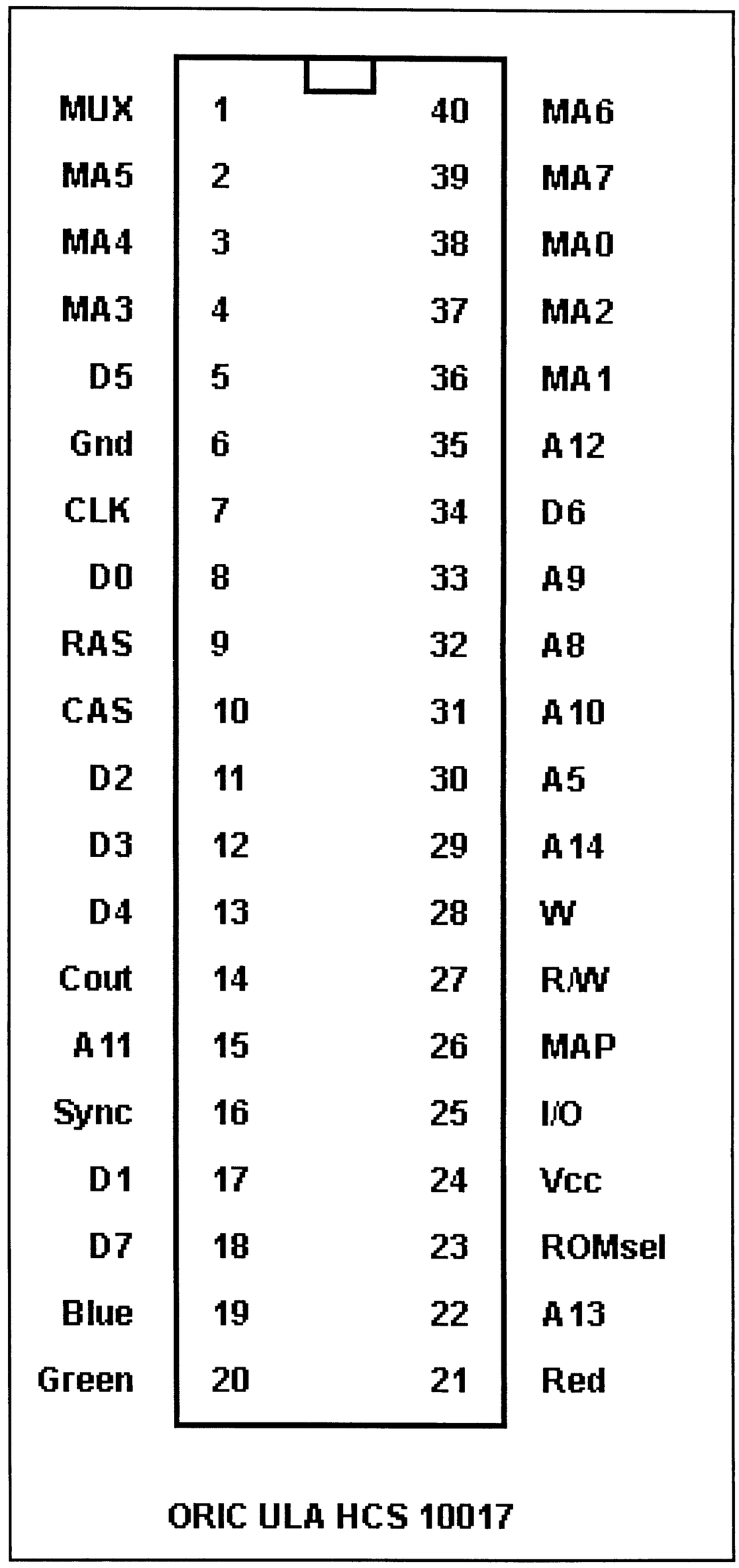
with Alternative Micros

Number 106

June 1996

Keeping the Oric alive

The ULA - what is it?



MUX	1	40	MA6
MA5	2	39	MA7
MA4	3	38	MA0
MA3	4	37	MA2
D5	5	36	MA1
Gnd	6	35	A12
CLK	7	34	D6
D0	8	33	A9
RAS	9	32	A8
CAS	10	31	A10
D2	11	30	A5
D3	12	29	A14
D4	13	28	W
Cout	14	27	R/W
A11	15	26	MAP
Sync	16	25	I/O
D1	17	24	Vcc
D7	18	23	ROMsel
Blue	19	22	A13
Green	20	21	Red

ORIC ULA HCS 10017

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The Editorial

HELLO AND WELCOME ONCE MORE,

TO ORIC USER MONTHLY.

AS I AM ABOUT TO GO TO PRINT (MAY 30th), I AM STILL TRYING TO DECIDE WHEN TO HALT WORK ON THIS EDITION. DO I SEND OUT THE 26 PAGES I ALREADY HAVE, OR DO I KEEP PLUGGING AWAY. TIME WILL BE THE DECIDER, AND SO IF THERE IS SOMETHING NOT HERE THAT I HAVE PROMISED, THEN PLEASE BE SURE IT WILL BE IN NEXT MONTH'S ISSUE.

I WANT TO GIVE YOU A TOUR OF 'EUPHORIC'; I WANT TO REVIEW CHRIS DALBY'S DISK ; I WANT TO INCLUDE RON KEY'S ARTICLE. WHAT YOU SEE IS WHAT YOU GET!

I HAVE NOT HAD TIME TO FIND OUT THE PROBLEM WITH MY ATMOS SYSTEM, AND THEREFORE NO O.U.M DISK - SORRY!

NOW SIT BACK,RELAX,AND HAVE A GOOD READ.

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RETURNING TO THE FOLD?

ON THE TELEPHONE RECENTLY HAVE BEEN A COUPLE OF ORIC NAMES FROM THE PAST. PETE CANNING FROM HITCHIN IS NOW A PC OWNER - THE EMULATOR IS ON ITS WAY TO HIM, AND WE MAY EVEN MEET UP WITH HIM AGAIN AT AYLESBURY. ALSO NOW A PC OWNER IS BLACKPOOL BASED DAVID HALL. HIS TEAM OF 3 STILL MEET UP ON A TUESDAY EVENING. I'M SURE THEY WILL FIND THE EMULATOR OF INTEREST, AND DAVID IS EVEN THINKING OF RE-SUBSCRIBING TO O.U.M. HE HAS ALSO PROMISED TO SEND ME SOME OLD ORIC GOODIES, SOME OF WHICH MAY BE NEW TO US ALL.

NEWS ..... NEWS.... NEWS

MIDI INTERFACE

REGARDING TREVOR SHAW'S MIDI INTERFACE, I HAVE HAD THE FOLLOWING COMMUNICATION FROM FABRICE FRANCES:

" I HAVE TALKED WITH CLAUDE SITTLER ABOUT REVOR'S MIDI INTERFACE, AND HE HAS TOLD ME ABOUT SOMEONE WHO USED HIS ORIC FOR MIDI MUSIC QUITE A LONG TIME BEFORE SWITCHING TO ATARI. I HAVE NO DETAILS ABOUT TREVOR'S DESIGN UNFORTUNATELY, BUT IF IT IS USING A 6551 ACIA, THE TWO INTERFACES MAY HAVE SIMILARITIES. SO, CLAUDE HAS SENT ME THE MIDI SOFTWARE HE WROTE AND I HAVE FORWARDED IT TO JONATHAN BRISTOW WITHOUT DELAY. I HOPE THIS MAY SAVE HIM A LOT OF CODING".

NOTE FROM THE EDITOR: JONATHAN HAS NOW PASSED THE SOFTWARE ON TO TREVOR.

WHAT ELSE IS FABRICE UP TO?

FABRICE IS CURRENTLY WORKING ON AN EASIER WAY TO TRANSFER ORIC TAPES TO PC, AND WRITING BACK TAPES WITH A SOUNDCARD. EUPHORIC 0.97 HAS NOW REACHED THE STATUS OF A REAL-TIME ORIC HARDWARE SIMULATOR, WITH THE EMULATION OF THE TAPE ELECTRONICS. THIS ALLOWS IT TO WRITE TAPE IMAGES TAHT ARE EASILY WRITTEN TO REAL TAPES USING ANY 'WAV' PLAYER. HOWEVER, FABRICE HAS FIGURED OUT THAT THE FEW 'WAV' PLAYERS HE HAS TRIED FOR NOW, INTRODUCE BAD SAMPLES FROM TIME TO TIME (THIS CANNOT BE HEARD BY HUMANS, BUT THE ORIC DOESN'T LIKE IT A LOT: WELCOME BACK TO THE "ERRORS FOUND" MESSAGE). THERE ARE SO MANY 'WAV' PLAYERS EVERYWHERE. FABRICE WOULD HATE TO WRITE HIS OWN ONE. VAGGELIS BLATHIAS HAS JOINED FABRICE TO MAKE THE 'READTAPE' UTILITY BETTER, AND THEY HOPE SOON TO BE ABLE TO READ ANY TAPE WITH IT.

FABRICE IS ALSO WORKING ON THE PORT OF THE TELESTRAT'S SYSTEM SOFTWARE (TELEMON & HYPERBASIC) TO THE ATMOS. HE THINKS THIS SUPERIOR 'BASIC' SHOULD BE MORE KNOWN AMONG ORIC USERS.

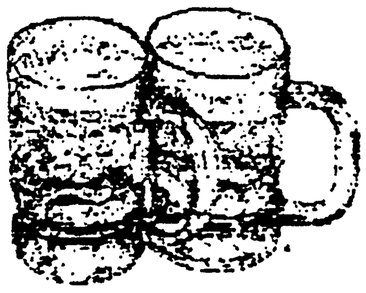
AYLESBURY ORIC MEET

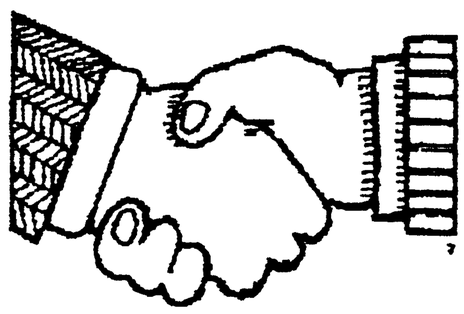
DON'T FORGET TO GET YOUR TICKETS FOR THE AYLESBURY ORIC MEET ON SATURDAY JULY 20th. YOU KNOW THE PRICE & THE VENUE. WE HAVE BEEN ADVERTISING FOR MONTHS NOW.

FOR THOSE NOT COMING - DON'T FORGET YOUR RAFFLE TICKETS AT £1 EACH.

INSTRUCTIONS FOR GETTING TO THE MEET IN THE NEXT OUM. ALL TICKETS HAVE BEEN SENT OUT FOR THOSE EARLY BIRDS.

INVITATION





Cooking Up More Ideas

It is a pity, although not altogether unexpected, that the relatively obscure Ohio Scientific Instruments' computers did not get a mention in the recent series about 8-bit machines, because their Challenger 1P provided me with my first experience of home computing back in 1980. Originally called the Superboard, it was available in kit form before then, and probably owes its existence to the success of more expensive machines like the Apple and Commodore PET. It had a 48 columns x 32 lines screen, and the 256 characters were based on an 8 x 8 matrix. The usual ASCII set was there, and the rest were graphics, although these were not programmable and there was no high resolution on board. Expansion to disk was possible, but even in those days I could see better machines on the horizon, and it was not worth the considerable expense necessary to upgrade. The Basic was only 8 kilobytes, but running on a 2 MHz 6502 made it fast enough for me to program a simple Breakout game (using a capital 'O' as the ball!). 8K of RAM was provided, although this could be expanded by putting another board in the case, and colour graphics could be added at the same time. There were no ports except a phono plug for the cassette recorder, nor were there any holes in the metal case to fit sockets; in those days, hackers did their thing with tinplate cutters and soldering irons.

There were no games available for the Superboard that I can remember, and the two supplied with the machine simply did not work - but then I had bought a modified version of the computer, with an on-screen editor. This was the only really advanced feature of the machine, and was easier to use than even the Oric's excellent editor. What the C1P provided on-screen was an additional cursor, a white square just like the Oric's cursor. It could be moved around the screen using CTRL-keys, without affecting the position of the main cursor (the underline character, which does not appear on the Oric's keyboard. [I could never understand the underline character being at the bottom of the character square on computers like it is on typewriters, when it could not coincide with a character to provide the underline. Surely the underline character should be at the top of the square and be used on the line below the text, to effect underlining? But I digress...]). Anyway, to edit a line of Basic, one simply placed the edit cursor over the line and used a CTRL-key to copy the line. The edit cursor moved automatically over the text and the main cursor moved at the same time, printing the results of the copy on the screen. The main cursor did not move at other times during an edit, except when text was being typed in to change the copied line, so you could always see the results of the editing on screen, and any mistakes would immediately show up. Compare that to the Oric's editor, which requires that you memorise which parts of the line were copied and which merely moved over, and which you then have to LIST to see whether the line is what you were trying to obtain.

Unfortunately, I gave away this machine long ago, as the keyboard had failed and other, more interesting, machines such as the Oric were being born. It would have been kept in the attic if I had known there were so many 8-bit enthusiasts around, but I still have some copies of the OSI/UK User Group Newsletter which I can pass on to any interested person who wants to preserve them: they are part of history!

* * *

Some readers may be concerned that changes which are being made to the Oric family of computers may alienate those users who cannot afford to upgrade. But improvements on offer do not oblige everyone to take part; they are natural developments both to the machine and of the people using it. We may devise a better operating system or graphics, but that will not prevent others from using the machine in its original configuration. Things would be different if we were a commercial company; we would have to ensure sales to keep the company solvent, and with such a small market, everyone would have to upgrade to cover the costs

of development. But we are a non-profit making organisation dedicated to the use and progress of the Oric machines, a process which results in personal development too, as we learn to do things we could not do before, at least, not with an Oric computer. Some of our personal efforts will go unappreciated, because there are too few of us to encompass a wide spread of interests, but that does not stop us from sharing our results with others in these pages or the pages of CEO-Mag. I'm sure that the details of Jon's monthly ramble through the ROM are beyond many of us (myself included), but I still read it avidly for several reasons: it casts some light on the logical processes available in programming, it is part of the whole computer experience, it lets me know that there is a process going on which I was unaware of before, and who knows, I may want to copy a routine one day, modify it, and CALL it from a Basic program.

No, I do not feel left behind by things I cannot immediately understand, nor should others feel left behind by changes to the Oric's internal architecture and capabilities. Sedoric V3 may be better for users, but we still have to use Oric Dos or a tape recorder when playing some games, because it is unnecessary (or impossible) to convert them to a new DOS. One sure way of losing readers, contributors and developers is for the machine to stand still; people will jump off and catch the next wave of PC development!

Well, the call has gone out (by one, Peter Bragg), for answers to the universal question: Now I have a computer, what do I want to use it for? (And that applies equally to other computers than the Oric.) Here's a list of general categories; see if I miss anything out:

1. Personal development. Basically, we want to learn, whether it is self-teaching through programming and circuit design, or learning facts and techniques through a purchased piece of software.
2. Have fun; relax. Games to test our reflexes or intelligence, or help take our minds off the day's troubles.
3. Socialise. Write or read articles like this; develop software and hardware for others to enjoy.
4. Work. Use a wordprocessor, a planner, an accounts manager, or a database.
5. Create. Use an art or design package, make music, put a program together, attach a circuit.
6. Explore. Just to satisfy curiosity; read about our computer, peek at the memory as the contents are shuffled around, put a program through its paces, surf the Net.
7. Make money: not much chance with the Oric, but you never know...

Okay, those are the general categories: what about specific uses? Like some others with creative urges, I am somewhat shy about revealing what I will be working on when resuming activities later this year. One reason is that I am never really sure what ideas will develop from my many interests, because the unexpected direction of work which occasionally results from browsing through possibilities, captures the imagination as you begin breaking new ground, turning a tedious task into addictive fun. So I cannot promise results on any particular project, even if very worthwhile, thus risking disappointing others who may have been looking forward to playing a particular game or whatever. Unless, of course, it was a collaborative venture, and then the social rewards kick into effect, and provide the extra motivation necessary to counteract the negative aspects of spending days hunched over a notebook or keyboard. There is also something rather private about programming, an embarrassment about revealing too much too early. You look back at some rather naff ideas, and want to present your work with a touch of polish and professionalism, whether it's just a snippet of code or a major utility.

I'd like to throw the following list of my planned projects open, and invite comments, help, or even a complete takeover on any of them. They are all things I would like to do on the Oric, (given enough time and energy), either as recreation, or to improve the machine's capabilities for general use.

A: Crossword compiler. This should allow the Oric user to make up crosswords on the screen, by providing options for spaces or letters, and then printing all the words that are formed. Any words that are wrong will be seen in the listing, and can be corrected until the full list is okay. Finally, the list of words can be replaced by a list of clues, and the blank crossword printed out with the clues.

B: Compression of graphics. I would like to learn methods of doing this, to reduce the size of graphics files for disk storage, and to enable animation. This probably means reading about methods being used by the digital recording and transmission industries, but only after trying a few binary logic routines of my own. The Oric's processor is probably too slow for anything really sophisticated. This could be a wild goose chase, but part of the fun is finding out!

C: Cellular Automata. These little bundles of pixels can be endowed with various lifelike characteristics, such as moving around the screen to catch other 'creatures' for food or reproduction. You build little communities, and see what happens. Pathetic, isn't it?

D: I would also like to have a go at compression of Denis Bonfield's sound samples, to fit longer sounds within the machine's RAM. It looks like there is an unused possibility of creating lifelike sounds using the three sound and one noise channels of the Oric's own sound chip, and frequency-modulating these with the envelope parameters to match a sound sample. How? No idea at present, but it probably involves getting some Bonfield-sampled versions of the Oric's own sounds to analyse by some, as yet unknown, mathematical technique. It's another form of compression, and a factor of 10 is not out of the question, which would open up the field considerably. (Talking programs, hundreds of sound effects, compilation albums on disk, etc.)

E: Music programs - it's easy to tap your foot to a beat, and timing is possible on the Oric, so why not tap a key instead and display the result as a series of dots on the Hires screen? Then the timing can be corrected automatically and the rhythm re-played using the noise generator of the sound chip. Editing could then be made possible, including addition of notes on-screen as dots or lines according to length, using crude staves. No musical notation need be used, nor any numerical systems. (This may annoy the musical purists, but it would encourage creativity from the musically untutored, without giving the excessive assistance that some music programs provide.)

F: As a keen chemist, I would like to design a practical chemistry program which would show simulated experiments on-screen. This obviously requires animation skills, and a very extensive, versatile, database.

G: I've designed a proportional spacing character set for the Hires screen, and it would be fun to use it for a Graphical User Interface to replace some of the more laborious typing of certain Sedoric functions. (No, not a copy of Windows, especially because some of the 'habits' PCs have drive me barmy. Like the flashing cursor which is invisible half the time it is moving over text. How the hell are

you supposed to know where it is? Don't those twits know you can turn off the cursor flash when it is being moved?)

* * *

It is some time since I used Oric Dos, but John Hurley's article about disk corruption reminded me about a similar problem I used to have. On re-using a disk several times and trying to save a file, the 'Insufficient Disk Space' message was often given, even though the directory showed there was sufficient space for the file. I once made the mistake of ignoring the message, thus corrupting the system and making the disk unusable. Before the days of being aware of the user groups, I was a lone Oric programmer, and so lost all the files on that disk. So for future eventualities, I formatted a disk and called it 'Cleanup', and whenever I got that dreaded message I immediately copied all of the files onto this new disk. I did not use Backup, assuming this to merely copy all of the disk contents, including any corrupted files, onto the new disk; I used COPY "*.*" TO 1. The corrupted disk could then be formatted, destroying all information on it, and the Cleanup disk copied back onto it.

* * *

When the BBC start regularly using phrases such as "There are a number of incidents...", you know the battle for the English Language as we were taught it in school, Frank, is already lost. (We don't say, "There are a flock of sheep", do we?) The inconsistencies of spelling and pronunciation are a powerful signal to the young, to take no notice of rules which are purely arbitrary, or obscurely historical, when using their native tongue. Dough, cough, rough, bough, brought may be perfectly correct, but they are scarcely more than letter assemblages, which we are supposed to remember the shape of, which reduces the written word to nothing more than a picture of the spoken word. Consequently, when people decide to try a new Christian name, there is nothing to stop them writing it, for example, as Mica, and then pronouncing it Meesha. Some poor mineralogist who is quite familiar with 'my-ka' as a soft, lustrous mineral has to be forgiven for assuming that an attractive female pop singer would want to be named after this material, and has to suffer howls of derisive laughter on mis-pronouncing the name, even though there is nothing in the language that allows such a sound from that spelling. The same can be said of other spellings, 'borrowed' from other languages with different alphabets but spoken in the same way as the original language, sometimes with great difficulty, and almost certainly inaccurately. Once we change the alphabet to our own, we may as well change the spelling, too, and at least give people a chance to say a name properly. Some East European names we have adopted for our own language do not even have vowels in...I mean, come on! No, we can expect the English language to suffer increasingly from its current degradations in all the abuse it gets from 'official' sources. Perhaps it is a victim of its own success, with so many soap operas spreading their message of conformity to a deformity. We will just have to go on analysing these square-wheeled sentences for the little meaning they usually contain, waiting gleefully for 'the Big One', that Great Grammatical Misunderstanding which is sure to occur one day, leaving red faces in High Places. So why do I still get irritated when I see an American spelling, and yet knowingly use dodgy grammar?...yes, I'm just as illogical and inconsistent as everyone else. Try saying "...letter assemblages, of which we are supposed to remember the shape..", instead of the incorrect way I phrased it previously, in a pub in Essex, and see what kind of looks you get!

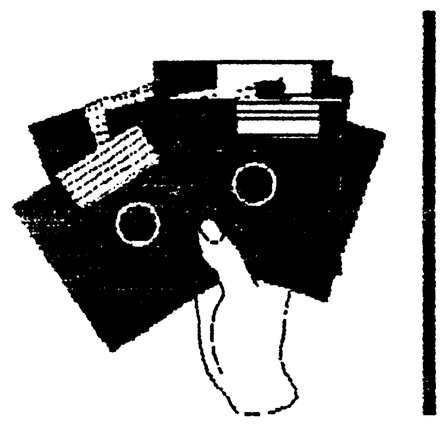
* * *

Researchers of the paranormal will be beating a path to Peter Bragg's door if he really has found a way of increasing the odds of selecting winning numbers in the National Lottery draw. If you look at what the balls actually are, you will quickly realise that the symbols (the numbers painted on them) are purely

arbitrary, and could be anything from Romanian surnames to Eskimo words for snow. The arithmetical significance of the numbers is an illusion, and so there is no point in using them in calculations. On the other hand.....there is some slender evidence, gathered under well-controlled laboratory conditions, for telekinesis (mind-over-matter). In which case it would be more worthwhile to plot the mental trends of the (25 million??) players, weekly since the Lottery began. This could be based on whether their combined psychokinetic influence is positive (1) or negative (0), and would have to be calculated from the amounts of winning lines claimed each week and the actual numbers they scored with (similar to Pete's method). Also, the 13,983,816 possible combinations of 6 numbers out of 49 can be represented by the binary number 110101010110000001001000. To win, all you have to do is assign a particular set of 6 numbers to a binary code, and correlate the winning codes with the bets of the players and their influence. Something like that, anyway... .

Happy computing!

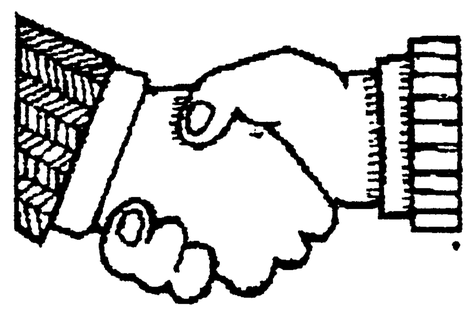
Colin



From ORIC to PC

On page 5 of the May issue of OUM, we printed a letter from Colin Bradford, which summarised what was needed to transfer data from an Oric system on 3" to a PC on 3.5" and to use the data.

On the next three pages we re-produce the method used.



DOWN LOADING DATA FROM AN ORIC TO A PERSONAL COMPUTER

1. SERIAL TO PARALLEL CONVERTER

Firstly you will require an Inmac bi-directional Serial to Parallel converter, product code 805005, Revision N, cost about £75

1.1 DIP Switch Settings

1	=	Down	(On)	} Selects Baud Rate of 19200
2	=	Down	(On)	}
3	=	Down	(On)	}
4	=	Down	(On)	} Sets Parity to none
5	=	Down	(On)	}
6	=	Up	(Off)	} Sets word length set to 8 bits
7	=	Down	(On)	} Selects 1 stop bit
8	=	Down	(On)	} Selects Xon
9	=	Up	(Off)	} Sets test pattern to off
10	=	Down	(On)	} Sets conversion to Parallel to Serial

2. CONNECTION LEADS

2.1 Attach a Female to Female 36 pin centronics adapter on to the end of the Oric printer cable.

2.2 Attach the input of Serial to Parallel converter on to the end of 2.1.

2.3 Attach one end of a lead with a 25 pin male D plug on both ends into the output of Serial to Parallel converter.

2.4 Attach a serial Null Modem cable with a 25 pin female D plug on both ends into 2.3.

2.5 The other end of the Null Modem cable plugs into the serial port of the PC. The Null Modem cable may also have 9 pin plugs, which one used is dependent on the PC. Null Modem cables are NOT straight through cables like printer cables, they reverse the transmit and receive wires. This is so that Oric will transmit data to a receive input on the PC.

2.6 The above cables and adapters will cost about £30.

3. DOWN LOADING DATA

3.1 Running Program

This requires a modern PC which can Microsoft Windows. Additionally, some instructions are for use with the Microsoft Office programs, i.e. Word and Excel.

Run the Program TERMINAL.EXE from windows, in windows 3.1x it appears in one of the default windows (I'm not sure which), i.e. Accessories. TERMINAL.EXE is not available on Windows 95 and therefore must be copied from a machine with Windows 3.1x.

3.2 Program Settings

The following are the settings to be used with the TERMINAL.EXE program. Select SETTINGS from the menu, then select COMMUNICATIONS.

Select the following , then press OK.

Baud	=	19200
Data Bits	=	8
Stop Bits	=	1
Parity	=	None
Flow Control	=	Xon/Xoff
Connector	=	COM 2 (or which one you are using)

These settings can be saved using the FILE option and will be saved as a '.TRM' file.
This file will have to be opened next time you run the program if you want to use these settings again.

3.3 Receiving Data

Select TRANSFER from the menu, then select RECEIVE TEXT FILE.
It will now ask for a filename, select a directory and type in a filename with the extension '.TXT'.
The PC is now waiting to receive the data from the Oric.

Have an Oric program that will LPRINT all the data you want.
To generate columns of data for a spreadsheet, then LPRINT a comma or a semi-colon, i.e. CHR$(44) or CHR$(59) between the relevant pieces of data. The carriage return, CHR$(13) at the end of each line will move you onto the next row in the spreadsheet.
The data can also be aligned using spaces.
Don't use commas or semi-colons for aligning data in a word processor document, as it will 'mis-interpret' the commas and semi-colons you are using for punctuation.

The data will be displayed on the screen as it is received. Once this is complete select TRANSFER, then STOP and the data will be saved to the file you typed in earlier.

You can now leave TERMINAL.EXE go to MS Word or MS Excel.

3.4 Converting The Data Into A Spreadsheet File

Select FILE, OPEN from MS Excel.
Select file type to 'Text Files'.
Open appropriate file.

Select delimited if you have used commas or semi-colons to separate the data.
Select Fixed if you have used spaces.

If Delimited was selected, then chose the delimiter you used, e.g. comma.
If Fixed was selected, then grab and drag the column markers until they separate the data the way you want it.
You can now specify what type of data appears in each column, you can ignore this now and sort it out later, therefore select Finish.

The data will now appear on screen. Immediately select FILE, SAVE AS, then select Excel Worksheet and save the file. This ensures the original down loaded file is not unintentionally modified, as you could reload the text file to trying different options.

Edit the data until it is in the form you want and then re-save.

3.4 Converting The Data Into A Word Processor Document

Select FILE, OPEN from MS Word.
Select file type to 'Text Files'.
Open appropriate file.

Immediately select FILE, SAVE AS, then select Word Document and save the file. This ensures the original down loaded file is not unintentionally modified.

The file will have to be edited, generally by removing most of the carriage returns at the end of each line. Re-save the data when it is in the correct format.

IN THE NEXT ISSUE

WHAT HAVE WE PLANNED FOR THE JULY ISSUE ? ALL MANNER OF THINGS - BUT I'M NOT TELLING!

THERE WILL BE FEATURES FROM JON,RON,PETER,BRIAN,STEVE & FRANK, PLUS SOME SPECIAL SURPRISES. ARTICLES FOR INCLUSION IN THE JULY ISSUE SHOULD BE WITH ME BY JUNE 24th AT LATEST PLEASE!!

THERE WILL BE NO AUGUST ISSUE OF O.U.M, AS I WILL BE SOAKING UP THE SUN IN CORNWALL. THERE WILL BE A DOUBLE ISSUE FOR SEPTEMBER.

Splitting a bit in two parts...(part 1)

A lot has been said and written about the problems plagging the oric tape system. Sure, there are some bugs, but none of them makes tapes unusable as some "well informed" people said. Personnally, I have used tapes many years, and still find they are reliable. Of course, some problems arise when using different tape recorders (loading with a tape player something written with another tape recorder), but once you keep a small screwdriver to adjust the head (not *your* head ... it reminds me Vaggelis Blathras from Greece was telling me he used to clean his head with alcohol, ahem... :-) , you can read every tape. Perhaps a good policy would have been to use one recorder for one's programs, without ever adjusting the head, and a second recorder devoted to "external" tapes: commercial programs, friend's ones...

Anyway, I think many people have read some rom disassembly around tape routines, so I will not show a single line of code this time and try to get a reputation of bit-splitter by explaining the internal working of these tape routines and what you get on the tape (ok, I vow... no code).

So, as you already know, the Oric can save *FAST* at 2400 bauds, this is what we read in manuals. However, don't mistake bauds for "bits per second". If the Oric could save 2400 bits per second, you would only need about 27 seconds to save an hires screen and 1'50" for a big 32 KB program. In fact, two factors make it for a longer time : first, eight bits in your program result in more than eight bits written to tape, and second, one bit written to the tape results in more than 1/2400 s of time. Let's see the first factor because it is handled in the same way for both SLOW and FAST mode. Every byte of the program to save is formatted as follows:

0	b0	b1	b2	b3	b4	b5	b6	b7	p	1	1	1

like in serial communications, you see:

- one start bit (a 0)
- eight data bits (least significant bit sent first)
- an odd-parity bit (i.e. when summing the data bits and the parity bit, an odd number of '1' bits is transmitted)
- stop bits (three 1's)

This already makes 13 bits for a single byte, and each of these bits has to be written as a wave on tape. Here we split the discussion between SLOW and FAST mode.

SLOW mode is nicer to look at, but as you might not expect (you have surely heard about a speed of 300 bauds in this mode), you won't get 300 Hz waves on the tape : instead, you get either a 1200 Hz wave or a 2400 Hz wave. Here is how a '0' bit looks like when it is output by the oric in slow mode:

yes, four periods at 1200 Hz ! And here is a '1' bit:

you count right: eight periods at 2400 Hz !
Note that both these waves last 1/300 s, that's why people talk about the 300 baud speed in SLOW mode.

Now, let's look at the output in FAST mode. A '1' bit is a nice 2400 Hz period:

but a '0' bit is a sort of bastard:

i.e half a 2400 Hz period first, then half a 1200 Hz period. "What ?", you said, "0's and 1's don't last the same ?". Right, haven't you ever noticed saving a block of nul bytes takes more time than a block of bytes filled with #FF values ? The conclusion is the oric doesn't save and load at 2400 bauds in FAST mode : depending on the number of 1's and 0's, the speed

will vary between 1600 and 2400 bauds. The worst case, as said before, when you save a byte filled with 0's, leads to nine '0' bits (start and data), and four '1' bits (parity and stop), that is 9/1600 + 4/2400 = 35/4800 seconds instead of 8/2400s you could have hoped before reading this (actually, it's even worse due to a bug: 18/2400, more on this later). So, your nice 32 KB program we spoke about at the beginning (filled with 0's ... huh?) now requires 32K x 18 / 2400 = 4'05" ... Ouch! (32K x 14 / 2400 = 3'11" for the same "program" filled with 1's)

Some of you may ask why Tangerine's engineers did not choose a faster speed, say 4800 bauds ? Don't blame them, have you ever looked at the signal rendered by your tape recorder ? You send it nice rectangular waves and it returns you awful distorsed sinusoidal-like waves ! A 2400 Hz wave is already a very high frequency (something like a B6 key), tapes don't like it very much. Also, you may ask why they didn't choose a symetric 1600 Hz period to represent the '0' bit ... just commodity, in my opinion : they already had the code to produce half a 2400 Hz period and half a 1200 Hz period, which is common to SLOW and FAST modes. So, at last, why didn't they just use half a 1200 Hz period for this '0' bit ? For code re-use again, they didn't : when loading tapes, the low-level routine detects positive edges only (0 to 1 signal transitions) and the elapsed time between two positive edges serve to determine if a '0' or a '1' bit has been heard: if it looks like

, it is a 1. If it is longer,

in fast mode, or

in slow mode (4 times), it is a 0.

However, something funny with their choice, is the scheme is more robust against bugs ... I'm not talking about tape errors here, but bugs in the rom routines... For example, they wrote without errors the code to output a bit, but then forgot how the routine worked (the next duration of a tape level is programmed through a VIA timer, before this level really starts) and they short-circuited this routine at the entry of the "write-byte" routine (they asked to wait for a timer countdown). As a result, there is an extra half period after each byte ! This is a big discovery from Tangerine's engineers, they found a way to solve our title's poser, writing 13 bits and half onto the tape in FAST mode (and even 13 bits and 1/4 or 1/8 in SLOW mode).

Remember the read routines detect only positive edges... and this nasty hobbit inverses the output of the next byte ! Every odd byte is inversed (or every even byte, whatever you like best...), that is, a '1' in such bytes is produced like this:

and a '0' (in FAST mode) like this:

Oh God, how will our hero read these inversed patterns ? What a suspense !
Well.... see you next month 8-))

— FABRICE FRANCES

READERS LETTERS

DEAR DAVE,

Although I have been a completely inactive ORIC user for the past year or two, I would just like to say taht I still enjoy reading each issue when it arrives, and keeping up with the latest Oric news. Keep up the good work!

Like yourself I have just purchased a shiny new Pentium PC and I fully intend to use it to get back to Oric matters by using Euphoric. It's so long since I used my Oric I shall probably have to teach myself BASIC all over again from scratch! Despite the major advances in computing technology since the Oric appeared on the scene, I really miss 'simple to play' games. Nowadays it seems that to play a computer game you have to read a hefty instruction manual first,and then remember a ludicrous number of keyboard commands. Speaking for myself, games like 'Manic Miner' used to keep me amused for hours , and I never did reach the end. It just goes to prove that fancy graphics and elaborate soundtracks do not necessarily equal good gameplay.

Anyway, you can't turn the clock back, and I have to confess that modern PCs have their advantages. 'Microsoft Word' is a definite improvement on Oric word processors. Hopefully I shall find that Euphoric will allow for the best of both worlds.

- ADRIAN MATTHEWS (Manchester).

DEAR ADRIAN,

I certainly agree with you regarding the new type of games. Give me an ol 'shoot-em-up' or platform game anytime. I was recently playing STYX on the PC. I had transferred it from an Oric disk via Euphoric. STYX was and still is a great game.

DEAR DAVE,

Whilst going through some papers, I came across the enclosed - A Press Release from Oric Enthusiasts for a MS-DOS Emulator, so that you can have your Oric act as a PC.

How do I get SEDORIC V3.0?

- RON EVANS (Wood Green)

DEAR RON,

The Press Release that you sent me went out with the April 1993 issue of OUM. It was dated April 1st., and I think you will find that it was Allan Whitaker's idea of an April Fools Joke.

SEDORIC V3.0 can be bought direct from Jon Haworth. If you want the updated manual + disc (in your case ` 3"), then send £5. If you don't want the manual then send your 3" disc plus a S.A.E.

See you at THE MEET.

- DAVE

DEAR DAVE,

Find enclosed a 3.5" disk with what is in effect a "Trial" issue of a magazine I have thrown together - it is ANSI based using a BBS door reader, that also can be used as a stand-alone reader. The menu at the beginning allows the user to either load in any of four games or read the magazine itself.

I believe that this format of magazine in the style of a BBS is unique (heheh.... I may be wrong), and the way that it is compiled allows easy insertation of additional text/ANSI files.

Does the ORIC allow for users to format either 5.25" or 3.5" disks in PC format using a utility? Thus allowing files written in ASCII to be saved to disk and thus easily transported to a PC text editor? Hmm....

CONTINUED ON NEXT PAGE

LETTERS - contd.

I am a newcomer to the ORIC scene, and as I am looking over the contents of your magazine I feel lost!! Machine/Assembly code? ROM addresses? I have an understanding of Assembly on a couple of older machines (the LYNX and MEMOTECH), but alas not on the ORIC-1.... do you plan to publish a guide at any time in the future? - I hope so!
What are your guidelines for submitting articles to OUM, and what are the boundaries for topics covered regarding the ORIC and other systems (PC + ORIC emulator?)

- CHRIS DALBY (Kingston Upon Hull)

DEAR CHRIS,

Ta for your disc magazine, which is reviewed elsewhere in this issue.
You cannot format in PC format on an ORIC system. I believe that you can transfer ORIC ASCII files to a PC. I think PC TRANSFER from a Club Europe Oric disk is the utility required. At one stage I don't think it worked properly. I think it was sorted out, but don't know if an amended version was ever sent out to British CEO members. Perhaps Jon Haworth could put us right on this.
Regarding a guide - what type of guide do you mean? We do a sell the OUM INDEX at £1.50, which lists what has appeared in back issues of OUM, or am I barking up the wrong tree? Please let me know.
With regard to articles, there are basically no boundaries, as we have numerous readers with other machines as well as their Orics. I would prefer that non-ORIC articles are not too lengthy. You are one of the few who are still ORIC-1, and I would suggest that you upgraded to ATMOS as soon as possible. This can be done cheaply in most cases by just changing the ROM.

- DAVE

DEAR DAVE,

I may be in a position soon to upgrade to disk system. As I know nothing about this, I shall need to know what I should get and whom off, and the cost. This will include the drive and all connections, and some disks of course. As all my programmes are on tape I will need to know whether it is possible to transfer them. If I have to, I will be willing to pay someone with the know-how to do this. A lot of my tapes include work that I have done on AUTHOR (poems & stories), and I do not fancy having to re-type them all.

- KEN DUDDLE (Leicester)

DEAR KEN,

I think I must answer this question in nearly every issue.
Disk interfaces are supplied by Steve Hopps (Home Telephone is: 01734 328251). He may now be in a position to offer them with a 3.5" drive, if not then pick up a copy of MICROMART and find a supplier for the drive - any problems - ring me, but try Steve for complete system first, as this way you will get all leads and power supply.
I can supply you with a disc that allows you to transfer your cassette AUTHOR files to a disc version of the same program. This would be supplied on ORICDOS.
I can also supply utilities for you to transfer other cassette software to disc (mainly on SEDORIC Dos), or do offer a service to do it for you.
You can buy disks from any computer outlet, though 3.5" DS/DD disks are getting harder to obtain, and are now generally dearer than the High Density ones.
I would suggest that you obtained SEDORIC V3.0 from Jon Haworth for the princely sum of £5, including manual.
There is a utility allowing you to transfer AUTHOR disc files to WORD-SPEED. As WORD-SPEED is a Sedoric based program, then you would hopefully have all your requirements on one DOS. WORD-SPEED is available from me, and is very user friendly.

- DAVE

BITS 'N' BOBS

ON THE MOVE

ON THE MOVE YET AGAIN IS ADRIAN MATTHEWS. HE IS NOW TO BE FOUND AT:
FLAT 4, 55 HATHERSAGE ROAD, MANCHESTER. M13 OEW

GOOD NEWS & BAD NEWS!

FIRST THE BAD NEWS - JONATHAN BRISTOW IS NOT NOW GOING ON HIS EXTENDED SAILING TRIP.
NOW THE GOOD NEWS - JONATHAN IS STILL GOING AWAY FOR A MONTH OR TWO. HE PLANS TO BE AT THE JUNE PARIS ORIC MEET, AND THEN TO HEAD FOR EASTERN EUROPE - GERMANY AND BEYOND: YOU HAVE BEEN WARNED!

MARCH '96 COMPETITION

IN ISSUE 103, WE RAN A COMPETITION, IN WHICH YOU HAD TO PICK 3 ORIC TITLES FROM A LIST OF SOFTWARE. WE HAD TWO ENTRIES -WOW. WINNER IS BRIAN KIDD, WHO CORRECTLY RECOGNISED:- 'THE TIME MACHINE', 'TALISMAN', & 'HAUNTED HOUSE'.
STEVE MARSHALL OPTED FOR THE SAME FIRST TWO PLUS 'STAR FIGHTER'. THE 'MUSO' OBVIOUSLY DIDN'T READ THE COMPETITION CORRECTLY.
THE WELSH WIZZARD GETS HIS OUM SUBSCRIPTION INCREASED BY 3 ISSUES.
THE 'MUSO' GETS THE RASPBERRY.
I AM STILL ACCEPTING ENTRIES FOR LAST MONTH'S COMPETITION - CLOSING DATE IS NOW JUNE 18th.

MCP PENS & PAPER

BRIAN KIDD HAS COME UP WITH PRICES FOR MCP PENS & PAPER.
THERE ARE ONLY A FEW PACKS OF PENS LEFT (BLACK ONLY) - PRICE IS £3.99 PER PACK + 25p P/P.
PAPER IS £1.99 PER ROLL + 36p P/P.
CASH OR POSTAL ORDERS TO BRIAN PLEASE - NO CHEQUES.

MESSAGE TO ROBERT CRISP FROM BRIAN KIDD

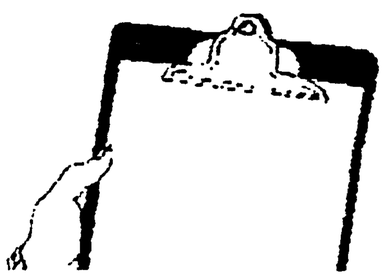
REGARDING MAC 512 DISKS. SORRY FOR DELAY - CAUSED BY 'APPLE' RE-SHUFFLE AT HEAD OFFICE. UNFORTUNATELY 'APPLE U.K' NO LONGER HAVE COPIES OF EITHER 400K OR 800K MASTER DISKS, AND ARE UNABLE TO SUPPLY. I WILL,HOWEVER,PLACE ADVERTISEMENTS IN 'MICRO MART' ON YOUR BEHALF.

ARM-ORIC EMULATOR

YOU CAN DOWNLOAD FROM THE 'NET' AN ORIC EMULATOR FOR THE ACORN. IT IS NOT YET COMPLETE.
ADDRESS IS: ftp://ftp.imada.ou.dk/pub/progs/acorn
IT IS ABOUT 55K IN LENGTH, AND IS BEING WORKED ON BY BENT VALERIUS & THOMAS OLSSON.

OLE - SPANISH TRANSLATOR REQUIRED.

THE ORIC WEB SERVER AT ENSICA HAS PAGES IN ENGLISH,FRENCH,GREEK,SWEDISH, & GERMAN.
FABRICE,WHO MAINTAINS THE SITE, IS LOOKING FOR A SPANISH SPEAKER WHO WOULD VOLUNTEER TO TRANSLATE MOST PAGES INTO SPANISH. FABRICE FRANCES CAN BE CONTACTED VIA E-MAIL AT: frances@ensica.fr.
NOW HOW ABOUT OUR FRANK BOLTON OR HIS SIDE-KICK LUIS TAKING ON THIS TASK?



Last month I was writing about prepositions, and Luis, who is of average intelligence and reached A level in Spain before leaving school, said to me, "I can't understand why you have to explain to English people what a preposition is. When we are 11 years old we are made to learn every one of the prepositions by heart in alphabetical order like this;-A, ANTE, BAJO, CABE, CON, CONTRA, DE, DESDE, EN, ENTRE, HACIA, HASTA, PARA, POR, SEGUN, SIN, SO, SOBRE, TRAS."

I wonder how many 11 year olds could pick out a preposition in an English sentence, let alone recite all of them in alphabetical order. I spent over twenty years in Spain, which was considered to be a backward country, but I wish we had their level of education. Once, as head of Mathematics in this country, I had to use a new member of staff to stand in for a maths teacher who was off sick. The class was our 11 plus intake, having a revision of fractions to make sure we had a basic level. I passed the classroom where this university graduate was teaching and saw on the board;

1/5 + 3/4 = 4/9.

He was teaching that to add fractions one must add the numerators and then add the denominators. I removed him before more damage was done. I have seen a deputy headmistress write the word COMEING on the blackboard. So when I hear the union bosses come out against the proposal to sack inefficient teachers my hackles rise. It is time the teaching profession was treated like any other job and ruthlessly purged when inefficiency is found.

Virginia Bottomley, who has mismanaged almost every post she has held, blithely announced in the House of Commons on 18/12/95, "...that they co-operate together and work collaboratively." Which brings me to this month's figure of speech, TAUTOLOGY, or redundancy. In work, "redundancy" explains the sacking of a worker because we already have enough for the job. Redundancy in speech is saying something twice when once is clear enough. It often causes ambiguity. If I say, "I will repeat it again" then I am stating that I shall say it for a third time. I say it once. I repeat it. I repeat it again. And that's 3 in my book.

So, back to Bottomly (as if I dare). 'Co-operate means 'work together', so 'co-operate together' means 'work together together' which is ridiculous. And then to pile on the idiocy by adding "and work collaboratively" which also means "to co-operate", ... well, Madame Bottomly, what you actually said was ".. that they work together together and work together". And even you can't get much dafter than that in a public speech before the whole nation.

"Ring roads divert traffic away from cities". Divert MEANS move AWAY. We divert traffic from cities and AWAY is tautology. "PAST history" implies that history might be PRESENT or FUTURE.
We have become so accustomed to phrases like "each and every day" that we don't realise how much time we waste on needless repetition.

But the last decade gave us the classic "AT THIS MOMENT IN TIME". May God forgive us for allowing it into our vocabulary instead of laughing it out of existence. Would you say "At this point in space" when you mean "here"? Then for God's sake don't say "At this moment in time" when you mean "now"! Perhaps you think it sounds clever. On the contrary, it simply reveals how stupid and gullible and imitative you are.
Ask your children what is wrong when you say "At 3 a.m. in the morning". They will tell you. Tell them that that is called tautology, and it is just as stupid to say, "3 a.m. in the morning" as it is to say "a widow woman". I am temoted to write "and that is the final end" just to see if any of you are awake. See you next month.

BRIAN'S PAGE - OUM JUNE 1996

BRIAN KIDD , 32 KIER HARDIE CRESCENT , NEWPORT , S . WALES
. NP9 9DQ .

SUMMER IS ALMOST UPON US , THE FOOTBALL SEASON HAS FINISHED - MY TEAM GOT DEMOTED INTO THE FIRST DIVISION , AND TO ADD INSULT TO INJURY , THE RIVALS WON BOTH PREMIERSHIP AND F.A CUP (NO DOUBT DAVE DIDN'T CELEBRATE BY DRINKING AWAY - BUT TO SAVE WASTING IT PROBABLY DROWNED HIS SORROWS INSTEAD !) -
NORMALLY THE ORIC IS PUT TO ONE SIDE NOW , BUT FOR ME , I AM GOING TO START USING IT A LOT MORE . I'VE SEVERAL UNFINSHED PROGRAMMES THAT SHOULD BE COMPLETED , AND EVENTUALLY PASSED ONTO DAVE TO DISTIBUTE .
I HAVE FOUND PETER BRAGG'S RECENT TWO-PARTER VERY INTERESTING , IT HAS BLENDED VERY NICELY WITH A MICRO COMPUTER MART ARTICLE , ABOUT THE ACORN OPERATING SYSTEM . THIS LOOKS VERY SIMILAR TO MY MAC SYSTEM - I WONDER WHICH CAME FIRST (PROBABLY THE MAC/LISA VERSION) . WHAT SHOULD BE OF INTEREST
IN THIS AREA , IS THE MERGER OF APPLE WITH ACORN/OLIVETTI , IN PARTICULAR THE EDUCATION SECTOR , AND WHICH COMPUTER/S WILL BE SUPPORTED IN THE FUTURE ? I WILL FOLLOW THIS TOPIC VERY CLOSELY .
STEVE'S 'FAMILY TREE' OF CPU'S WAS ALSO OF INTEREST , HOWEVER , I BELIEVE STEVE FORGOT TO MENTION THE APPLE/MOTOROLA 'POWER PC' CHIP - WHICH IS I BELIEVE A RISC CHIP , AND ALSO ENCOMPASSES THE FUTURE IBM/APPLE/MOTOROLA POWER PC PLATFORM (EVEN THOUGH IBM HAS SAID IT WILL NOW NOT BE PRODUCING IT'S OWN PPP COMPUTERS) .

NOW ONTO THE ANSWERS FOR LAST ISSUE'S POSERS :

1) GIRLS & BOYS

WELL THERE ARE SEVEN CHILDREN IN THE FAMILY , COMPRISING OF FOUR GIRLS AND THREE BOYS .

2) RELATIONSHIPS

THE CHILD IN QUESTION WOULD BE YOURSELF .

3) BRICK WEIGHT

DID YOU GUESS THAT A BRICK WEIGHS 14 lb - THEREFORE A BRICK AND A HALF IS 21 lb .

4) CIGARETTE SMOKER

THE TRICK POSER FOR THE ISSUE .
THE ANSWER TO THIS POSER IS THAT THE SMOKER STARTED BY SMOKING 50 CIGARETTES PER DAY . HE DID HOWEVER HAVE FOUR CIGARETTES REMAINING FROM HIS PREVIOUS CARTON , WHICH WHEN TAKEN INTO CONSIDERATION ALLOW YOU TO SOLVE THE PUZZLE !

FINALLY SOME NEW POSERS FOR YOU TO SOLVE .....

1) REARRANGE THE FOLLOWING LETTERS: "NEW DOOR" , SO AS TO FORM ONE WORD 2) EACH LETTER REPESENTS A DIFFERENT DIGIT - SO CAN YOU SOLVE THE FOLLOWING MULTIPLICATION ?

```
      I
F
      A T
*
    ----
    F I A T
    ----
```

3) ON THE CHURCH HYMN BOARD WERE LISTED FIVE HYMN NUMBERS , EACH FOR THIS WEEK BEING THREE DIGITS IN LENGTH . HOWEVER LOOKING AT THE HYMN BOARD DIFFERENTLY , YOU COULD SAY THAT THERE WERE THREE FIVE DIGIT NUMBERS . NOW , ONE EAGER CHURCH GOER NOTICED THAT IF HE DIVIDED EACH OF THESE FIVE DIGIT NUMBERS BY HIS HOUSE NUMBER , AND EACH TIME USED THE FORMULA OF : BN = (HN - (INT (HN / DN) * DN) , WHERE BN= BROTHERS NUMBER , HN = HYMN NUMBER AND DN=DOOR NUMBER , EACH TIME HE GOT A REMAINDER WHICH WAS EQUAL TO HIS BROTHERS HOUSE NUMBER .
WHAT ARE THE HOUSE NUMBERS ?

111
531
594
632

4) USING STANDARD MATHEMATICAL SYMBOLS , eg . , + , - , * , () etc , CAN YOU REARRANGE FOUR FIVES TO EQUAL THE NUMBERS ONE TO TEN ?.
FOR EXAMPLE : 5 / 5 + 5 - 5 = 1 or (5 * 5) / (5 * 5) = 1
GOOD LUCK FOR THIS MONTH !

The 8-bit A to Z **part 14**

I don't know if this article is going to arrive on time - I'm still suffering from another attack of the flu. (It's hard writing OUM articles from under a pile of hankies and 'Lockets' wrappers !)

*** Osborne 1** Ever heard the one about the Osborne luggage? The Osborne was one of those early attempts at a portable computer. Not a bad machine but the corners that were cut to make the machine portable and the Excessive weight meant that it was the butt of many a joke. However it was really one of the better portable machines and ended up being much copied.

Ok the Luggage was really a business machine, but it has a spec so similar to some early home computers that I've allowed it into the A to Z.

SPEC. Z80 CPU 64K RAM. SCREEN: 24 x 52 (5 inch built-in mono screen) 2 built-in disk drives operating under CP/M .PORTS: IEEE488, RS232C, Socket for full sized monitor. 57 Keys with 12 key numeric keypad. (No sound available except 'BEEP'). CBASIC and MBASIC included.

Released in 1982 the luggage wasn't too bad a machine, but wasn't as good as the desktops available at the time. A year later the Epson HX20 arrived, (see OUM 100), which was a computer you could put in a suitcase instead of *being* a suitcase.

* SHARP Like Casio, Sharp released several hand-held computers, essentially calculators with BASIC built in. The PC-1251 and PC-1500 were two of the earlier models which both had around 4K memory. Both had little 'till roll' printers available which plugged into the computer to give it a curious appearance. Micro cassette recorders could also be used to save/load data. I wonder how useful these little machines really are. New models of this type are still available and can be found next to calculators in some of the larger stores. I wouldn't buy a new one myself though - got my Casio PB-110 for a tenner!

I was pretty sure there was a Sharp MZ80A and MZ80B released but I can't find anything about them. Some other blurb I've got states that the MZ80K was the first model released in Britain in 1981. A year later the MZ380A and MZ380B, a pair of small 'business machines', were added to the range. If I remember right, these came with their own monitor and cassette deck. They were Z80 based with a smallish memory and no special features. I came across a shop that had about 10 of them and each was different. (Different models?) Some had keyboards with plastic key-covers so that each key could be set up to whatever the user wanted. Many had disk drives (running CP/M) and added memory, but they still weren't as good as the colour 'games machines'. I think one of the reasons that I don't like the early business computers is that although they came with serious stuff like disk drives, they usually lacked all the things that attracted me to computers - the colour graphics and sound capabilities that became essential for games playing. I remember looking through computer mags. of the time which had business machines which didn't seem any better than the Oric costing well over a thousand pounds. The reluctance of the computer world to accept technology developed for games machines is reflected in todays market where the modern PCs, that are suposed to do everything, need add-on sound cards.

Sharp released another business machine in 1983, (MZ3541), about the time it released the above pocket computers. Next came the..

*** Sharp MZ-700/MZ-711** According to my info, the MZ-700 was the Japanese version and it became the MZ-711 on it's release in Britain. The removal of the huge japanese alphabet allowed for many graphics facilities on the European model. All the 'MZ-711's I've seen have had the MZ-700 badge still on.

This is one of those machines that you could get built-in cassette and till-roll printer, but the basic model didn't have either.

SPEC: Z80 CPU 64K RAM 4K Video RAM, 4K ROM.SCREENS: 40x25 text, 80x50 graphics with '64 defined colours at each character' (SIC). 127 predefined characters with 127 user definable characters PORTS: RS232, parallel printer, expansion (BUS), composite video. 69 WP keys with 5 function keys and separate cursor keys. BASIC is supplied on cassette. NO Sound !!

This is really fairly typical of the Z80 machines of the time, (except for BASIC not being included on ROM). Quite a good machine but nothing to really impress.

M U S O *(clogged up & Bleary eyed)*

Machine Code for the Oric Atmos (Part 54)

Peter N. Bragg

The Story so far

It has been some time since our last session of machine code programming for the Oric and in the meantime we have had a couple of flights of fantasy, looking at the future for Oric and for computing in general. Of course, the views expressed in those two "Crystal Gazing" articles, were my own personal views and inevitably are biased, by personal interests and experience. There are others who may not necessarily share all of those views. However, the two articles were intended to provide a change and some food for thought. I hope that they were interesting too.

Back to the last "Machine Code" article. As this appeared three issues back, it might be an idea to refresh the memory of what that article was about.

In the first place we were writing to instructions, inside a running program, in order to change their operation during that program. This trick allows us to extend the capabilities of instructions and makes them more useful.

To illustrate this, we used a simple store Accumulator contents instruction (STA) and changed it's address, each time it was used. This allowed us to write a lot of data to an area of memory, using a single instruction to actually place that data. The instruction's address was changed (updated), by subtracting the value "1", each time the instruction was used.

A simple routine did the "updating" by subtracting 01h from the address. We could have just as easily used addition and written to the area, starting from the the lowest address. However, starting at the highest address and working downwards gave us the opportunity to make use of subtraction and decrementation instructions, which up to now, have not figured very much in this series. Hopefully, the examples gave an insight into how subtraction and decrementation work and also illustrated the difference between the two operations as well. However the main aim was modifying instructions.

Of course all instructions can be modified, by writing to them while they are in use. There are no laws in computing to stop you from using instructions anyway you wish, despite what some people may think. Of course, it is best to be sure of what you are doing. Always try something you are not sure of, in a small test routine first, to see that you have got it right before you commit yourself to using it in a large software project.

Altering instructions, by writing to them, while the program is running, is a useful trick, but it is not such a good idea if the instruction you are using, is located somewhere in the middle of a long listing. While this is unlikely to be a problem if the program is a "one off" job, you might come back at a later date to modify and perhaps relocate some of your program. This is where it is easy to forget odd items such as "writable instructions".

Obviously a good descriptive listing helps to avoid problems. However, you could make life easier, by putting such "writable instructions" in a place where they are less likely to be forgotten. The ideal place for such items is the parameter block, so let's have a look at those.

You may recall, that during this series, that I have recommended and used the technique of dividing the programming area up into "Pages", which are blocks of 100hex bytes each. In order to cater for all Oric versions, the programming examples shown in this series, have all been located in the "Page10" block, that is to say, locations #1000 to #10FF inclusive.

You may also recall, that in most of the programming examples shown in this series, the example program routines, normally start and are called from location #1010. The area preceding that, which is location #1000 to location #100F inclusive, is usually earmarked as the parameter block, used for storing any data required by the example programs.

By necessity, example programs in this series have all been too short to require more than one "Page", but in fact if you were to look at my own programming efforts, some of which run to many "Pages", you would find that most of those "Pages" are kept to the same format with the first sixteen bytes of each "Page" being reserved as a parameter block for data, irrespective of whether or not, it is fully utilised.

The point of these small "parameter blocks", is that they not only provide a regular structure and format, which makes programming in machine code a lot easier, they also provide a fairly stable area for odd items such as the "writable instruction" mentioned above.

Looking back to the last article in the series (Part 53), we used three small routines to illustrate how a "writable instruction" works. In each routine, the instruction, STA BFDF, was placed in location #1012. In fact, it would have been better to have placed that instruction in the Page10 Parameter Block at say #100C and follow it, with an "RTS" instruction (ie 100C:8D DF BF 60). This could then be called from the original routine, or indeed from anywhere else, by a simple JSR 100C instruction. Yes, it is a tiny routine in an area reserved for data, but then, half of it is data, which is being written to anyway, so it is not really out of place there.

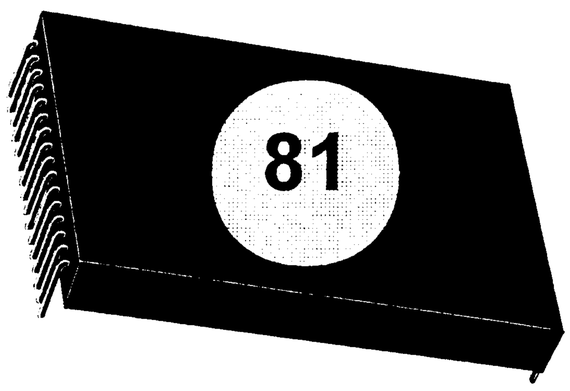
The only drawback to this idea, is a slight loss of speed, due to the extra "JSR" instruction, but of course, that is not important in many operations and in any case, the overall speed advantage of machine code/assembly language far outweighs any small loss incurred by useful techniques such as this. I have certainly found that this is a very useful trick and have made a lot of use of it over the years.

Another example of an instruction that I have used and modified in this way, is a conditional Branch instruction. Conditional Branch instructions consist of two bytes. The first one is the opcode, which defines the condition that activates the Branch. The second byte controls how far the Branch will jump.

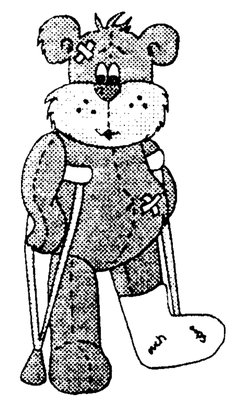
Once again that second byte can be written to. I have used one of these Branch instructions like a selector switch to direct a stream of mixed data to a number of different routines in turn, each of which then is able to deal with its own specific type of data. In this case, the whole operation was controlled by altering the value of the Branch instruction operand (second byte), which would set the Branch "jump" to go to whichever routine had been selected.

Strictly speaking, these techniques are a bit way out for those who are new to machine code programming. However, most of it is quite simple and has the advantage of not being restricted to a single area of memory, as was the case for the Zero Page instructions, that we looked at a little while back.

As I have said before, you don't have to know all the instructions in detail in order to program successfully. You can start with just a few and use them to gain experience and confidence. Building up with small routines and good descriptive listings are the key to successful programming. Experiments and some crashes are also essential ingredients.....See you next month.



RAMBLING IN THE ROM



Not quite - but in the ULA

The Oric ULA - used in every Oric computer - has remained a mystery these many years. Attempts to locate a circuit diagram (said to have been mounted and framed on the wall behind Paul Johnson's desk at Oric HQ) have failed. Now at last something is being done to unravel its mysteries - as a result of a discussion on `comp.sys.oric`, the Oric newsgroup on the Internet, Mike Brown has produced a first draft of a document describing the function of the chip.

By way of introduction, here is a translation of the only article I've ever seen on the ULA, from Theoric for September 1987. Hopefully this may prompt Mike to follow up with a version of his document in OUM... Mike?

Hardware Description

The HCS 10017 ULA, a complex circuit used in all Oric machines, is contained in a 40-pin chip with numerous functions. It is used for the generation of timings for the machine, the refreshing of dynamic memory, decoding addresses and displaying the colour graphics.

All these functions are summarised in the schematic diagram Figure 1.

Pins

The complete pin usage is set out in the diagram which forms this month's front cover:

-Vcc, Gnd: Power supply (5 volts)
-CLK Entry - main clock (12 MHz)

Pins linked to the main processor:

-D0 to D7 Data bus
-A8 to A15 Address bus (high bytes)
-R/W Signals the direction of data
-Cout 1MHz clock out

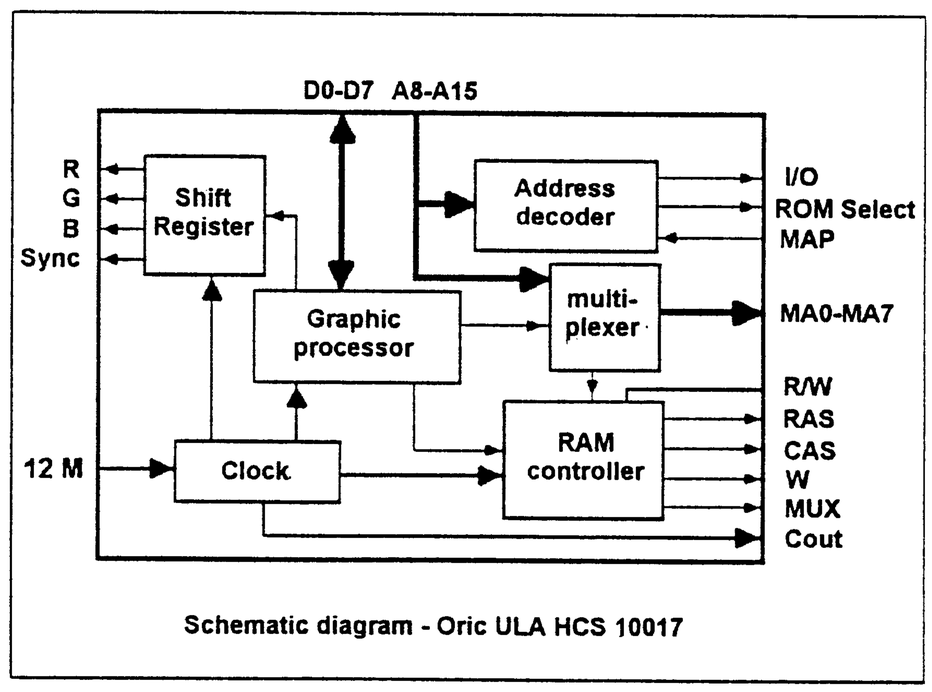


Figure 1

Pins linked to RAM:

-MA0 to MA7	RAM address bus
-W	Write signal to RAM
-RAS, CAS	Memory selection (line and column)
-MUX	External multiplexer command

Address decoding:

-I/O	Validates addresses #300 to #3FF
--ROMsel	Validates addresses #C000 to #FFFF
-MAP	Entry - block address decoding

Video out:

-Red:	Red signal (TTL level)
-Green	Green signal (TTL level)
-Blue	Blue signal (TTL level)
-Sync	Composite sync signal out

Function

The timing diagram in Figure 3 illustrates the sequence of the Cout, RAS, CAS and MUX signals by reference to the main 12MHz clock. Note that MUX only ever passes to 1 while Cout is at 1 (i.e. the addresses sent by the CPU are valid). MUX serves to direct the addresses A0 to A7 and MA0 to MA7 to the entry of RAM.

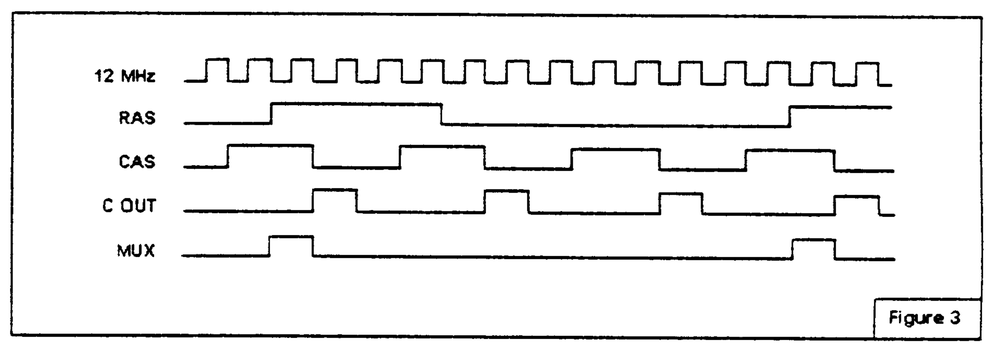


Figure 3

a) MUX=1: A0 to A7 are validated by RAS
b) MUX=0: MA0 to MA7 are validated by CAS

Note that during this cycle MA0 to MA7 are an exact mirror of A8 to A15.

The circuit generates RAS, CAS and W. It is necessary then to invert them so that they function correctly! The result is that the CPU can transparently access active memory (#0000 to #BFFF except #0300 to #03FF). *[In fact the reason for the inverters is, we believe, that the TTL outputs have to drive 8 chips each, so they were deliberately output as inverses with the intention of using spare inverters to buffer these signals - JH]*

It is during these cycles when MUX is 0 that the graphics processor accesses memory to give the screen display and thereby refresh memory.

For an access to addresses between #300 to #3FF and #C000 to #FFFF, the ULA does not generate a signal on CAS - see Figure 4. RAM is blocked and the computer accesses peripherals or ROM.

The function of the MAP signal

- For normal functioning, as described above, this pin must be forced to level 1
- Passing to 0 authorises access to RAM between #C000 and #FFF
- Figure 4 shows the MAP signal to be generated for peripherals

Software

This section of the article contains much that is familiar to us, but it is interesting to see it related to the ULA itself.

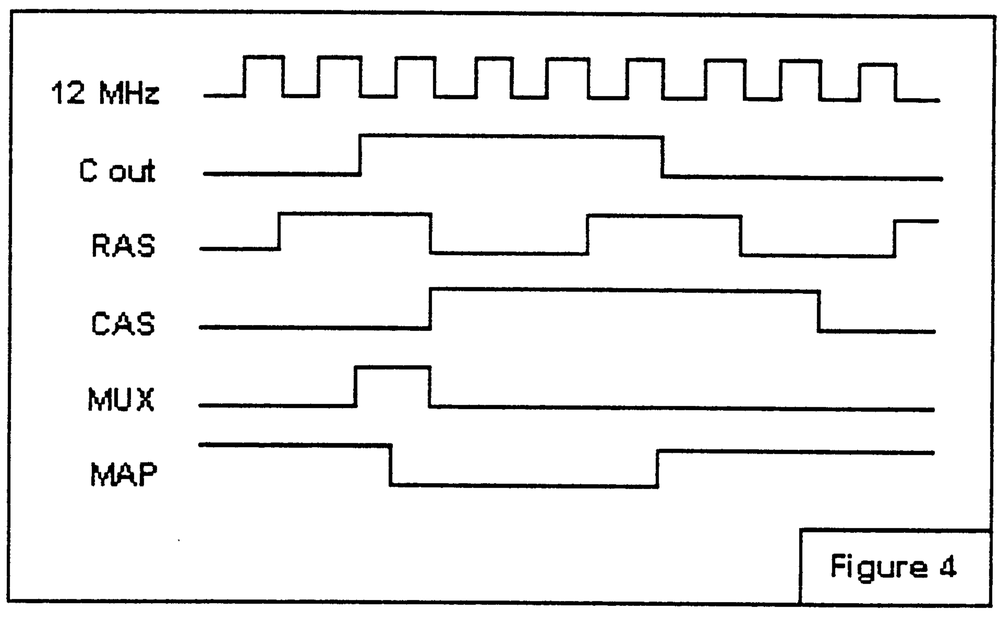


Figure 4

The ULA occupies three particular areas of memory:
- it decides #300-#3FF for input/output
- it decodes #C000-#FFFF to use internal RAM
- it generates (in a complex way) #9800-#BFDF to generate the screen

We shall consider this last usage first of all. This is the use of this area of memory:

TEXT	HIRES	
B500 to B7FF	9900 to 9BFF	Standard character set
B800 to B8FF	9C00 to 9CFF	Unused
B900 to BB7F	9D00 to 9FFF	Alternate character set
	A000 to BF3F	HIRES screen
	BF40 to BF67	Unused
BB80 to BFDF	BF68 to BFDF	Text screen

Now for a description of the different areas:

1. The Character Set zones

The design of a character (its form) is a sequence of 8 bytes. On screen they occupy 8 lines of 6 columns. The six lower bits of each definition byte contain the design of a line (1 for on, 0 for off). Bits 6 and 7 are unused, and can take any value. The address of the definition of a character is easily found using the formula #B400+8*N in Text mode, #9800+8*N in Hires, where N is the Ascii code of the character.

In binary this gives:
1011 01NN NNNN N000 for Text mode, standard characters
1011 10NN NNNN N000 for the alternate character set
1001 1ANN NNNN N000 for Hires mode

(A is 1 for alternate characters, 0 for standard)

It is therefore very easy for the ULA to find the address of a character as a function of its code number. Here for example is the definition of the character A in normal text mode:

```
B608  xx001000
B609  xx010100
B60A  xx100010
B60B  xx100010
B60C  xx111110
B60D  xx100010
B60E  xx100010
B60F  xx000000
```

Note that bits 6 and 7 are unused, bit 0 is 0 to provide horizontal spacing of the characters, and the last byte of the definition is empty to provide vertical spacing.

2. The Text screen zone

This is made up of two types of data, the Ascii code of a character and control characters (or attributes) which 'program' the ULA.

a) The attributes

Attributes take the binary form I00x xxx, so there are 31 of them. I is the inverse video bit. No matter what screen zone (Text or Hires), bit 7 of each byte is the inverse video bit.

The role of the inverse video bit is to complement to 8 the paper and ink colour. So, if P is the paper colour, and I is the ink colour, the new paper colour will be 7-P, and the new ink colour 7-I. This interpretation of inverse video differs from, for example, videotext standards, where the paper and ink colours are simply exchanged.

Control characters appear on screen as spaces.
Here are the roles of the attributes:

R G B designates the colours red, green and blue
A=0 for standard character set, 1 for alternate
F=1 for 50Hz, 0 for 60Hz
C=0 for normal, 1 for flashing
H=0 for normal, 1 for double height
G=0 for Text mode, 1 for Hires
x any value

All these attributes are valid to the end of the line or until the next attribute of the same type.

VALUE	ROLE
I000 0BGR	Text colour
I000 1CHA	sets the attributes for double height, flashing and character set
I001 0BGR	Paper colour
I001 1GFx	sets text or hires mode, 50Hz or 60Hz

b) Character codes

The codes from #20 to #7F (#A0 to #FF in inverse video) are the Ascii codes of the characters.

3. High resolution screen (HIRES)

Data is of two types again, control character (attributes) and drawings. The attributes have the same structure as in Text mode, but simplified with certain attributes no longer used:

I000 0BGR	colour of lit pixels
I000 1Cxx	flashing
I001 0BGR	colour of unlit pixels (paper)
I001 1GFx	mode

Drawings are represented in the 6 lower bits of the byte, as in the design of characters. Bit 6 is set to 1 to distinguish attributes, and as ever bit 7 regulates inverse video:

I1DD DDDD

4. Switching frequencies

The ULA can function equally well in 50 MHz mode and in 60MHz mode (for the USA and Japan). The mode setting is very specific: the last character defining the screen mode in the current screen zone (#BB80-#BFDF in Text, #A000-#BFDF in Hires) sets the frequency.

So, POKE #BB80,#18:POKE #BB81,#1A leaves the screen in 50MHz, but POKE #BB80,#1A:POKE #BB81,#18 switches the screen to 60MHz. The frequency is remembered, so it is not enough to clear the screen: you must insert a 50MHz attribute to recover a screen at 50MHz.

5. Switching modes TEXT/HIRES

To pass into Hires mode, the ULA must find the Hires attribute in the Text screen zone (#BB80-#BFDF). The screen then passes into Hires mode until the next TEXT attribute or until address #BF3F is reached. The ULA then scans the screen starting at #A000.

The transfer of the character set from #B400 to #9800 is done as follows:

- If there is no text attribute before #BF3F, , the character set is placed in #9800
- If a text attribute is found before #BF3F, the screen returns to text mode in its lower area (allowing mixed hires/text screens) and the character set is placed in #B400

The mode is memorised, and deleting the Hires attribute will not cause a reversion to Text mode. To do that you must place a Text attribute in the text zone of the screen (#BF68-#BFDF).

So, a start on unravelling the mysteries of the ULA.

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CB3 0EE

EUPHORIC FOR DUMMIES

1) INTRODUCTION

A LOT OF SPACE HAS BEEN GIVEN OVER THE LAST YEAR TO THE ONWARD DEVELOPMENT OF 'EUPHORIC' - THE ORIC EMULATOR FOR THE PC. AS REPORTED EARLIER, I HAVE RECENTLY PURCHASED ONE OF THOSE 'ALL SINGING, ALL DANCING' MULTIMEDIA PC SYSTEMS. OF COURSE, I WANTED TO TRY THE LATEST VERSION OF THE EMULATOR. IN FACT I WANT IT TO DO A LOT FOR ME - I WANT TO TRANSFER ALL MY ORIC SOFTWARE TO THE PC HARD DRIVE. I WANT TO SEND OUT 3.5" DISC SOFTWARE COPIED FROM THE PC. I AM NOT KNOCKING THE 'README' FILE THAT COMES WITH 'EUPHORIC' - I WOULDN'T KNOCK ANYONE LIKE FABRICE WHOSE SHEER GENIUS HAS TRANSFORMED THE ORIC SCENE. IT IS JUST THAT I AND MANY OTHERS FIND THE DOCUMENTATION NOT TOO 'USER FRIENDLY'. THE PROBLEMS ARE MADE WORSE BY THE FACT THAT SAID DOCUMENT IS NOT EXACTLY UP -TO-DATE. FINALLY - THERE ARE THOSE WHO LIKE ME, HAVE GONE FOR A "WINDOWS'95" SYSTEM, WITH A SORT OF DOS 7, BUT NO DOCUMENTATION ON IT. IF YOU ARE A DUMMY ON DOS, OR A DUMMY ON EUPHORIC, THEN READ ON. IF YOU THINK YOU KNOW IT ALL - YOU MIGHT BE SURPRISED!

2) DISK & SHEET

WITH EVERY EMULATOR DISK COMES THE INTRODUCTORY SHEET FROM JON HAWORTH.
I'LL GIVE A LITTLE DETAIL ON THIS FOR THOSE WHO STILL HAVEN'T GOT THE EMULATOR, AND FOR THOSE WHO ARE MAYBE THINKING OF BUYING A PC.
THE EMULATOR ITSELF WILL EMULATE A BASIC ORIC-1/ATMOS CASSETTE SYSTEM, A DISK SYSTEM (UP TO 4 DRIVES EMULATING SEDORIC, ORICDOS,CUMANA DOS,JASMIN etc.), AND A TELESTRAT.

I WILL DEAL WITH THE 3 MAIN SEPARATE SYSTEMS. WE WILL LOOK AT USING YOUR PC AS A CASSETTE BASED ATMOS (COMES WITH MANY GAMES e.g. THE HOBBIT, INVADERS, TROUBLE IN STORE, HOPPER); THEN ON TO A DISK SYSTEM SUPPORTING SEDORIC V3, AND FINALLY HOW TO TURN YOUR PC INTO A TELESTRAT. (OR I MAY LEAVE THIS ONE UNTIL NEXT TIME). IT REALLY IS UNBELIEVABLE! I TRIED THE CASSETTE ONLY VERSION JUST ABOUT A YEAR AGO - WHAT PROGRESS THERE HAS BEEN.

3) GETTING STARTED

YOUR SHEET FROM JON EXPLAINS HOW TO TRANSFER THE DISK TO YOUR HARD DRIVE. BASICALLY YOU LOAD ONE FILE FIRST, NAMELY 'EUPHORIC.ZIP', AND THEN LOAD THE OTHER FILES. YOU CAN DO THIS WITH THE COMMAND - 'PKUNZIP *.ZIP C:\ORIC'. I ASSUME THAT THE UNZIP ROUTINE IS IN THE FIRST FILE ,AND THAT IS WHY IT HAS TO BE LOADED ON ITS OWN. FOR THOSE WHO DIDN'T KNOW, A ZIPPED FILE IS ONE THAT HAS BEEN COMPACTED. IT THEN HAS THEN TO BE UNZIPPED TO BE READ. THE REASON FOR ZIPPING IS TO ALLOW ALL THE FILES TO GO ON ONE FLOPPY.

WHEN YOU HAVE GOT ALL THE FILES ACROSS, DO A DIRECTORY TO SEE ALL THE FILES, AND MAKE A NOTE OF THE GAMES TITLES, WHICH CAN THEN BE 'CLOADED' ON THE CASSETTE SYSTEM ATMOS SIDE.

IMPORTANT NOTE: THE VERSION I RECEIVED FROM JON WAS 0.93, WITH THE FACILITY TO FORMAT ORIC DISKS. THIS DID NOT WORK AT FIRST. THE COMMAND TO FORMAT A SEDORIC DISC IS 'INIT', BUT THE FILE HAD BEEN NAMED 'INITII'. IF YOU HAVE A FILE NAMED 'INITII.EXE', THEN BE SURE TO RENAME IT TO 'INIT.EXE'.

4) CASSETTE BASED

THE SIMPLEST WAY TO START IS WITH THE CASSETTE VERSION OF THE EMULATOR.

TO SET UP YOUR PC AS AN ATMOS C/W CASSETTE, JUST TYPE 'EUPHORIC'. YOU WILL BE AMAZED TO SEE YOUR SCREEN TURNED INTO AN ATMOS CLONE, WITH THE 'Ready' PROMPT.

NOW ALL YOU HAVE TO DO IS TO LOAD A PIECE OF SOFTWARE. LET'S TRY 'HOPPER'. JUST TYPE - CLOAD"HOPPER". ON MY MACHINE THE " IS OBTAINED IN EUPHORIC BY HOLDING DOWN THE SHIFT KEY AND PRESSING @. 'SEARCHING' BECOMES 'LOADING', AND VOILA - 'HOPPER' IS ON-SCREEN!

WHILST IN THE GAME, YOU CAN ACCESS THE EXTRAS THAT DIDN'T COME WITH THE ATMOS. PRESS THE F1 KEY AND A MENU IS DISPLAYED AT THE TOP OF THE SCREEN - THIS MENU CAN BE TOGGLED ON/OFF. THE F2 KEY ALLOWS YOU SOUND ON/OFF. THE F7 IS THE ATMOS RE-SET. THE F9 IS TO DUMP THE STATE OF THE ORIC & EXIT. PRESSING F10 WILL EXIT THE EMULATOR & TAKE YOU TO THE ORIC DIRECTORY.

SUPPOSEDLY THE PrtScr KEY ON YOUR PC ALLOWS A HARDCOPY TO A SCREENXX.bmp FILE (I WILL LOOK AT THIS AT A LATER STAGE).

O.K. - NOW FOR THE BRILLIANT BIT - I AM PLAYING 'LIGHT CYCLE'; MY FINGERS ARE GETTING WEARY & I WANT A BREAK. I PRESS THE F9 AND THE STATE OF THE GAME IS SAVED. IT IS HELD ON TWO FILES - DO A DIRECTORY & YOU WILL SEE THAT YOU HAVE GAINED 'DUMP' & 'STATE'. IF YOU WANT TO RE-START THE GAME FROM WHERE YOU WERE, THEN WHILST IN THE ORIC DIRECTORY, YOU JUST TYPE : EUPHORIC -r (DON'T FORGET THE SPACE AFTER THE WORD EUPHORIC).

NOW OF COURSE YOU MAY WANT TO SAVE THE STATE OF MANY GAMES. BE CAREFUL - EACH TIME YOU DO A F9, THE SAVED FILES ARE NAMED 'DUMP' & 'STATE'. THE ANSWER IS SIMPLE. JUST RENAME YOUR 'DUMP' & 'STATE' FILES EACH TIME, AND RENAME THEM BACK WHEN YOU WANT TO RE-USE THEM.

FOR EXAMPLE, ON MY SAVED VERSION OF LIGHT CYCLES, I HAVE RE-NAMED THE 'DUMP' FILE TO 'LIGHT', AND THE 'STATE' FILE TO 'LIGHTA'. I ALSO HAVE SAVED A VERSION OF THE HOBBIT AS 'HOB' & 'HOBA'. WHEN I WANT TO REPLAY LIGHT CYCLES, I JUST RE-NAME 'LIGHT' TO 'DUMP', RE-NAME 'LIGHTA' TO 'STATE', AND THEN TYPE : EUPHORIC -r

THE TWO TITLES NAMED ABOVE SEEM TO RE-START PERFECTLY. THIS IS NOT THE CASE WITH ALL OTHERS THAT I HAVE TRIED - THEY RE-RUN IN A FROZEN OR PART FROZEN MODE - THEY INCLUDE 'RATSPLAT' & 'BREAKOUT'.

5) DISK BASED

THE NEXT THING YOU WILL WANT TO DO IS TO BOOT UP A DISK BASED SYSTEM. TO BOOT UP YOUR SEDORIC V3 MASTER DISK, WHILST IN THE ORIC DIRECTORY, YOU MUST TYPE:

EUPHORIC SEDORIC3.DSK

THERE NOW APPEARS BEFORE YOU THE MENU FOR YOUR SEDORIC V3 MASTER DISK, WHICH INCLUDES UTILITIES AND THE GAME OF 'KRILLYS'. AS IN YOUR CASSETTE VERSION, YOU CAN DISPLAY THE USE OF THE FUNCTION KEYS ON THE TOP LINE.

NOW LET'S EXIT TO BASIC (PRESS ANY KEY), AND TRY TYPING IN A TWO LINER:

```
10? "EUPHORIC FOR DUMMIES"
20 ZAP
```

LIST IT & RUN IT - O.K. IT WORKS.

SAVE IT AS "TEST",AUTO

A DIRECTORY OF THIS SEDORIC DISC WILL SHOW THAT IT IS THERE - WE RUN IT AND IT WORKS - ZAP AND ALL!

OF COURSE,IN REALITY, YOU WILL HAVE DO MAKE OTHER SEDORIC DISKS OR ELSE YOU WILL SOON FILL THIS ONE UP. WE WILL LOOK AT THIS ASPECT LATER. WHATEVER YOU DO - DO NOT TRY THE 'INIT' COMMAND WHILST HERE, OR ELSE YOU WILL RE-FORMAT YOUR MASTER - I KNOW, AS I'VE DONE IT!

WHILST ON THE DISK YOU CAN PLAY 'KRILLYS', AND 'DUMP' THE STATE OF THAT GAME - SAME RULES THAT APPLIED IN THE CASSETTE OPERATING SYSTEM. YOU RE-START IT FROM THE ORIC DIRECTORY. UNFORTUNATELY THE RE-STARTED GAME DOESN'T ALLOW CONTROL OVER THE VESSEL.

6) READING AN ORIC DISK

IF, LIKE ME, YOU WANT TO TRANSFER YOUR ORIC 3.5" DISK SOFTWARE TO THE PC, THEN READ ON.

PUT YOUR ORIC DISK IN THE 'A' DRIVE, AND AT THE C PROMPT IN THE ORIC DIRECTORY, JUST TYPE: READDSK

AS THE DISK IS READ, YOU WILL SEE SOMETHING AS FOLLOWS:

```
2 SIDE(S)      82 TRACKS, 17 SECTORS

--------------------------------------
--------------------------------------
```

IF YOU SEE AN x INSTEAD OF AN _ THEN I THINK IT IS THE SIGN OF A BAD TRACK.

WHEN THE DISK HAS BEEN READ A FILE IN YOUR ORIC DIRECTORY IS MADE AND CALLED - IMAGE.DSK. YOU WILL NEED TO RENAME THIS, AS ALL READ DISKS ARE CALLED IMAGE.DSK. LET'S CALL US OURS - ARCADE1.DSK.

AND SO:

RENAME IMAGE.DSK ARCADE1.DSK (SPACE REQUIRED AFTER RENAME & AFTER IMAGE.DSK)

NEXT YOU NEED TO CONVERT THE IMAGE FOR USE WITH EUPHORIC WITH:
ORIC2MFM ARCADE1.DSK (SPACE REQUIRED AFTER ORIC2MFM)

TO VIEW THE FRUITS OF YOUR WORK, JUST TYPE:
EUPHORIC ARCADE1.DSK

7) FORMATTING SEDORIC DISKS

YOU HAVE THE FACILITY TO FORMAT ORIC DISKS. FOR NOW WE WILL DEAL WITH SEDORIC ONES, AS THESE ARE MOST WIDELY USED, AND THE ONLY ONES THAT I HAVE USED TO DATE.
AS MENTIONED IN SECTION 3; MAKE SURE YOU HAVE A FILE NAMED INIT.EXE
INSERT YOUR BLANK DISC IN DRIVE 'A', AND FROM THE C PROMPT IN THE ORIC DIRECTORY YOU CAN INITIALISE A SEDORIC DISK WITH THE USUAL COMMAND:
INIT A,17,82,D

THESE DISCS ARE IMAGES ONLY, AND DO NOT CONTAIN A DOS AS SUCH. YOU CANNOT AT THIS STAGE PUT THEM INTO YOUR ATMOS DRIVE SYSTEM, AND EXPECT THEM TO BOOT UP. THE DOS IS COPIED ACROSS WHEN YOU USE THE 'WRITEDSK' FACILITY TO COPY ACROSS ONE OF THE DISK IMAGES THAT YOU HAVE STORED ON YOUR PC. FOR INSTANCE 'ARCADE1.DSK'.
THIS DISK THAT YOU HAVE JUST CREATED DOES NOT KNOW IF IT IS SEDORIC V1, V2, OR V3. IT WILL BECOME WHATEVER YOUR 'ARCADE1.DSK' (FOR EXAMPLE) WAS. BASICALLY YOU WILL BE MAKING A BACK-UP DISK. IT IS ALSO WORTH BEARING IN MIND THAT IF FOR EXAMPLE YOUR 'ARCADE1.DSK' WAS IN FACT A 42 TRACK ONE, THEN THE NEWLY FORMATTED DISK WOULD HAVE TO BE FORMATTED IN THE SAME WAY. I.e INIT A,17,42
YOU ARE THEREFORE BEST ADVISED TO COPY ALL YOUR ORIC DISKS TO THE SAME (82 TRACK, DOUBLE SIDED,SEDORIC V3) FORMAT VIA YOUR TRUSTY ORIC BEFORE YOU START USING THE READSK UTILITY TO TRANSFER THEM TO THE PC.

8) COPYING A DISC FROM PC

BY USING THE 'WRITEDSK' UTILITY YOU CAN NOW COPY ACROSS YOUR 'ARCADE1.DSK' TO THE PR-FORMATTED FLOPPY IN YOUR 'A' DRIVE.
AT THE 'C' PROMPT IN THE ORIC DIRECTORY, THE COMMAND IS :
WRITEDSK ARCADE1.DSK A:
(DON'T FORGET THE SPACE AFTER WRITEDSK & AFTER MYNAME.DSK)
THIS FLOPPY DISC CAN NOW BE READ BY YOUR ORIC SYSTEM.

9) THE 'README' FILES

IN YOUR ORIC DIRECTORY ARE CERTAIN 'README' FILES. THESE CAN BE LOADED INTO YOUR FAVOURITE PC WORD PROCESSOR, SO THAT YOU CAN FULLY DIGEST THEM, AND OBVIOUSLY TAKE A PRINT-OUT OF. IN 'WORD PERFECT' IT IS JUST A CASE OF LOOKING IN THE ORIC DIRECTORY AND OPENING THE TEXT FILES - MOST ARE IN ASCII FORMAT.
THE FILES ARE AS FOLLOWS:

HISTORIC.TXT ..... DETAILS THE HISTORY OF THE EMULATOR.
HISTORIQ.TXT ..... AS ABOVE, BUT IN FRENCH.
README.TXT ..... THE MANUAL FOR EUPHORIC
LISEZMOI.TXT ..... THE MANUAL IN FRENCH
README ..... DETAILS OF HOW TO TRANSFER YOUR OLD TAPES TO PC.

10) IN CONCLUSION

Well, that is as far as I've got with EUPHORIC V0.93. It has now moved on to V0.97, with a menu feature, and I will be looking at that shortly.
Over the next few months I will be testing out the other features of the Emulator. These features include the following:
Using a TELESTRAT, Adding a joystick, Setting up a 4 drive system, Write - protecting your disk images, & use of the printer.
I hope I have been of help to those having problems. Subscribers to O.U.M will see my follow-up article in the next issue. Non-subscribers who received this article from me with a copy of the Emulator, should send an S.A.E for further help.

- DAVE DICK