

# Altair 8800 simulator

Ein CP/M-Simulator von Peter Schorn, basierend auf dem SIMH-Projekt. Emuliert wird ein 8080, Z80, diverse Floppy-Controller, MMU, etc.

<http://schorn.ch/altair.html>

the simulator features 8 simulated hard disks with a capacity of 8MB (HDSK0 to HDSK7). Currently only CP/M supports two hard disks as devices I: and J:.

## Bedienung

Start:

```
altairz80.exe <conf>
```

z.B.

```
altairz80.exe cpm22
```

Ende:

```
^E  
q{uit} or by{e} or exi{t}
```

statt ^E für die SIMH-Taste (WRU genannt), kann ein anderer Steuercode gesetzt werden, z.B.

```
; SIMH Key to ^G (orig 005 ^E)  
SET CONSOLE WRU=007
```

## cpmtools

das dskdef-Format für die 8MByte HDISK (Standardformat 8megAltairSIM, es gibt noch andere Formate, s. Quellcode!)

HDSK (standard simulated AltairZ80 hard disk with 8'192 kB capacity) 8 MByte HD Format:

```
# ALTAIRZ80 SIMH *dsk 8MB Harddisk (Type AZ80 HDSK)  
diskdef 8megAltairSIMH  
  seclen 128  
  tracks 2048  
  sectrk 32  
  blocksize 4096  
  maxdir 1024  
  skew 0
```

```
boottrk 6
os 2.2
end

# ALTAIRZ80 SIMH *dsk MITS 88-DISK 137 Byte/Sektor
# speedball (copylib) skewtable
diskdef simh
  seclen 128
  tracks 254
  sectrk 32
  blocksize 2048
  maxdir 256
  skew 17
  boottrk 6
  os 2.2
  libdsk:type simh
end
```

## Image file format

The file format is that of SimH: a file image is just a stream of blocks.

d tracks[0-7] 254

The 88-DISK controller The MITS 88-DISK is a simple programmed I/O interface to the MITS 8-inch floppy drive, which was basically a Pertec FD-400 with a power supply and buffer board built-in. The controller supports neither interrupts nor DMA, so floppy access required the sustained attention of the CPU. The standard I/O addresses were 8, 9, and 0A (hex), and we follow the standard. Details on controlling this hardware are in the altairz80\_dsk.c source file. The only difference is that the simulated disks may be larger than the original ones: The original disk had 77 tracks while the simulated disks support up to 254 tracks (only relevant for CP/M). You can change the number of tracks per disk by setting the appropriate value in TRACKS[.]. For example „D TRACKS[0] 77“ sets the number of tracks for disk 0 to the original number of 77. The command „D TRACKS[0-7] 77“ changes the highest track number for all disks to 77.

The 88\_DISK is a 8-inch floppy controller which can control up to 16 daisy-chained Pertec FD-400 hard-sectored floppy drives. Each diskette has physically 77 tracks of 32 137-byte sectors each.

CPM 3 Byte + 128 Byte Daten + 7 Byte

libdsk unterstützt das Format mit Type „simh“

```
/* The SIMH disc image is assumed to be in a single fixed format, like the
 * MYZ80 disc image.
 *
 * Geometry:
 * 254 tracks (presumed to be 127 cylinders, 2 heads)
 * 32 sectors / track
 * 137 bytes/sector: 3 bytes header, 128 bytes data, 4 bytes trailer
```

```
d:\user\pohlers\AltairSIMH>dskid.exe -type simh cpm2.dsk
```

```
cpm2.dsk:
```

```
Driver:      SIMH disc image driver
Sidedness:   0
Cylinders:   127
Heads:       2
Sectors:     32
First sector: 0
Sector size: 128
Data rate:   1
Record mode: MFM
R/W gap:     0x2a
Format gap:  0x52
```

```
Drive status: 0x28
```

```
Filesystem parameters:
```

```
CP/M:B5H:    0x04
CP/M:BLM:    0x0f
CP/M:EXM:    0x00
CP/M:DSM:    0x1ef
CP/M:DRM:    0xff
CP/M:AL0:    0xf0
CP/M:AL1:    0x00
CP/M:CKS:    0x40
CP/M:OFF:    0x06
```

```
d:\user\pohlers\AltairSIMH>dskutil.exe -type simh cpm2.dsk
```

```
LibDsk Disk Utility v1.3.5
```

```
:#
```

```
Statistics for cpm2.dsk:
```

```
Cylinders:    127    7f
Heads:        2     02
Tracks:       254    fe
Sec/cyl:      32     20
Sec/track:    64     40
1st sec:      0     00
Sec size:     128    0080
Data rate:    300
Encoding:     MFM
```

```
:$
```

```
sides=0
cylinders=127
heads=2
sectors=32
secbase=0
secsize=128
datarate=DD (300 kbit)
rwgap=2a
```

```
fmtgap=52  
fm=N  
nomulti=N  
noskip=N
```

cpmtools: libdsk-Type "simh" ist wichtig!

```
cpmls -f simh -T simh cpm22.dsk
```

From:

<https://hc-ddr.hucki.net/wiki/> - **Homecomputer DDR**

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<https://hc-ddr.hucki.net/wiki/doku.php/cpm/altairz80?rev=1426500625>

Last update: **2015/03/16 10:10**

