

The project is about an application which is a combination of emulation, disassembler and debugger for the VCS 2600.  
I have written cpu- and emu-core completely from scratch. Therefore there are still a lot of bugs and problems to fix at the moment, but things are looking promising even at this early stage.

Restrictions in the current version:

- Support for 2 and 4k roms only (bank-switching will be supported in future versions).
- No sound support yet.
- While some roms are already playable (frogger, dodge em) others dont even show up proper video output (eg asteroids).
- Requires Windows 95,98 or NT with DirectX 3.0 or better with Video-Resolution of 1024 by 768 or higher.

The emulation-core generates fast video-output in windowed mode by directly manipulating memory of the video-hardware. This feature requests DirectX-support (V3.0 or better).

On an 800MHz machine the emulation may run between 26 and 34 FPS (unoptimized emu-core yet, so still a lot of optimization potential)

The roms disassembled binary-data appears here as assembly-code.

The instruction where the programmer counter points to and which will be executed next, ist highlighted.

Breakpoints can simply be toggled on and off, by mouseclick.(number of breakpoints limitted by number of instructions only).

While in trace-mode, the emu-debugger dynamicly changes the focused/highlighted line.

All important registers, such as PIA, TIA, 6502 and some emu-internals are shown while emulation is freezed (space-bar) or in break-mode (pause/break-key).

While in single-step-mode, a red exclamationmark indicates register-changes since the last step.

The screenshot shows the R6502 emulator interface. On the left is a game screen with a grid and various objects. Below it are control buttons: OK, Abbrechen, Go, Load, and Reset. A status bar at the bottom left shows PO, P1, MO, M1, BL, PF, and Out. The main window is divided into several panels:

- Assembly Code:** A table with columns: Adress, Inst, Oper, Byt0, Byt1, Byt2. The instruction at address 0xf972 is highlighted in blue.
- Registers:** A table with columns: Register, Value, Adress, Byt0. The ProgCounter register is highlighted with a red exclamation mark.
- Internal Variables:** A table with columns: Internal, Value. Variables like Beam X, D-enabl, and FPS are listed.
- Memory:** A table with columns: Adr, Mnemonic, Val. It shows memory addresses and their corresponding values.

Step-Flag: single-step mode, emu breaks automatically after each emulated cpu-instruction.

Trace-Flag: animates the assembly-code list-control while emulation ist running (of course slows down emulation dramatically).

Catch Framedone-Flag: Breaks after completion of an individual frame

Catch Timerevent: Breaks if timer is activated and INTIM reaches 0

Visual output of the internal „rasterobjects-buffer“

For each of the visible objects (p0, p1, m0, m1, bl, pf) the emulation internaly computes an independent raster buffer, depending on such registers as COLUPx, GRPx, NUSIZx etc.

The order of the symbolic-names on the left side indicates the order of the buffer-lines.

The complete memory-space is shown in a special form of binary-mode (dot indicates 0, # indicates 1).

This is for easier recognition of graphical information.

A red arrow always indicates the last adress of cpu's memory-access.

Constructive comments are welcome under [stefan.burger@uemail.de](mailto:stefan.burger@uemail.de)