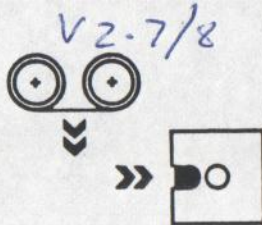


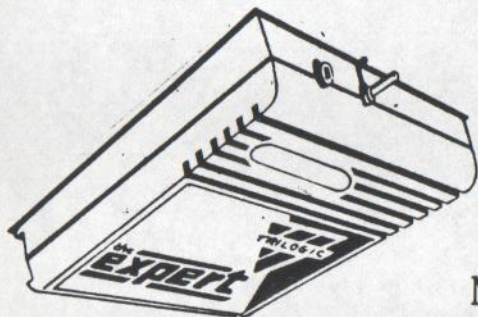
"THE EXPERT" USER CLUB



137 Stonefall Avenue
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EXPERTISE

THE EXPERT USER CLUB NEWSLETTER



NOVEMBER 1986 - ISSUE 2

CURRENT VERSION is v1.7M/8 v2.7M/8

Welcome to the second issue of EXPERTISE - the EXPERT USER CLUB newsletter. Sorry it's late.....

Firstly, I would like to thank all those of you who wrote to us and must apologise if it took us a while to answer your letters and send your membership cards. To tell the truth we were caught on the hop by the response. The good news is that because of the feedback we have received, we are hopefully able to make this newsletter more helpful and informative. Keep writing to us but (moan, groan) don't forget to enclose a SAE if you want us to send you a reply.

Also, many thanks to those of you who wrote wishing the User Club every success - your letters are greatly appreciated.

Please note that the EXPERT USER CLUB is NOT run by TRILOGIC although we receive an enormous amount of help from Graham and Ian of Trilogic. So don't forget to send your enquiries and make cheques payable to the EXPERT USER CLUB, at the address given on the front cover.

We have received many requests for back issues and are pleased to tell you that back issues are indeed available.

To obtain a back issue, just send postal orders or a cheque for 50p per issue (includes postage), to the Expert User Club at the usual address stating which months issue you require. Please note that at the moment, the only back issue available is the October issue.

Featured in this issue are:-

- 1) Choosing which operating system to use.
- 2) What are restart addresses?
- 3) Yet more help in using the Q command.
- 4) Members letters and a HELP page.
- 5) Updated Q value list

Plus

Our first competition for EXPERT User Club members

Finally, another moan - please write - don't call or phone the User Club as our secretary is not able to answer your queries herself.

V2.7/8

1) CHOOSING AN EXPERT OPERATING SYSTEM.

When you are programming the cartridge, there are three operating systems to choose from. Currently these are V2.7, 2.7D and 2.8.

Version 2.7 is the earliest version and uses a preset Q value of 02. This version is only present for you to use if neither of the others seem to work. Normally, you would use V2.7D which has a preset Q value of D0 and a more efficient compactor.

The last version 2.8, is used if you come across a game (eg W.A.R), which will not load even though the cartridge is switched off. Contrary to the beliefs of some programmers, it is not possible to detect the Expert when the switch is in the OFF position. The misconception arises because some games will only load if the cartridge is removed thus giving the impression that the cartridge is being detected even though it may have been turned off. In fact it is not the Expert that they detect, but only changes in the memory left by the Expert operating system during programming or initialisation. Version 2.8 should also be used for games that need the ESM. The compactor does not work as efficiently with v2.8, however, if you look through the memory using the M command and fill any blocks containing 00 FE with 00 this will enable the compactor to work more efficiently.

N.B If you have the earlier EXPERT 1 cartridge read V1.7, 1.7D, 1.8 for the version 2 types.

2) RESTART ADDRESSES.

In the section with the list of Q values, you will also see that we give the Restart addresses for some games. If you change the Restart address by using the / command, when the game is reloaded, it will start from the beginning (or near enough in most cases).

Eg. Ghosts & Goblins - After stopping the game type:-

/ 0850 (return)

Now save the game, when it has reloaded it will start from the beginning everytime.

To understand the concept of the Restart address, you need to know what happens at the instant that you press the RESTORE key. Pressing the RESTORE key causes an NMI (non-maskable interrupt) to be generated and at then switches in the EXPERT. When the microprocessor - (the 6510 chip in the 64) receives the NMI, it does three things.

- 1) it finishes the currently executing instruction.
- 2) It stores contents of the Status Register & Program Counter on the Stack.
- 3) It loads the program counter with the contents of memory locations FFFA & FFFB.

These two locations hold an address and the machine-code program which is now executed from this address is called the NMI handling routine. If the EXPERT is switched on, it takes over at this point and intercepts the currently running program whether it is a game or whatever. The program is "frozen" in the computer's memory and the address of the last instruction executed is saved - this is the Restart address. All this happens within microseconds of you tapping the Restore key, and after several other registers have been saved by the EXPERT Operating system, control is handed over to the EXPERT's machine-code monitor. This is a simplified explanation of what happens - it would take about three pages to detail the exact sequence.

When you use the R command to restart a program, the Restart address is loaded into the PROGRAM COUNTER and the instant this is done, the game recommences from wherever it was stopped.

There can be many Restart addresses for each game, and each one of them will enable you to start the game from any predetermined point. The Restart address given in the Q value list is the one that starts the game from the beginning (more or less) and next month we will show you how to find them by using the EXPERT's machine-code monitor.

Glossary

NMI = non maskable interrupt. An interrupt is a signal which the microprocessor chip receives on one of its input pins and which, put simply, causes the microprocessor to stop what it is doing and begin to execute a program which finds the source of the interrupt.

There are two types in the 64 and 128 (64 mode). One type - the IRQ interrupt is ignored by the processor unless it is specifically enabled by software. The video chip can produce this type when for example, a sprite collision occurs.

The second type - the NMI interrupt we have mentioned, cannot be ignored. RS232 devices and tapping the RESTORE key can generate NMIs.

PROGRAM COUNTER (PC) The program counter is a register or 'store' within the microprocessor chip which holds a 16 bit number. This number is actually the address that the microprocessor is working (executing) at and changing the number changes the address on the address bus. In other words, the PROGRAM COUNTER tells the microprocessor where to go within the 64K address range. As the name suggests, the register is actually a counter - the number stored is automatically incremented otherwise the microprocessor would get 'stuck' at the same address. There are several machine-code instructions which can change the contents of the PC and so redirect the microprocessor to a different part of the program depending upon for example, which way a joystick has been moved.

STACK. The stack is simply an area of the computer's memory used by the microprocessor as a temporary storage place for the contents of its internal registers and other important data. In the 64 it is located at 0100 to 01FF so it occupies 256 bytes. The Stack is organised in reverse order - from top to bottom in other words.

STACK POINTER. This is a register within the microprocessor which holds the location of the first empty place on the stack. When a number is stored on the stack, the stack pointer holds the currently available empty stack location. The stack pointer is then decremented. When a number is pulled off the stack, the stack pointer is incremented.

STATUS REGISTER. This is a register within the microprocessor which indicates whether or not a certain event has occurred. Each bit in the register is used for a particular purpose. For example, one bit is set to a 1 when the result of a calculation is zero, whilst another bit is set if the result is negative and yet another bit would be set if an overflow occurred.

3) THE Q COMMAND, FURTHER NOTES

With more and more games there often does not seem to be any unused blocks which can be used for the Q command. However, 0200 to 02C8 can actually be used with most games. The programs that give reloading problems if you try to use 02 are ones that have a flashing cursor to prompt for keyboard entry such as adventure games and business software. There is an easy way to see if it may be safe to use 02, that is to type :-

M 0277. (return)

If the word RUN appears in the ASCII table at the right-hand side of the screen then it should be safe to use Q 02. You may be wondering why 'RUN' should be stored here. In fact the area from 0277 to 0280 is used as a keyboard buffer and pressing shifted RUN to load the game causes 'RUN' to be stored here. If after the game has been stopped, 'RUN' is still left in this area, then it is a fairly safe bet that the game does not use this area and hence it is okay to use Q 02.

If you have got the Q value wrong then you can usually tell from how the program crashes when it has reloaded.

If when you press a key or move the joystick it crashes, then Q 02 was probably not the right Q value. It is worth trying Q D0 before experimenting further.

If a sprite is corrupted then the chances are that D0 is not the right value because this area is often used for storing sprite definitions.

The other area which can sometimes be used is the screen memory. The exact location of this can vary somewhat, but it is usually at 04. It is best to stop the game early on - at a start-up screen - because it will be corrupted on loading back - this won't matter since once the game proper has started any corruption of the start-up screen will be overwritten by the new screen set-up. You can experiment by using the M command to alter what you suspect may be the screen memory and then restarting the game to see if the screen has been corrupted by your alterations.

NEWS NEWS NEWS NEWS

More news this month about the multipart operating system. Trilogic have told us that V2.7M which will handle quite a few multipart loading programs will be available by 7th November. The usual upgrade charge of £3.50 including disk or £2.00 if you exchange your disk applies. Mainly Novaload type programs are handled but no doubt this is the first of several operating systems for multipart games.

At last, the tape version of the EXPERT is available. This has been written by a freelance programmer and now means that the EXPERT can be used without a disk drive. Surely, back-up boards are now obsolete? The tape to tape version uses the same hardware so all you need to do if you buy a disk drive at a later date is to send off for the disk based software (at £3.50, its only the cost of an upgrade). Do tell your drive-less friends about this but ask them to state clearly that the tape version is required. The cost is the same - £31.95, or £37.50 for the EXPERT with built-in ESM.

The ESM module mentioned in last months newsletter is now available actually built-in to the EXPERT. Anyone with an EXPERT 2 (the type which will work on both 64 and 128 (64 mode) can exchange it for £7.95 inc VAT & postage and free upgrade - but only direct from Trilogic.

Trilogic have told us that they are always interested in any improvements or new uses for the EXPERT. If you have written some routines that use the EXPERT or have altered or improved it in any way, why not contact Trilogic.

Here at the User Club are always pleased to pass on any suggestions you may have about the EXPERT. We have received some about Freeze Frame (sorry for using dirty words) but dare not publish them for fear of causing offence °

Finally, I hope you are all trying out the cheats in the EXPERT User column every month in ZAPP 64 if not - well I wouldn't like to be in your shoes if Taz finds out.....

LETTERS PAGE.

Please address any letters for publication to:-

The Editor, The Expert User Club, 137 Stonefall Avenue, Harrogate, HG2 7NS.

***** COMPETITION No. 1 *****

This months competition is:-

Write a short catchy jingle in Basic or M/code lasting about 20 seconds, using as many of the 64 sound chip's capabilities as possible. Obviously, it must be original and not a rip-off of someone else's efforts, be reasonably musical - not just a collection of weird sounds, and relate in some way to the programming of the EXPERT. One suggestion is for some sort of fanfare.

Trilogic will try to incorporate the winning entry into the EXPERT operating system so that it is heard during programming.

The winner will receive a 100 disk storage box plus 50 disks.

RULES

- 1) The competition is open to User Club members only. All entries must be accompanied by your membership number and name and address.
- 2) The judges decision is final and NO correspondence will be entered into.
- 3) Entries can be on tape or disk. Please enclose any relevant details and instructions. Please enclose a suitable SAE if you wish to have your entry returned.
- 4) Entries must be received by 31st December 1986 and the winner will be notified by post and the result published in the earliest issue of EXPERTISE.
- 5) The copyright of each entry submitted will remain the property of the entrant but no royalties will be paid for the use of the winning entry. If possible, the winners name will be displayed on screen whilst the jingle is playing.

Q VALUES.

The following Q values list has been compiled by several Expert Users - we cannot guarantee that the values are correct.

If you wish the game to start from the beginning when it is reloaded from disk, alter the Restart address to that shown: to do this type:-

/NNNN {return} where NNNN is the Restart address shown.

NB Change the Q value and restart address before saving the program.

SOME PROGRAMS MAY JUMP INTO THE MONITOR WHEN LOADED.

PROGRAM NAME	Q VALUE	RESTART ADDRESS	NOTES
ROCK n WRESTLE	02		
FRANKIE GOES TO H'WOOD	02		
DOOMDARKS REVENGE	02		
EMPIRE	02		
PITSTOP 2	02		
RED HAWKE	02		
MR DO	02		
ROLAND'S RAT RACE	02		
ELECTROGLIDE	02		
DEATH WAKE	02		
VIDCOM 64	02		
BOMBO	04	970E	
KNIGHT GAMES	D4		
TAU CETI	02		
LEADER BOARD GOLF	DO		PRESS PLAY ON TAPE
GHOSTS N GOBLINS	02	0850	
PRACTICALC	DO		
BRUCE LEE	DO		
THE BOGGIT			

REBEL PLANET	40	OFE9	
SPEEDKING	02		
ICUPS	DO	0810	
COLLAPSE	DO	4030	
THE ART STUDIO	DO	62DE	
NOMAD	05	1000	
METABOLIS	E3		
BOUNDER	02	OFCO	
MIAMI VICE	08		
IRIDIS ALPHA	04	4000	
GALAXIBIRDS	DO	2800	
MISSION AD	DO		
ARAC	66		
VALHALLA	DO		
PARALLAX	02	013F	STOP THE GAME IMMEDIATELY
DAN DARE	EE		
FANTASTIC FOUR	DE		
ROOM TEN	DO		
SPIKEY HAROLD	04	7000	JUMPS INTO MONITOR WHEN LOADED
HOODOO VOODOO	DO	FCE2	
KNIGHT RIDER	08	CCD5	
WARHAWK	02	6039	
NINJA	DO		
TRIVIAL PURSUIT	59		
JACK THE NIPPER	DO	32B3	
THE LEGEND OF SINBAD	04		
ASTERIX	02		
TRAP	44	1D54	
HAPPIEST DAYS OF YR LIFE	07	BB60	
HARVEY HEADBANGER	DO		
W.A.R.	50	017F	ESM MODULE NEEDED.
HOLLYWOOD OR BUST	DA		
DRUID	50	1400	
DANTES INFERNO	DO	COOB	
SANXION	44	1F98	ESM NEEDED.
ALLEYCAT	C1	0833	ESM NEEDED.
EXPODING FIST 2	C8		
HIGHLANDER	DO	80A5	
GLIDER RIDER	DO		
VERA CRUZ	DO	MULTIPART	
STRIKE FORCE COBRA	02		
TRAILBLAZER	DO		
ANTIRIAD	40	8009	
LAW OF THE WEST	07		

STOP PRESS. Q VALUE ADDITIONS.

YIE AR KUNG FU 2. ESM NEEDED.

Switch Expert off before loading.

When game has loaded switch EXPERT on. Monitor mode will then be entered.

type: X (return)

type: F DCO4 DCO4 E8 (return)

type: / CBE4 (return)

type: Q 44 (return)

Then save as usual using Z command. Keep the EXPERT switched off when reloading.

BAZOOKA BILL. USE V1.8/2.8.

Load game as normal. When loaded press F7 twice. This will take you back to the title screen. Now tap the RESTORE key.

Type: Q 2E (return)

Save as usual using Z command.