

Dk'tronics Real Time Clock

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Contents

- 1 Technical
- 2 Software
- 3 Timestamps
- 4 Photos
- 5 Reviews
- 6 Manuals
- 7 Downloads

Technical

Contains following components: HD146818P (PC-style RTC), a TMPZ84C20P (Z80 PIO), 74LS00 (Quad NAND), 74LS138 (demux), 74LS175 (4bit latch), 9pin male DSUB connector (used as an 8bit general-purpose I/O port), and a rechargeable 3.6V battery.

```
FBE0h Dk'tronics Real Time Clock - Z80 PIO Port A Data (HD146818P RTC Data bus)
FBE1h Dk'tronics Real Time Clock - Z80 PIO Port B Data (General Purpose 8bit I/O Port)
FBE2h Dk'tronics Real Time Clock - Z80 PIO Port A Control
FBE3h Dk'tronics Real Time Clock - Z80 PIO Port B Control
FBE8h Dk'tronics Real Time Clock - "4bit latch" (details unknown)
```

PIO Port A seems to be the plain RTC Data Bus, there should be also RTC Read and Write signals, which are maybe found in the **(details unknown)** port?

Software

Included BASIC and CP/M+ drivers:

- RSX.BAS (loader) and RSX.BIN (binary)- allows to change the time under BASIC, using following RSX commands
 - |SETTIME,yy%,mm%,dd%,dayofweek%,hour%,min%,sec%
 - |ASKTIME,@yy%,@mm%,@dd%,@dayofweek%,@hour%,@min%,@sec%
 - |POKERTC,index%,value%
 - |PEEKRTC,index%,@value%
 - |TIMEON,xpos%,ypos%,interval%
 - |TIMEOFF
 - |ALARMON,hour%,min%,sec%,flag%
 - |ALARMOFF
- CLOCK.COM - installs the clock under CP/M+
 - Thereafter, it should be accessible with standard DATE command, and, it should add timestamps to files).
 - According to english manual, time is set by "CLOCK dd/mm/yy hh/mm/ss" rather than by using the DATE command (?)
 - Unknown how the timestamps are stored on disk? The normal AMSDOS filesystem / directory entries don't include timestamps.
 - According german manual, something is (the startup message?) "Datomat RTC und Cdos sind Warenzeichen von CMS International" (=Datomat RTC and Cdos are trademarks of CMS

International)

Timestamps

Below method uses Directory Entries with User Number 31 for Timestamps. Which should be incompatible with AMSDOS, so it is probably NOT used in the CPC. On the CPC, the timestamps <might> be maybe stored in the bootstrap sectors...?

Time stamps - P2DOS and CP/M Plus support time stamps, which are stored in each fourth directory entry.

This entry contains the time stamps for the extents using the previous three directory entries. Note that you really have time stamps for each extent, no matter if it is the first extent of a file or not. The structure of time stamp entries is:

```

1 byte status 0x21
8 bytes time stamp for third-last directory entry
2 bytes unused
8 bytes time stamp for second-last directory entry
2 bytes unused
8 bytes time stamp for last directory entry

```

A time stamp consists of two dates: Creation and modification date (the latter being recorded when the file is closed). CP/M Plus further allows optionally to record the access instead of creation date as first time stamp.

```

2 bytes (little-endian) days starting with 1 at 01-01-1978
1 byte hour in BCD format
1 byte minute in BCD format

```

Photos

dk'tronics Real Time Clock - 464/664 version





dk'tronics Real Time Clock 300dpi scans by Robcfg - 6128 version



Front

Back

Top

Side



PCB Top

PCB Bottom

Reviews

- Reviewed in Amstrad Computer User, July 1987, pages 28 and 29.

Manuals

- Dk'tronics RTC Manual (English)
- Dk'tronics RTC Manual (German)

Downloads

- File:DktronicsRtcDriver.zip - none such?

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