Kiwi - a 68k Homebrew Computer

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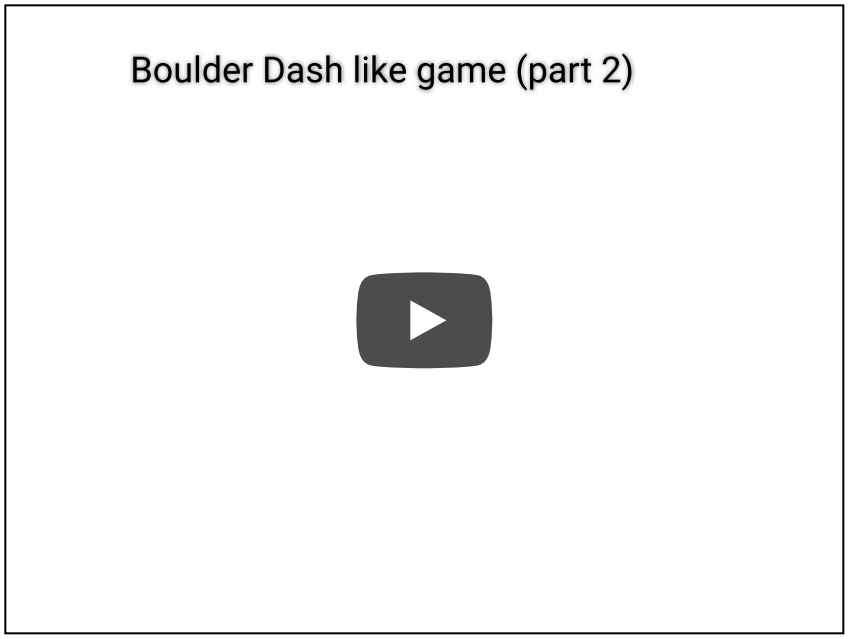
These pages describe *Kiwi*, a Motorola MC68008-based computer system which was developed and built as a hobby. The intention was rather to start another FPGA based project, but to design a classic computer with dedicated controllers and a count of 74 TTL chips. As for design, the goal was to create a computer system which could have existed in the 80ies. As for a typical homecomputer, the system needs some kind of input, output and mass storage. With this in mind, I started to draw schematics and created the printed circuit board (PCB) layout. In respect to the design goal, old and obsolete chips were not excluded, whereby chip brookers helped to get all needed parts. The PCB has been manufactured from my layout data by PCB-Pool. After soldering, I began porting Lee Davison's Enhanced Basic 68k to Kiwi. A Basic interpreter, which is free for personal or educational use. First, with interaction via a serial connection. Over the time, I wrote routines for the video controller and the keyboard interface. When the system ran stand-alone, I proceeded adding more functions. I ported an freely (GPL) available FAT filesystem library as well as a freely (BSD License) available TCP/IP stack.
For the future, my plans are to program some simple games.

Specifications:

CPU	MC68008, clocked at 10MHz
RAM	4MB DRAM, 512kB dedicated VRAM
Video	Yamaha V9990 Video Display Processor
Audio	dual SID stereo (MOS6581 or MOS8580)
Mass storage	IDE/ATA and floppy disk interface (WD177x)
Time/Date	Realtime clock Epson RTC72421
Network	10base-T Ethernet (CS8900a)
Interfaces	PS/2 compatible Keyboard and Mouse ports Two Atari



	style Joystick ports RS232 and parallel ports
ROM	32KB EPROM with IDE/ATA Boot Code
Operating system	Enhanced Basic 68k or EmuTOS

The operating system is a modified version of Enhanced Basic 68k. When the system is switched on, the *look and feel* is as old school as it was intended to be. One can just start typing `PRINT`, `GOTO`, `LIST`, `LOAD`, `RUN` like used to do two decades ago.

As for development, only free tools and free software have been used. This includes the gEDA suite to create schematics and the printed circuit board layout. Critical lines have been routed by hand, while a major routing work has been done with the autorouter of freerouting.net. The development operating system is linux. The board has been manufactured by PCB-Pool. Everything is hand soldered.

The website as well as the project itself are work in progress! Follow Kiwi on YouTube or Facebook.

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