

## QUEST'S CP/M-68K - A RIVAL FOR QDOS?

BY MICHAEL L JACKSON

CP/M on the Sinclair QL? That's a ridiculous suggestion, isn't it? Well, Sandy PCP didn't think so when they launched the first CP/Mulator, and neither did Digital Precision, who produce the Success emulator. These both allow Z80 CP/M programs to run on the QL by emulating CP/M 2.2. In addition, DP's The Solution PC emulator is said to allow CP/M 86, written for 8086-based machines, to be used on our own 68008 machine. But these are quite different from a version of CP/M actually written to run on computers based around the Motorola 68000 family of chips.

### THE QL AND ITS COUSINS

It would be surprising to find CP/M on 68000 computers as it is an operating system with its period of success behind it - in the late 1970's and very early 1980's - whereas the 68000 machines began to enjoy commercial success only in the mid-1980's. In 1984 when the QL was born, the edition of Personal Computer News which reviewed Sinclair's new product mentions only the Apple Lisa, Corvus Concept, Fortune 32:16 System 2, HP Series 200 Model 16A, Sage II and IV, and the Tandy TRS-80 Model 16 as using the 68000 chip, out of dozens of machines using Z80, 8088/6 and 6502 chips. (There are a lot of catchy and memorable names in this list, aren't there?) The QL was the first computer to use the 68008, and its nearest cousins based on Motorola chips started at £3200, with most being more than £4000. In other words, the position was quite different in 1984 compared to today, as 68000 computers were very much in the minority so couldn't have presented much of a market for the developers of CP/M. Even now, the Macintosh, ST and Amiga have not overtaken (in terms of sales volume) the machines based on Intel 80x86 chips which run under MSDOS.

### CP/M-68K - A PHOENIX FROM THE ASHES?

Despite the limited popularity of 68000 machines, a version of CP/M was written for them in 1983, presumably on the assumption that users upgrading to the more powerful computers would still like to be able to use an operating system with which they had become familiar. In 1985 Quest International Computer Technology Limited applied the same logic to the QL and launched its own version of CP/M-68K. A little later, Atari launched the ST with a disk-based operating system modelled on CP/M-68K - early TOS.

Quest supplied CP/M-68K in two versions - one at £60 for those who had added Quest disk drive interfaces to their QLs (the interfaces contain some of the system code), and one at £100 for microdrive-only QLs, with an operating system module to fit in the expansion port. Sinclair User said of the Quest drive system "If you want to run CP/M-68K then this is the only system around."

### WHY BOTHER?

Sinclair User did not investigate the matter of why anyone would want to run CP/M-68K on a QL. As mentioned above, unlike the CP/M 2.2 and PC emulators available now, CP/M-68K would give compatibility with only a small number of other computers. Perhaps there was a certain lack of faith in QDOS? Admittedly there had been problems with the QL's own operating system from the start. At first it was going to be GST's 68K OS, which was slow and had a 32K size limit on basic programs. Then QDOS wouldn't fit in the 32K ROM space so there was a 16K kludge. And then the bugs..... But you all know that story.

However, in making comparisons with CP/M-68K I will define QDOS as being a JS ROM plus QJump's Supertoolkit II 2.10 or greater, since these were available by 1985 or thereabouts. I believe QDOS to be incomplete without TK2, but to add QRAM into the equation would make the contest a Mike Tyson vs. Larry Grayson battle.

## THE QUEST BEGINS

I used to buy Sinclair User for its ZX81 coverage, so had read of CP/M-68K long before I owned my first QL. However, I had completely forgotten about it until late 1988 when the QL Super User Bureau asked its readers for information about it. Around that time I had bought the Quest twin 5.25" disk drive system, which prompted me to dig out the old magazine review. This told me I could run the 'antique' operating system, so a few weeks later when I saw an advertisement in Micro Mart for CP/M-68K I rang up the advertiser. The deal made, I waited eagerly for my £4.00 bargain.

Without the Quest manual I had some difficulties. A friend was familiar with CP/M 86 on a PC and his advice over the 'phone enabled me to make backup copies of the four disks. I had other problems, but most were solved when I increased the memory of the QL to 384K, which allowed the larger programs to run.

### WHAT DO YOU GET FOR £100 / £60 / £4?

As the microdrive-only version uses a dongle in the expansion port, I assume you get fewer features for your extra £40, i.e. you cannot use external memory and consequently cannot use some of the utilities.

To use CP/M-68K, the disk operating software is loaded from a single unprotected microdrive cartridge, which turns off QDOS. The devices available depend on the particular QL, but on mine are:-

A: 100K MICRODRIVE  
B: 100K MICRODRIVE  
C: 800K 5.25" DISK  
D: 800K 5.25" DISK  
E: NOT AVAILABLE - RESERVED FOR EXTRA DRIVE  
F: RAMDISK, SAY 100K

The four Quest disks contain:

- a) CP/M-68K transient utility programs;
- b) AS68, a 68000 assembler and associated utilities; and
- c) a C compiler and utilities.

To get to know the system I had to rely on Rodney Zaks' "The CP/M Handbook", which is essentially about Z80 CP/M 2.2. Surprisingly many of the commands worked in the same way, so I had enough to allow me to experiment a little. I also borrowed the manual for an Amstrad PCW 8512, which uses CP/M Plus, but found that there were different commands and the syntax was not the same.

### PLEASE FOR HELP

In order to get more information about the software I placed advertisements asking for help, which led to me obtaining a spare copy of Quest's "CP/M-68K Operating System User's Guide". Unfortunately I still need the manuals for the assembler and C compiler, so if anyone has access to a copy, please let me know c/o CGH Services.

As is quite typical on the Sinclair scene, the manual describes programs which are not present on the disks and attributes features to other programs which they do not possess. The manual is in different typefaces, suggesting that in part it was a standard Digital Research manual, the rest being QL-specific material. I don't suppose Quest ever had much incentive to correct the manual because CP/M-68K doesn't seem to have sold well. I now have two copies of the disks, one dated June 1985 and the other dated September. There is a difference of only 30 in the serial

numbers on the labels, implying that this represents the number of copies sold in three months. I would suggest that a reasonable scoreline for a QDOS vs. CP/M-68K match would be 150,000 vs. 150 (sales).

#### OPERATING SYSTEM FEATURES

As I've not been able to get to grips with the Quest assembler or compiler yet, it wouldn't be fair to judge them against comparable QDOS products. Also CP/M-68K lacks a basic interpreter, so there isn't anything to compare with SuperBASIC (is there anywhere?). Comparisons are based on how devices and files are handled, plus other similar utilities.

Once the software has been loaded from cartridge, the following built-in commands are available:

DIR; DIRS; ERA; REN; SUBMIT; TYPE; and USER.

The QDOS equivalents are:

DIR & WDIR; DELETE & WDEL; RENAME; DO; and VIEW. The replacement for different user areas in QDOS would be directory navigation, using the following: DATA\_USE, PROG\_USE, DEST\_USE, DDOWN, DUP, DNEXT, and DLIST. QDOS offers greater flexibility than CP/M user areas.

CP/M allows the use of wildcards in file name selection, e.g. DIR D:\*.68K would give a list of all files ending in 68K on drive D. The QDOS equivalent would be WDIR FDV2\_\_68K.

#### TRANSIENT COMMANDS ~ OS EXTRAS

As we all know, it is very easy to add extra commands to QDOS by purchasing a machine code toolkit or writing your own. Extra commands can be added to CP/M-68K in the form of transient utilities. Apart from those specific to the assembler or compiler, the ones supplied are:

BAUD; ED; FORMAT; MDCOPY; MDFORMAT; PIP; RAMDSK; and STAT.

To use one of these commands, for example PIP, type at the prompt "

C:PIP `ENTER`

and a program called PIP.68K will be loaded from the disk in drive C. PIP stands for Peripheral Interchange Program, and its nearest equivalents in QDOS would be WCOPY, COPY\_0, COPY\_N and COPY\_H. For instance, to copy all files from one disk to another:

CP/M-68K:- PIP D:=C:\*.\*

is the same as

QDOS:- WCOPY FDV1\_ TO FDV2\_

but doesn't offer the Y/N/A/Q? flexibility of WCOPY, and automatically overwrites all files with the same name if they already exist on the destination disk. This could cause problems!

ED is a line editor to create or amend text files. I find it difficult to use compared to a full screen editor such as QL Editor, but with the recent acquisition of a manual I am now having some success. FORMAT is used to format disks, MDFORMAT to format microdrive cartridges. MDCOPY is a potentially useful utility which copies files from QDOS microdrive cartridges to CP/M-68K cartridges or disks. It is only a one way transfer, but should allow assembler or compiler

source files to be prepared using a decent full screen editor (even Quill), then to be transferred to CP/M.

The STAT commands gives several different options to obtain statistics about files and devices, e.g.

STAT DEV: ; STAT VAL: ; STAT DSK: ; STAT \*.68K ; or just STAT.

To obtain similar information, QDOS would require combinations of STAT; WSTAT; DATAD\$; PROGD\$; and DESTD\$. However, with QDOS it is possible to obtain information about memory usage, e.g. PRINT FREE MEM, and file size is reported to a greater degree of accuracy and information about the date and time of file updating can be displayed.

The main advantage of CP/M-68K is that it is a 'standard' operating system, running on computers other than the QL. (However, I don't know which 68000 computers did use CP/M.) Anyone familiar with CP/M 2.2 would probably find it easy to use. Programs written on other machines should run on the QL. But here is the main drawback. I have been unable to discover any supplier of applications software for CP/M-68K, including two public domain libraries. At the best, I have been able to add two more utility commands - ERAQ68 and COMP68 - but there is no Wordstar or Supercalc (or near clones).

#### THE VERDICT

There are not many QL programs compared to the total for MSDOS machines, but they far outnumber the available programs for CP/M-68K. Any operating system without applications software is bound for extinction.

CP/M-68K is loaded from cartridge and takes up valuable memory space, unlike ROM-based QDOS. It seems slower than QDOS, has fewer commands, and is supplied with a C compiler rather than a basic interpreter, so will appeal to a minority of would-be programmers. It crashes with little provocation, for instance when a disk's directory is full (with 400K free space left on the disk!), or when the wrong key is pressed at the wrong time. It will only run on QLs with Quest hardware added.

I am not writing off CP/M-68K completely at the present. I have had more than £4 worth of amusement out of it and there is still the prospect of getting to use the assembler and compiler. If I can obtain the appropriate manuals, I would probably try to convert programs for this operating system. Perhaps PDQL's Superbasic-C-Port would allow me to translate existing SuperBASIC programs, as it produces C source code from basic input.

If you haven't got the appropriate Quest hardware, I reject Sinclair User's 1985 verdict and suggest that it is not worth buying in order to run CP/M-68K. Stick with QDOS. On the other hand, if you've already got the hardware, as I had, and can get the programs very cheaply you might get some fun or alternative experiences out of them.

Michael L Jackson

If any of our readers can help Michael locate any software that runs under CP/M-68 do let us know. The Public Domain Software Library at Winscombe House, Beacon Road, Crowborough, Sussex, TN6 1UL have the following CP/M libraries: CPMBBUK (111 disks); KUG (60 disks); SIGM (294 disks); UK (53 disks); Apple (56 disks); BOOG (59 disks); US National (93 disks); C Users Group (54 disks); Netherlands (33 disks) and hope to have another 50 disks available soon. How many work with CP/M-68 is another matter!!

Richard