Sinclair Scene

In a QPac-ked column, Timothy Green sifts the news for QL, Spectrum and SAM Coupe enthusiasts

QPac-2 is the latest package from Tony Tebby, who wrote much of the QDos system routines built into each QL. Tony left Sinclair Research soon after the QL launch in 1984, and set up his own company, aptly named QJump. Past products include the Rom in most QL disk interfaces, *SuperToolkit 2* and the *QRam* system control or 'front-end' package.

The QL has no need of a front-end, as such. It is a multitasking machine so that, memory permitting, you can run any combination of programs at any time. Yet it is still useful to have some sort of 'desktop' control program, to keep track of other jobs and system resources. That's where *QPac-2* comes in.

QPac-2 is a replacement for the system control parts of *QRam*, which many QL fans use to control memory, files and tasks. *QPac-2* has most of the features of *QRam*, but no onscreen help and no facility to print window images.

Lump it

QPac-2 has four main parts. WMAN is the 'window manager'. It supports overlapping windows, so that jobs do not make a mess if several want to write to the same part of the screen. You can shuffle windows, and only the job on top is allowed to write to a contended part of the screen. The contents of lower windows are saved, using up to 32K Ram each. Windows may be 'unlocked' if a job must write into an area it does not own.

Windows can be moved and changed in size at any time, as long as the programmer designed them to suit *QPac*. Windows are not redrawn until you confirm the new position. It's a pity you can't see the outline of a window dynamically as it moves.

You often need to move windows because the default positions are not configurable and often overlap. Positioning is simple, but resizing can be clumsy; sometimes you need to move, then resize, then move a window to get it in the right place. The minimum width is determined by the title and control icons at the top of each window.

Some windows can be split or merged, rather like sections of a spreadsheet, with independent panning and scrolling. You can move a section by pointing at arrows to scroll a line at a time, or jump around using a scroll bar.

Hotkey 2 is a new keyboard job which distributes keypresses among other jobs. It recognises a configurable set of 'Altkeys' – keys pressed while Alt is held down – which can be programmed to type messages, run, load or 'wake' dormant jobs. You set, list and change these Altkeys with a couple of dozen new commands and functions. Alt Enter recalls previous entries in any window, but this overrides the *Toolkit 2* implementation, so it will not work unless the Hotkey task is active.

The 'Pointer Interface' QPTR lets you pick any task by pointing at its window. It's easiest with a mouse, but you can use the cursor keys. The screen may get crowded, so you can assign any task to a 'button' – a named box at the top of the screen. The job only appears when you press the button.

Main menus

QPTR, WMAN and Hotkey 2 form the core of *QPac-2*, and use about 44K of memory. The most visible part of *QPac-2* is a further 33K block of utility jobs. These correspond to the *QRam* menus, and more.

You can call up any of the six main menus with a Hotkey or button. You pick an option by pointing at it, or by typing a single keystroke label underlined before each menu option. The menus use small MODE 4 characters throughout, and some occupy the left-hand edge of the display, so you need a monitor to run *QPac-2* comfortably.

The Channels menu shows which channels and devices are being used by each task. It lets you close any channel, which may kill the task. In general, this works well, but I did notice a couple of bugs – sometimes *QPac-2* reports 'Unknown device', and it does not always get the details of its own window right.

The Jobs menu lets you pick, prioritise or remove any task. The Things menu can list or execute any programs waiting in memory, while Hotkey does the same for Altkeys, and Sysdef controls device defaults.

The Files option has a submenu to View, Copy, Backup, Update, Move Print, Execute and
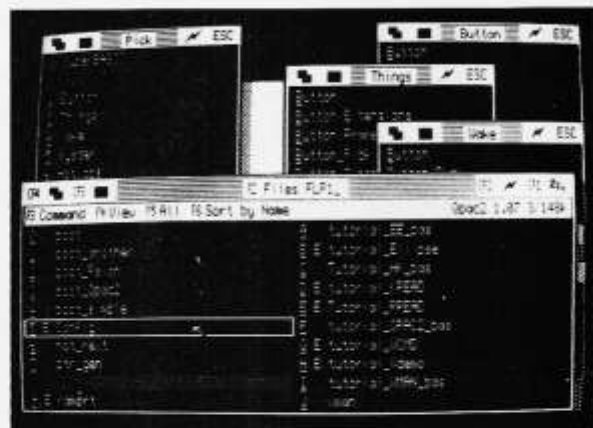
QPac-2 in action

Delete files individually or in groups; it can also format disks. It supports subdirectories on any device, and copies quickly between drives. File names can be sorted according to various criteria, but I could not get them listed in the familiar order used by DIR.

By default, the Files menu goes to sleep when you have finished with it, and a button labelled with the device name appears at the top of the screen. You recall the directory display by pressing the button. Other *QPac-2* menus disappear after use, unless you assign them to a button explicitly.

Teach yourself

QPac-2 comes with two manuals. The main volume is neatly typeset and supplied in an A5 ring binder. It comes in two sections, and it is best to read the second part first. This is a 50-page essay on 'The QJump Extended Environment', with four distinct introductions, aimed at Mac, *Gem*, ICE, Taskmaster and 'other' users.

The first part covers 'Pointer Accessories' and the *QPac-2* menus in 30 pages. There is no index, but each part starts with a two-page contents list. The details of controls and commands are adequate and interesting, but it is a pity that

underlying data structures are not documented, expecially as the QPTR Toolkit is no longer available.

Five example BOOT files come on the *QPac* disk, along with six tutorial files. In conjunction with the text, these introduce you to the menus and control options of *QPac-2*. Unfortunately, the tutorial files assume you are running from the root, and need extensive changes to run from a subdirectory. You need to reset and reload *QPac-2* after each. Minerva reports 'At line 999 Not Implemented Yet' if you try to run the tutorials one after another.

Contrary to my preview in April, *QPac-2* includes the 5K RamPRT extension, which can be used with or without the rest of the package. RamPRT provides up to eight Ram disks and a print spooler, with static or dynamic memory allocation. A special Format command copies the entire contents of a microdrive tape to a 128K Ram disk in just 15 seconds!

Testing time

Sometimes the keyboard seems to freeze when swapping between tasks. Control Space still gets through to Basic, but you may need to press Control C several

times to coax out a cursor. For instance, you can swap to six channels after running the tutorial, but only two display a cursor; the others are 'dead settings' on the *QPac* gear-change. Sadly, there's no apparent way to change the sequence of jobs selected by Control C.

There are lots of ways to select tasks with *QPac*, and it's silly to stick with Control C when you could use Buttons, Altkeys, Menus or point at a job. However, you may need to Control C around to find the pointer, if several jobs are running.

In general, programs can run while they are not displayed, but they stop as soon as they try to write to a window that is covered up. Pointer keypresses are often missed if another task is using Keyrow, but that may not matter if you have a mouse.

The manual warns that 'badly behaved' programs can crash the package, so I tested it with a range of programs on a QL with Minerva Rom 1.63. *QPac* would not run at all on the Thor XVI – it locked the machine during loading.

I have found no problems using *QPac* with SuperBasic and Psion software, *Spy*, *Devpac*, *QL Invest-*ment Monitor* and *Multi-DiscOver 2.11*. The new command EXEP lets you protect jobs that move windows around or try to grab all the memory.

Flightdeck ran, but muddled *QPac-2* menus and its own displays, presumably because the simulator writes directly to display memory. *The Editor* works, but uses the wrong character size if loaded from MODE 8, ▶203

NEWS

▶ Lake moves

Miles Gordon Technology has moved to larger premises "The other side of the lake" in Swansea. Post will still reach MGT if you write to the old 'Lakeside' address, but you can save a day or to by writing direct to the new factory at Century Park, Valley Way, Morriston, Swansea SA6 8QP.

▶ Coupe assembly

MGT's SAM Coupe has its own Z80B assembler, thanks to Lerm Software. Previously, machine code programs had to be assembled, or translated from text to binary form, using the Spectrum emulator or another computer, perhaps via the PDS PC cross-assembler.

Lerm's *SAMAssem* will assemble up to 32K of source directly on a Coupe. The assembler is derived from *Z80 Toolkit*, reviewed in *Shopper* issue 7. The assembler and editor are entirely written in machine code, but a *SAM Basic* menu routine is sensibly used to control tape and disk filing.

The editor uses numbered lines, like *SAM Basic*. It supports block operations and any printer, but the review copy can only use a 32-column display. The assembler is fast and recognises some 'secret' Z80 instructions, but it has no macros or conditional assembly. Lerm is working on upgrades, including 64-column editing and a full debugger. The first version is good value at £8.99 and should help many techies to get the best from the Coupe.

▶ Tech guide

MGT has upgraded its technical manual for the SAM. The price remains £8.99, but version 3.0 adds full circuit diagrams for hardware hackers, plus extra information on SAMDos and the SA-1099 stereo sound chip.

The *SAM Basic* section has been overhauled, so it no longer duplicates information from the main manual, but contains extra details of system variables, data structures and system calls, including code to access Dos and FPC routines.

The manual hints at new keywords reserved for a disk-based 'extended Basic', due later in the year. Words like ALTER, CHAR$, INARRAY (like INSTR, but better), JOIN, NUMBER, SHIFTS, SORT (!) and USING$ should be familiar and welcome to SAM users who have graduated from Andy Wright's *Spectrum Beta Basic*.

▶ Daton games

Dave Tonks has released three strategy games for the SAM, with more titles to follow. The programs use MODE 4 graphics and *SAM Basic*, and cost just £2.50 on disk or tape. Dave says "The Basic is superb; you don't need extra machine code, it's all built-in." See this month's *Software news* in the news pages for further information.

▶ SAM upgrade

By the time you read this, all existing Coupe customers should have received a free upgrade for their SAM, including a new Basic Rom and Dos. Our upgrade arrived early in May, with Rom 2.0, the new Dos, and detailed fitting instructions.

It took about 10 minutes to change the Rom, and I had no problems once I reconnected the disk drives and keyboard properly. The updated *SAM Basic* is noticeably faster and more consistent, especially on large programs. The new Dos is a fair bit faster than the old one, and it removes the need to format disks twice to ensure reliability. In particular, directory operations are much accelerated, correcting a weakness on Plus D, Disciple and the first SAMDos.

▶ ZX emulation

After the experiments noted in last month's column, I have managed to transfer most of Codemaster's Spectrum CD games to Coupe disk, using MGT's disk emulator. I had to make one small modification to the loader – I removed the lines that LOAD and CALL the file "MODIF".

This file is intended to improve tape loading, but it interferes with Codemasters' custom CD loader. MODIF links programs calling Spectrum tape routines to the SAM Rom loader, which automatically compensates for speed variations in the recording, playback and processor. This usually makes loading easier, but the patch interferes with a few programs – notably the CD loader.

Several readers report that loading problems are cured if they convert 'protected' Spectrum files into standard format, using a Multiface or Lerm's *Transpack* software. Some loaders are fussy about timing or alignment, and need a high tape level. Re-recording in standard format addresses both problems, so tricky games load more easily. Lerm claims that *Transpack* can convert over 750 Spectrum programs into standard tape format.

▶ Maxwell saves World

Tycoon Robert Maxwell has bought five computer titles from the receivers of Focus Magazines, including *QL World*, Popular *Computing Weekly* and and three Amstrad-specific titles. The magazines are now part of Captain Bob's Maxwell Business Communications empire.

The original management and staff have been retained, and MD Peter Welham is adamant that all the titles are now trading profitably. In a recent interview with *Computer Trade Weekly*, he calls *QL World* "The archetypal specialist magazine", and labels the QL as "The Morris Minor of the computing world" which inspires "Tremendous loyalty". Don't we know it!

▶ Dilwyn goes alone

Respected programmer Dilwyn Jones has set up an eponymous computing company to sell QL software. His first three releases are Turbo-compiled utilities, priced between £6 and £10 each – see *Software news* for more details.

▶ Amiga QDos boost

The Amiga QDos emulator has been upgraded, and the new version is available from Softville, at £3 per disk. Disk access is 35 percent faster, more reliable and fully compatible with QDos, so you can swap disks back and forth freely now between QL, Thor and Amiga.

The new version recognises any amount of memory from 512K to two megabytes, and can handle a megabyte of chip memory if it finds the new 'Fat Agnus' chip in control. The keyboard routines come configured for the UK and they are easily patched to suit other key layouts.

The revised emulator is on AmigaDos disk USPEC 13. Three related disks are available. USPEC 13A holds 700K of QDos source for the emulator, while USPEC13B is packed with Public Domain software and 'patch' utilities to get common QL programs working under the emulator. You need USPEC 13 to run the emulator, USPEC 13B to convert QL software, and USPEC 13A plus GST's Macro Assembler to roll your own version.

As I write, early in May, the QDos disks have not changed since last year; brilliant Berliner Rainer Kowalik is reported to be tidying up his source files before releasing the new versions.

so that the prompt line overflows the screen. *Turbo* ran, but the code-generation reports lacked borders and used the wrong screen mode; this is a cosmetic annoyance, but compiled tasks seem fine. I noticed a similar problem of output assuming the wrong mode when running QJump's own *ellipse* tutorial.

CPMulator 2.00 started OK under *QPac-2*, but crashed twice after a short while. The adventure game *Starplod* locked the machine after loading, whether I used the supplied BOOT program or *QPac*'s JOBS menu to start it. Computer One's Forth system failed to run, as *QPac* used memory it expected to find free. *Special Edition Desktop Publisher* consistently crashes after loading.

Undoubtedly, some of these problems stem from bugs in the application software, and some could be circumvented by patches or special actions – but these programs work fine if *QPac* is not loaded, so it may be worth discussing your choice of applications with QJump before switching to *QPac*. We expect an update when these problems are fixed.

Conclusions

QPac-2 tames windows and jobs on the QL. It gives you a wide range of ways to load, activate, hide and control system resources, with a choice of using mouse buttons, menus, and keyboard shortcuts to make your own user-interface. *QPac-2* gobbles memory, and is best used on a machine with expanded Ram, and preferably a mouse and monitor.

QPac-2 is undoubtedly the most comprehensive 'front-end' to arrive on the QL. Its appeal depends on your existing configuration and mix of programs. It does much more than *Taskmaster* or *Switcher*, but modifies the QDos system more, causing some compatability problems.

QPac-2 costs £49.90 including Vat, on 3.5" disk. Add £1.50 UK postage, £2.50 in Europe, or £5 elsewhere. *QRam* customers get £20 discount.

As I finish this review I hear that Tony Tebby plans to up roots from Cambridge to a new base in France. His programs will remain available in the UK from Care Electronics.

Spectrum shrinks

Many interfaces for the 48K Spectrum include hardware to save the entire contents of memory, plus register values, in a 'snapshot' file. Add-ons like the Multiface, Plus D and Disciple feature a 'magic

button' which interrupts any program and saves it to disk. This file can be reloaded later, and the program will continue from exactly the point when you pressed the button.

Snapshots are very useful when mapping games, saving levels, or using utilities which lack disk commands. The main snag is that every snapshot file contains the display, program, data and everything else in memory when the button was pressed. Thus the file is a little over 48K long, and you can only fit 16 snaps on one 780K disk. Disks fill even more quickly if you save 128K snapshots or use low-capacity drives.

The answer is to compress the file. The Multifaces have always included compression routines, but the Disciple and Plus D save full 48K or 128K files. Shimon Young's *Compressor* program adapts MGT's system so that snapshots are automatically compressed, and expanded, as they are saved and reloaded.

If memory is mostly empty (as immediately after loading GDos) *The Compressor* can crunch a 97 block snapshot into a single block of 510 bytes! Many programs leave areas of memory unused, or use tables of similar values, particularly in graphics, text or map data.

There are lots of ways to compress data, depending on the values concerned. Most general-purpose schemes work by replacing sequences of identical values with one instance and a count of the number of times it occurs. This usually results in a decrease in the size of the file, although it can be counter-productive if the data values are really random, as extra information must mark the length of each sequence.

I tried *The Compressor* on two games from CodeMasters' compact disc collection; SAM snapshots seem to load happily on the Spectrum. I tested *Twin Turbo V8*, a typical 48K game, and *Code-*

Masters Pro Snooker. CD loading times were 48 and 30 seconds, respectively.

Both files were compressed from 97 blocks to around 78, pushing the capacity of a disk from 16 to 20 files. Clever tactics can squeeze even more onto a disk. The degree of compression varies with the complexity of the screen. The display uses 6.75K of memory, so an empty Basic snapshot file grows from 1 block to 8 if you display the directory of a full disk before saving the file.

The figure *Snapshot speed table* shows how a snap of Twin Turbo V8 varies from 68 to 77 blocks, depending on whether you press

SNAPSHOT SPEED TABLE

	SIZE	SAVE	LOAD
Standard Plus D, any 48K program	97	6.5s	3.6s
Compressor, empty 48K Basic 1	5.0s	2.1s	
Compressor, Snooker game screen	78	8.6s	3.9s
Plus D Toolkit, Snooker game screen	78	284s!	6.6s
Compressor, Twin Turbo title screen	77	8.4s	4.1s
Compressor, Twin Turbo credit screen	68	8.3s	3.8s

❒ File sizes are measured in 510 byte blocks; times in seconds.
❒ Tested on GDos+2A with an empty disk in a megabyte MGT Lifetime drive.

the button with the detailed title screen or the largely empty credits on display. The instructions note that some programs have their own compression routines, to speed tape loading. You can tell these by the pause after loading; the sooner you press the magic button the smaller the snap will be.

The Compressor loads from tape in about a minute, along with an awesome but irrelevant 3D graphics demo. After loading, you can save a copy of the 'patched' system file to any disk. The program uses no Spectrum memory, as it amends the system file held in the disk interface's private Ram.

The Compressor has one A4 page of documentation; this is quite adequate as the program makes little difference to the operation of the system, apart from compressing snapshots. It works with any version of the Plus D, but some users need an extra Poke command to configure it for their system. Disciple owners need System 3B or later, and *The Compressor* overwrites their graphic printout routines. They can still save screens to disk, but need their old system file to print them.

Once *The Compressor* is part of your system file, all snapshots are automatically compressed as they are saved. Both Plus D and

Disciple versions let you reconfigure to save normal 48K or 128K snaps, but expand compressed files as required. The standard system cannot load compressed snapshots.

The Compressor speeds disk access, but there's a small delay and the screen display is scrambled momentarily while data is squeezed or expanded. In general, easily compressed files load faster and larger ones load slower than normal, but the difference is small.

The program is dramatically quicker than Steve Nutting's *Plus D Toolkit*, which adds commands to compress standard snapshots and expand them on loading. The *Toolkit* is relatively fiddly to use, and took almost five minutes to compress *Pro Snooker* into 78 blocks! It costs just £3.50. It only does one thing, but does it well, and it's great value if you spend a lot of time shuffling disks. How about a SAM version, Shimon?

Next treat

Next month's column is planned to include more reviews of new SAM software, and Alan Pemberton's long-awaited QL adventure *Voyage of the Beano*. ■

CONTACTS

The Compressor
*Shimon Young,
21 Colchester Road,
Southend on Sea,
Essex SS2 6HW.
(0702) 331218*

SAM Technical Guide
*Miles Gordon Technology,
Century Park,
Valley Way, Morriston,
Swansea SA6 8QP.
(0792) 791100*

Coupe programs
*Lerm Software
(091) 253 3615*

*Daton Software
(0922) 406239*

QPac-2
*Care Electronics, 800 St
Albans Road, Garston,
Watford, Herts WD2 6NL.
(0923) 672102*

New Amiga QDos
*Softville, Unit 5, Stratfield
Park, Eletra Avenue,
Waterlooville, Hants
PO7 7XN. (0705) 266509*