Quanta Helpline

The following article is reproduced from Daniele Terdina's Q-emuLator blog at http://qemulator.blogspot.co.uk/ - one of a number of QL blogs now operating (see list below the article). We do not normally reproduce whole articles like this but on this occasion this is such a helpful subject that we decided to reproduce it verbatim, given that Q-emuLator is now in widespread use as a QL emulator among Windows and Mac users. Q-emuLator is widely regarded as one of the best and most compatible emulators especially for running older programs such as games using original QL ROM images, but the ability to use a Minerva ROM image (as well as a version of SMSQ/E if you want!) brings an extra dimension, even if (as the article shows) a few problem areas can arise with older software on a Minerva system(QL or emulated!). A free trial version of Q-emuLator is available to download from http://www.terdina.net/ql/q-emulator.html along with a lot of information and screen shots of software which can run on the emulator.The full registered version is available for $45.95 by buying a registration code through its website above.

Minerva and Games - Daniele Terdina

The Minerva ROM brings a number of improvements to QDOS, but some QL games (especially early ones) don't work correctly on it. What are the technical reasons for these problems?
For last year's release of the "QL Games Collection" I worked on a special version of
Q-emuLator to use as the runtime for the games and I had the opportunity to investigate and answer this question for many games.

Here is what I found, the main differences between Minerva and Sinclair ROMs that can cause incompatibilities:

• Minerva expects programs to run in user mode. If a program changes the supervisor stack pointer even just for a short while, Minerva can crash, for example when the interrupt 2 service routine is called.
• Some games take complete control of the QL, typically to maximize speed and available memory, to use the second hardware display page or to strengthen the copy protection. However, virtually all of these programs still need to call QDOS to communicate with the IPC co-processor to play sounds and to read the keyboard. In Sinclair ROMs, the IPC functions are at a lower level than the rest of the OS, but on Minerva IPC access is more similar to any other QDOS calls and it accesses the system variables, which these games normally overwrite. This can cause crashes or funky behavior.
•The interrupt 2 handler, which some games use to get the correct timing or to run code periodically, accesses some system variables both on Sinclair and Minerva ROMs. However, the Sinclair handler can often continue to work when the variables are overwritten, while the Minerva one can not.
•Minerva treats unhandled exceptions very differently than the Sinclair ROM.
It's actually pretty common for QL software to contain bugs that cause unhandled exceptions as when running on Sinclair ROMs most of these exceptions where simply ignored by QDOS and many software authors didn't even have a chance of noticing the problem.

On Minerva, unhandled exceptions cause a call to the OS rather than just being ignored and this in turn can have unexpected side effects, or crash the system when combined with any of the previous issues (for example for games that take over the entire system).

In general, when running early QL games on an emulator, the safer choice is to use a Sinclair ROM and set the amount of RAM to 128 KB to avoid incompatibilities. A number of these games wouldn't

work if the QL had a RAM expansion as they expected everything to be at the same fixed memory addresses as on a 128 KB QL.

QL Blogs

This is the list of QL blogs currently known to us. Do you know of any more? Let us know via our email address helpline@quanta.org.uk and we'll print the details here.

http://www.armchairarcade.com/neo/blog - Armchair Arcade (Bill Loguidice), includes QL posts

http://qemulator.blogspot.co.uk/ - Daniele Terdina's Q-emuLator blog

http://backtotheql.blogspot.com/ - Lee Privett's QL blog

http://www.memorylanecomputing.com/blog/ - Memory Lane Computing's Blog for Ser-USB, Q-BUS etc.

http://www.qlheaven.blogspot.de/ - " QL Heaven " blog

http://sinclairqles.wordpress.com - QBlog - a Spanish QL blog.

http://www.bytemaniacos.com/ql/tiki-view_blog.php?blogId=1 - Radastan's QL blog (Spanish)

http://www.qlvsjaguar.homepage.bluewin.ch/index_frames.html - Urs König's QL blog