C Forth on the RP2350? Yes, Please!

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A (Welcome) Surprise in the (E)mail

August 8, 2024 - the Raspberry Pi Pico 2 is announced

▶ Raspberry Pi Pico 2, our new $5 microcontroller board, on sale now
▶ Our RP2350 Partners made all this excellent stuff for you
▶ What's new in Raspberry Pi Pico 2
▶ RP2350: the brains of Raspberry Pi Pico 2

Pico vs. Pico 2

RP2040 vs. RP2350

So I bought a few partner boards

- ▶ Pimoroni Pico Plus 2
- ▶ SparkFun Pro Micro - RP2350
- ▶ iLabs Challenger+ RP2350 BConnect
- ▶ iLabs Challenger+ RP2350 WiFi6/BLE5

The CLAMS Development Environment

A collection of command-line Linux tools

▶ Raspberry Pi Pico-series C/C++ SDK
▶ Raspberry Pi Pico Python SDK
▶ CircuitPython
▶ Arduino-Pico
▶ PlatformIO Core (CLI)
▶ Coming soon! Zephyr

A container to run them in!

▶ Many third parties have limited testing resources
▶ If they support Linux at all, it's RHEL (expensive), or
▶ Ubuntu 22.04 LTS aka "Jammy Jellyfish"
▶ So I built a Distrobox container running Ubuntu 22.04 LTS
▶ Hosted on Universal Blue Bluefin
▶ (But any Distrobox host will work - any recent Linux distro)

C Forth

Why C Forth?

▶ Optimized for microcontrollers
▶ Comprehensive - derived from Mitch Bradley's Open FirmWare
▶ Extensible in either C or Forth!
▶ Portable - I want to run Forth on other microcontrollers
▶ Linux build process is straightforward using PlatformIO

Demo

Questions

URLs

Where's all that stuff?

- ▶ C Forth: https://github.com/MitchBradley/cforth
- ▶ CLAMS development environment: https://github.com/AlgoCompSynth/CLAMS/tree/main/dev_env
  - ▶ warning - not much documentation yet!
- ▶ These slides: https://github.com/AlgoCompSynth/CLAMS/blob/main/presentations/cforth_on_the_rp2350.pdf