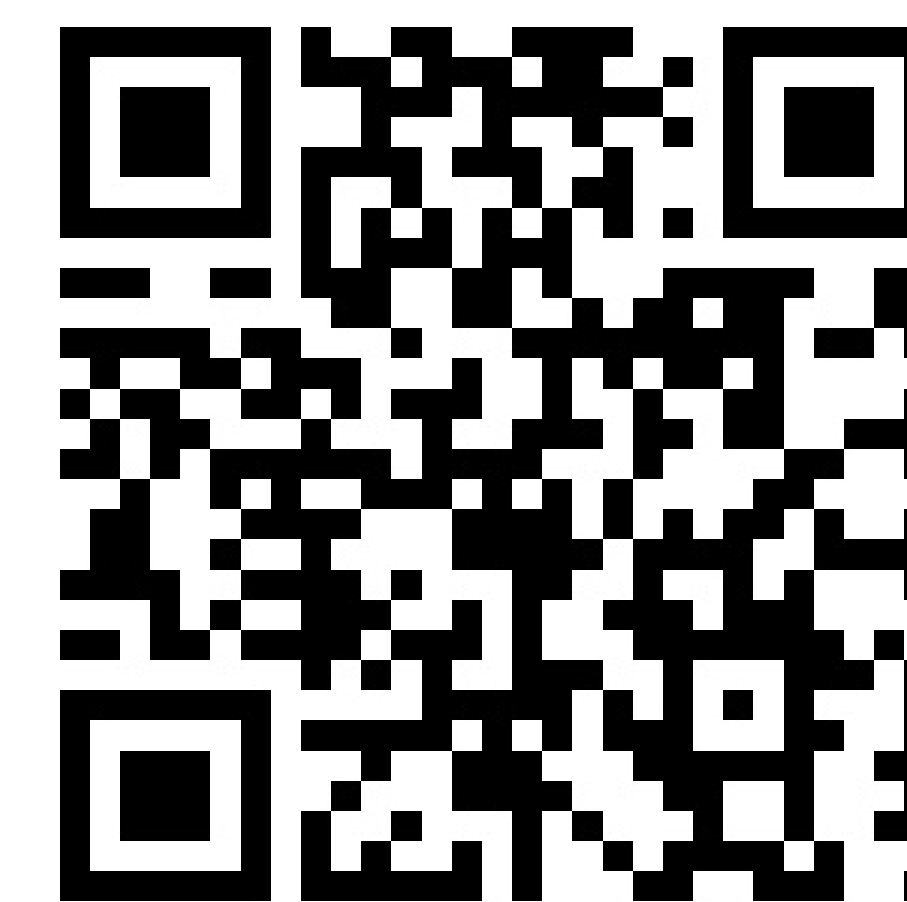




# The Kestrel-3 open source home computer.



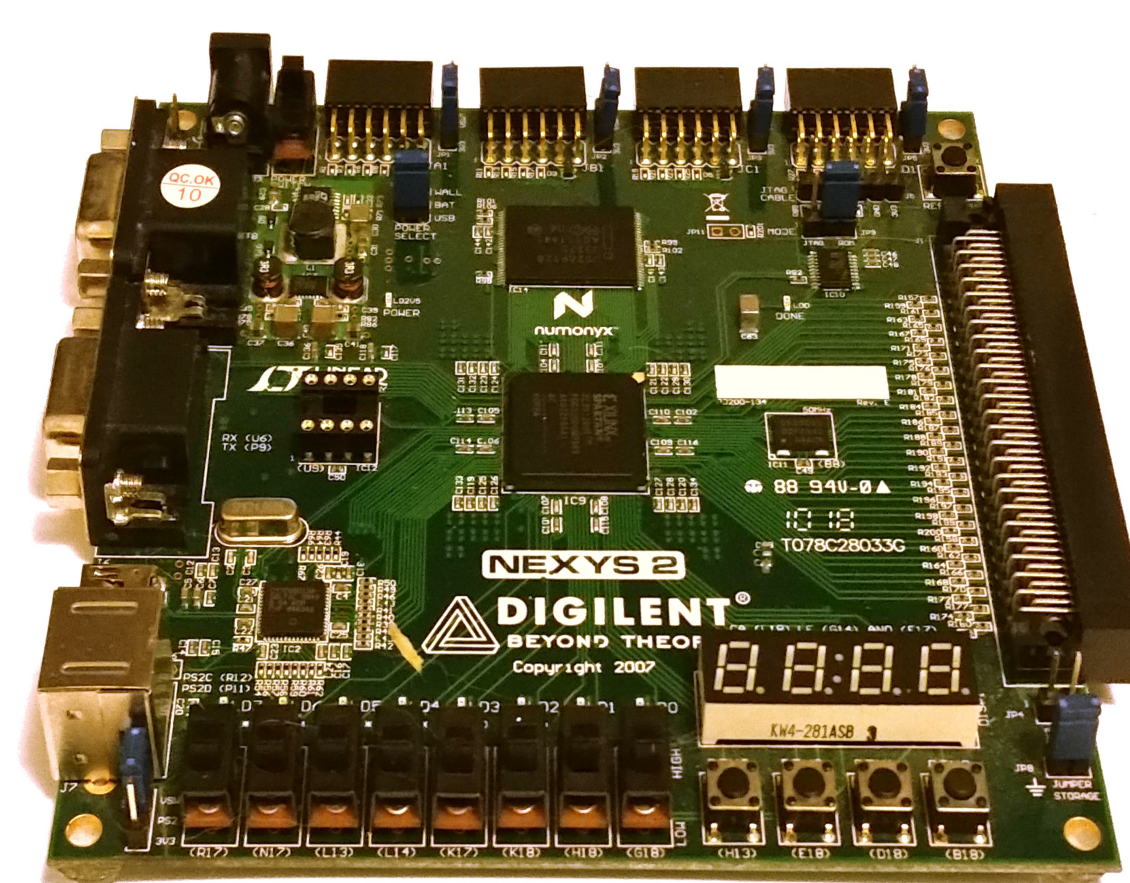
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<http://sam-falvo.github.io/kestrel>

## Vision



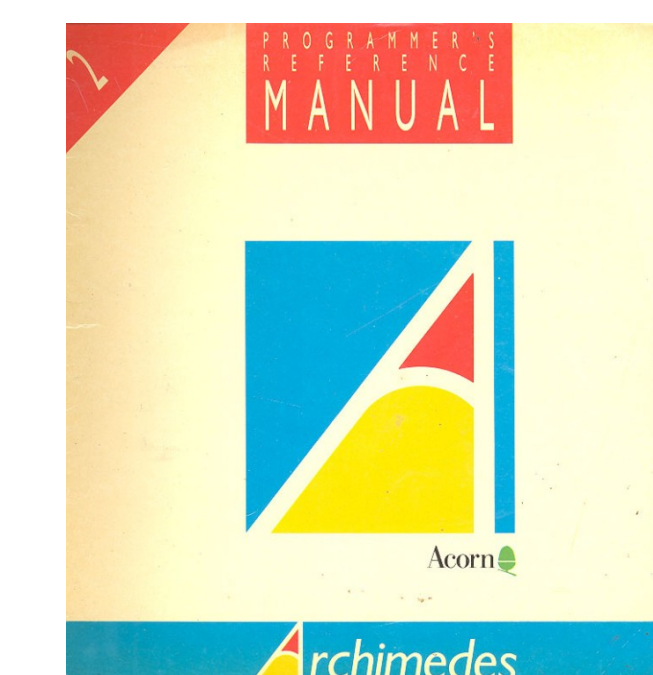
Only keyboard and monitor required.  
Usable without attached storage.  
Boots into a language environment.  
Encourage hacking!

## Next Steps



Finish the Forth environment.  
Emulate mass storage and bitmapped display.  
Verilog design of Polaris-1 CPU.  
Reuse MGIA, KIA, GPIA from Kestrel-2.

## Mission



Completely open source.  
64-bit RISC-V ISA.  
Entire stack understandable by one individual.  
Documented in a single text.  
Documentation as development artifact.

## Accomplishments



Cross assembler implemented in Python.  
First-generation emulator in C (Linux).  
Completed machine-language monitor.  
User's guide at <https://leanpub.com/k3ug>

(Imagine a 64-bit Apple I without BASIC.)

## 1st Generation Specifications

12MHz Polaris-1 CPU  
RV64I and RV64S compatible.  
Machine-mode only.  
6 MIPS peak on Nexys2.

16MB RAM  
2MB Flash ROM  
28MB/s bandwidth  
640x480, 256-color display  
PS/2 Keyboard  
SPI Expansion

## Desiderata



1280x1024, 64K Colors.  
Port and enhance STS OS for the Kestrel-3.  
SD, SDHC, SDXC drivers.  
Choice of firmware: Forth, Oberon, Scheme, ...  
User+Supervisor Modes w/ MMU  
Some flavor of BSD, Plan 9, or Linux.