

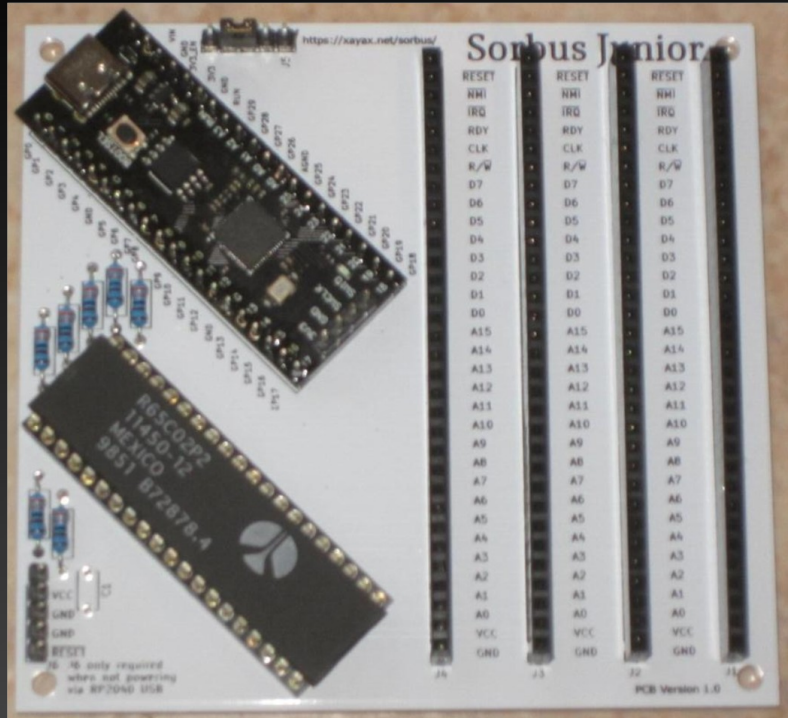
# **The Sorbus Computer**

## **1k LEDs Expansion**

**a toy for retro-nerds**

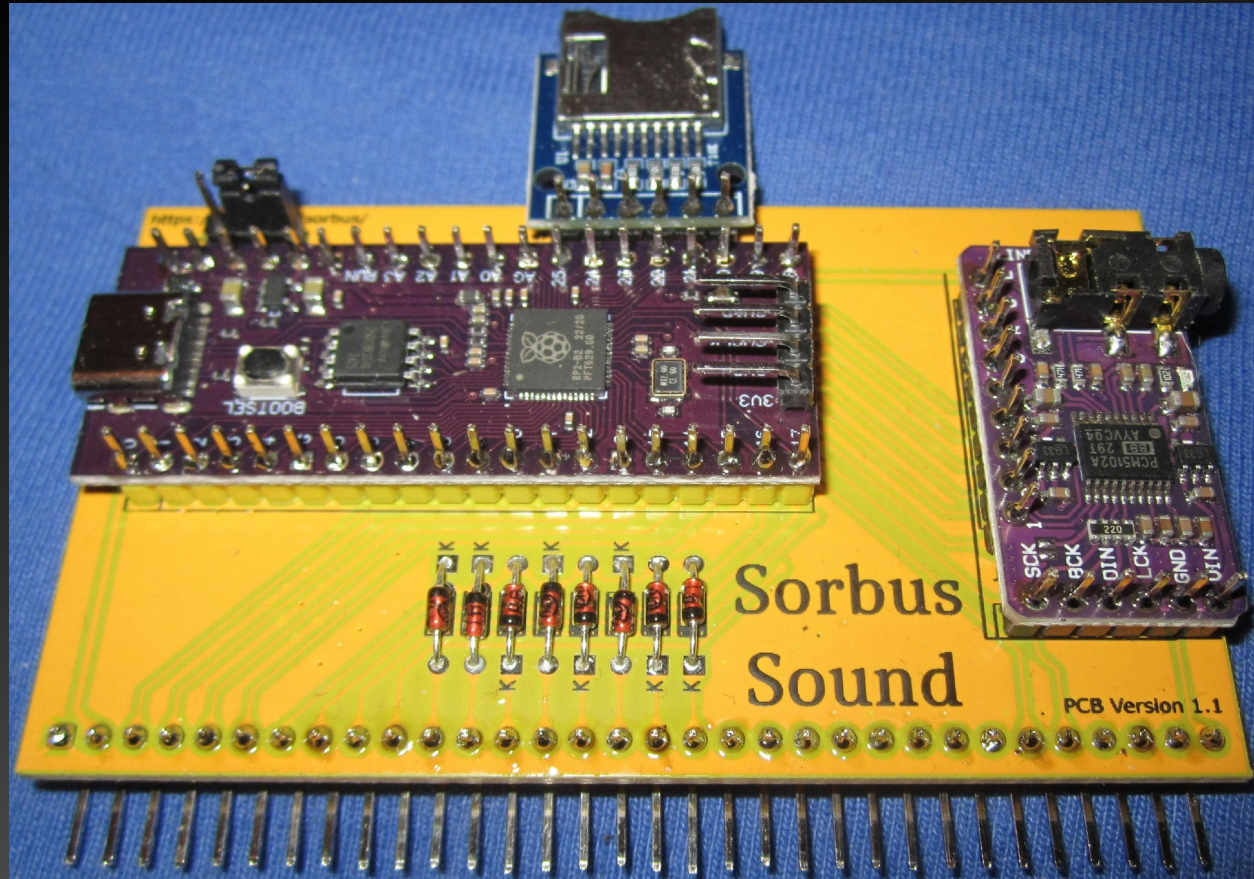
**by Sven Oliver ('SvOlli') Moll**

# The Sorbus Junior



- 65C02 based computer
- RP2040 microcontroller implements mainboard
  - RAM / ROM
  - I/O / TIMER
- Low price → €10 to €15
- Easy to solder

# The Sorbus Sound



- Price: < €10
- Early in development
- Dual SID core works standalone
- Software is mainly driven by Benson, thanks!

# 6502asm.com



- Fantasy 6502 platform
- Implemented in Javascript
- Website defunct now
- 32x32 pixel framebuffer
- Downsides
  - Javascript → Slow
  - Slow → No sync
  - Bad addressing of framebuffer

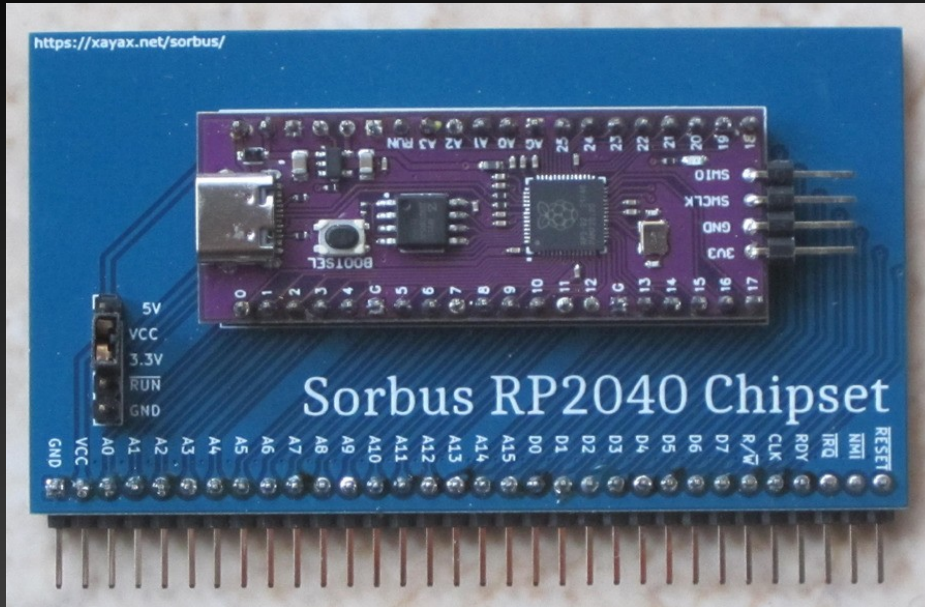


# Build Something Similar In Hardware



- Using 1024 WS2812 LEDs
- More colors!
- LEDs update via trigger
- framebuffer freely movable
  - implemented by bus sniffing
- → software must be ported

# Howto Sniff The 65C02 Bus



- RP2040 based I/O board
- RDY, IRQ, NMI and RESET can be repurposed
- 1024 LEDs can be driven as
  - 1 line for 1x 1024
  - 2 lines for 2x 512
  - 4 lines for 4x 256
- Price: < €5 for board  
~ €50 for LED panels

# Summary

- We've got retro inspired hardware for less then €100
- Base machine, sound board, LED panel with controller
- Can it run DOOM? Nope! But feel write to write/port...
- Can it at least demo? Let's find out...