

RAM Disk Driver and Printer Buffer

For no good reason at all, except that some users might find it useful, we have included the old QRAM RAM disk driver and printer buffer. This is in the file RAMPRT which should be loaded (LRESPR) into the resident procedure area. This should not be used with SMSQ/E.

RAM Disks for Beginners

The term 'RAM disk' is a misnomer. It is used to denote a 'virtual' device (one that only exists in the fertile imagination of the QDOS) that looks and behaves like a very fast disk device. It is so fast because being virtual, there is virtually nothing to move to get information in and out. It is, in fact, no more than a reserved area of the computer's main memory (its RAM- Random Access Memory). This means, of course, that any space taken by a RAM disk is not available to programs executing in the computer. Furthermore, any data stored in a RAM disk will be lost when the computer is turned off or reset!

RAMdisks may be of any size, subject to there being enough memory. One way of using a RAM disk would be to copy all working files into the RAM disk; rename the RAM device to be MDV (to pretend that the data is really on the Microdrives); execute the programs (e.g. Quill, Archive etc.); and, at the end of the session, rename the RAM device to be RAM before copying the data files back to Microdrive.

On the other hand, it is just as easy to use a RAM disk without changing the name. All the normal filing system commands work with RAM disks.

FORMAT ram2_200	creates a new RAM disk 2, see below
DIR ram1_	directory listing of RAM disk 1
SAVE ram1_myprog	save the current SuperBASIC program as 'myprog' in RAM disk 1
OPEN_NEW #3,ram2_data	creates and opens a new file 'data' in RAM disk 2
COPY flp1_x TO ram1_x	copies file x from FLP 1 to RAM Disk 1

RAM Disk Creation

A dynamic RAM Disk is created just by accessing it with any normal operation (e.g. DIR). This type of RAM Disk takes memory as required, and releases any memory as files are deleted or truncated.

A fixed RAM disk is created by formatting it: the size, in sectors, is given in place of the usual medium name. This pre-allocates all the space that will be available in the RAM disk. Formatting a RAM disk will throw away all the files in that RAM disk. A RAM disk may be removed by giving either a null name or zero sectors.

FORMAT ram1_80

set up an 80 sector (40 kilobytes) RAM disk

FORMAT ram1_	or
FORMAT ram1_0	clear out RAM disk 1

The RAM disk number should be between 1 and eight, inclusive, while the number of sectors (512 bytes) is only limited by the memory available. A RAM disk can be formatted from the FILES menu of QPAC2.

Heap Fragmentation

The primary storage mechanism in QDOS for permanent or semi-permanent memory allocations is a 'heap'. Allocating space in a heap, and then re-allocating this space as a different size, inevitably causes holes to be left within the heap. This reduces the amount of memory available to either SuperBASIC or executable programs.

This RAM disk driver has precautions to reduce the possibility of heap fragmentation, but it is preferable to consider any fixed RAM disk to be a permanent feature until the computer is reset.

Using a fixed RAM Disk not only reduces the danger of heap fragmentation, but also provides higher access speeds during file creation. Since it always occupies the maximum space you ever wish to use, it is much less flexible. QJUMP gives you the choice.

RAM Disk Emulations

The standard driver also includes a SuperBASIC procedure RAM_USE to change the name of the RAM disk driver. Any three letters may be used as a new device name, in particular 'ram' will reset the driver.

RAM_USE flp	or
RAM_USE 'flp'	sets the name of the RAM disk driver to 'flp'
RAM_USE ram	will reset the driver to its normal state

RAM Disk Microdrive Imaging

Microdrive imaging is a very fast method of loading files from a Microdrive cartridge. To produce a Microdrive image, a RAM Disk is formatted with the name of the Microdrive required.

FORMAT ram1_mdv2	loads an image of mdv2 into RAM Disk 1
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The RAM Disk can even load a Microdrive with a damaged directory. It cannot, however, load a Microdrive with a damaged map. The RAM Disk will try up to 3 times to read a faulty sector. If it fails, the number of good sectors returned from the format will be fewer than the total number. Any file with bad sectors will be marked with an '*' in the RAM Disk directory.

Printer Buffer

The Printer Buffer has two names: the 'usage' and the 'device'. The default usage name is PRT and the default device is SER. The printer buffer works by intercepting any OPEN call to a device whose name starts with its usage name. It substitutes the device name for the usage, and tries to open the device. If it succeeds, then all the output is buffered within the computer's main memory. If the device is in use, then the output is also buffered until the device is available. You can have many buffered output files open at one time.

Using the default usage (PRT) and device (SER) all references to a device called PRT will use the serial driver SER. Any parameters appended to the PRT name will be transferred to the SERname:

OPEN #3,prt	will open SER with a buffer
COPY flp1_fred, prt2c	will copy to SER2C with a buffer

The usage and device can be changed using the PRT_USE command. Two cases are particularly useful. In the first, the usage and device names are the same. This has the effect of introducing a buffer transparently into a device. In the second, the device name is of zero length. This means that the usage name may be followed by any device name.

PRT_USE usage, device

PRT_USEser,ser

buffer all output to SER1 and SER2

PRT_USEb_,"

b_ser1 is bffered SER1, b_par is buffered PAR etc.

The current printed output may be thrown away by the PRT_ABT command which will ABORTthe file with the message '*****ABORTED*****' on the printed output.