

# Dragon 64 DS1315 Real Time Clock

Small PCB with Dallas Semiconductor 'Phantom clock' chip, crystal and backup battery.

- Mounts under Basic ROM #1 in a Dragon 64  
(Needs a 28pin EPROM socket with !CS used for selection - ignores !CEO)
- Physical size allows fitting in conjunction with DragonPlus board and/or CPU CoCoSDC pullup board.
- Clock doesn't interfere with normal function of machine in any way.
- Can be read or written to by a machine code routine which 'wakes' the clock chip and accesses the time data
- Basic and OS9 software available
- Alter your OS9 startup file and there's no need to enter date and time in OS9 on boot ever again!

Currently the software and the physical / electronic design of the board is D64 only... as it relies on the 28 pin EPROM socket and !CS chip select, and being able to switch out the Dragon 32 mode ROM for the 64 mode one.

## Assembly hints

- Fit and solder the 32.768kHz watch crystal XL1 first, leaving enough pin length on the upper side of the board so that the pins may be bent to lie the crystal flush against the board on its silkscreen outline, close to the ground plane.
- Fit the DS1315-5+ directly to the board and solder in place
- Fit the turned pin male SIL headers to the underside of the board (the inboard footprint). It's easier to ensure these are straight if you mount the assembly in an IC socket and solder the corner pins first. Can be done in a socket in the Dragon if you don't have a wide DIP socket, breadboard or similar available.
- Fit the turned pin SIL sockets on the topside of the board (the outboard footprint marked U1), flip over and solder in place on the underside. You could substitute a dual wipe DIP28 socket if you prefer, though you may have to cut away some plastic to make it mount flush.
- Finally, solder in the CR2032 battery holder for BAT1. The second BAT2 holder is optional and can allow hot-swapping of batteries, or a longer runtime (more than a year).

## Software

A DragonDOS disk image is provided with a BASIC helper program, GORTC.BAS and machine code routine RTC.BIN to get or set the 8 bytes of time data in the clock.

Source for the machine code routine can be found in RTC.ASM in the zipfile.



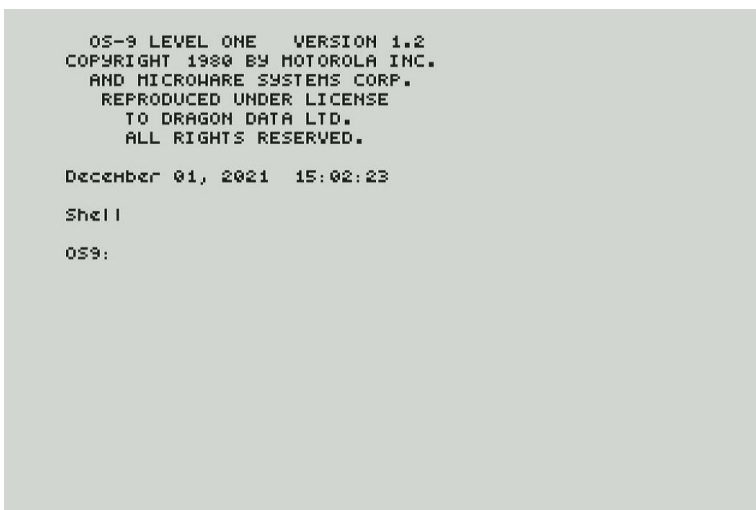
An OS9 command, getrtc, retrieves the current clock time and outputs to stdout it in the correct format for the setime command. Add this in to your boot disks' CMDS directory and replace the current setime line in your startup file so that the output of getrtc is piped into setime, thus:

```
getrtc ! Setime
```

This will set the clock on startup but will the setime prompt is still visible.

For additional pretty-ness, the disk also includes a null device driver and descriptor, which can be used to discard setime's console output, and the date command with the t option can be used to output the date and time once set:

```
load nulldr null
getrtc ! Setime >/null
date t
```



### **Note on Dragon 32 support**

Support for the RTC on a Dragon 32 or an expanded Dragon 32 (64k) is possible, but would require the RTC board to be fitted to the lower 8k socket in a 28 pin ROM socket adapter which routes !CE on pin 20 to pin !CS pin 22.

The read and write routines must also be modified to remove the Dragon 64 style ROM selection code, or you are highly likely to blow up your PIA!