Rust 🦀

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@phsilva

Rust

A language empowering everyone
to build reliable and efficient software.

https://www.rust-lang.org/

Olá!

```rust
fn main() {
    let pessoa = "Cássio";
    println!("Olá {pessoa}!");
}
```

Prós

- expressividade
- controle sobre recursos
- ferramentas modernas
- tipagem
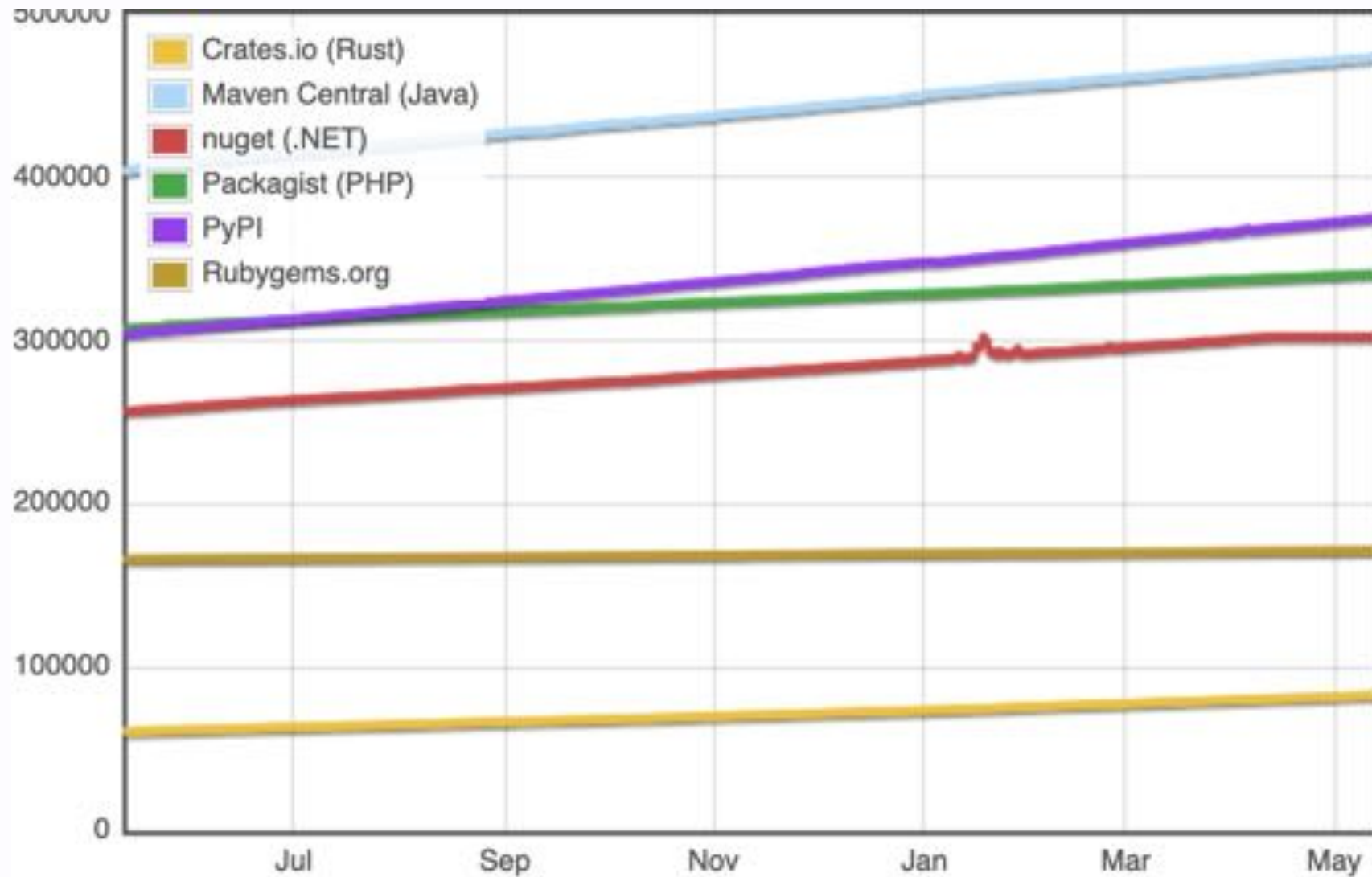
Contras

- curva de aprendizado
- tipagem

Tools

- `cargo build`
- `cargo test`
- `cargo fmt`
- `cargo clippy`
- crates.io

crates.io

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Embarcados

- Arduino
- Raspberry Pi
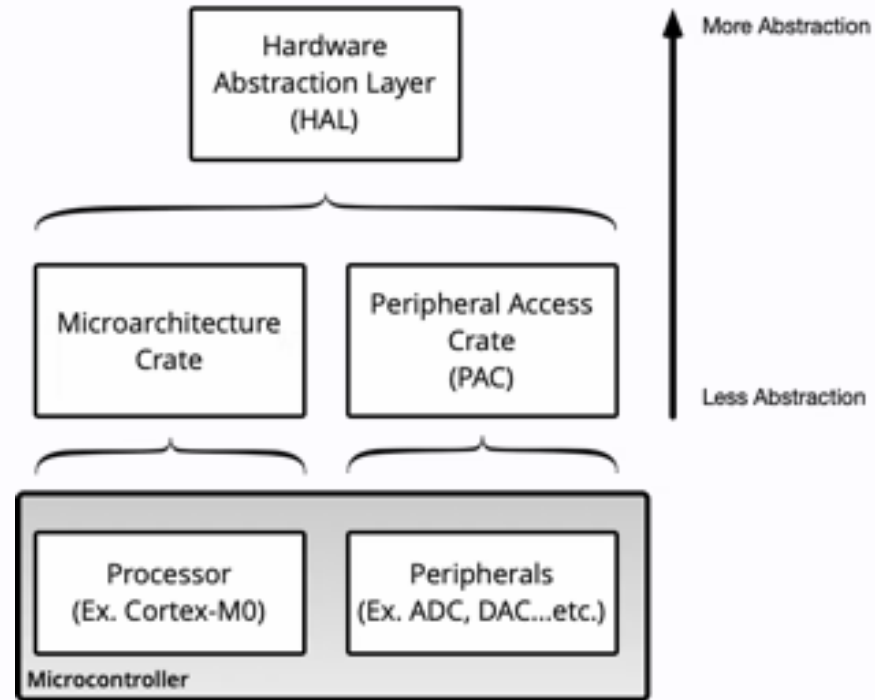- Relógios
- Foguetes
- ...

Embarcados

" Qualquer sistema onde haja restrições de recursos computacionais, de memória ou ambos. "
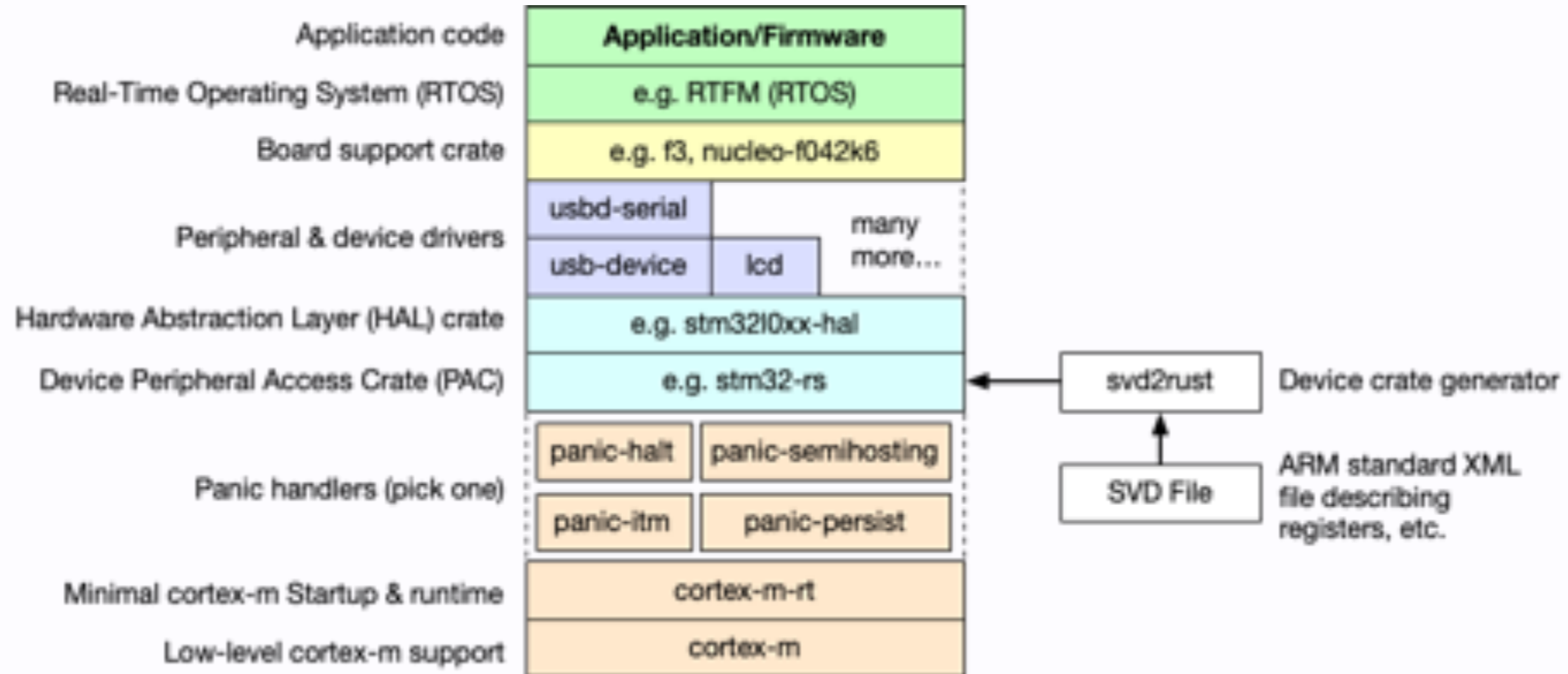
Rust Embedded WG

- SVD
- PAC
- HAL
- embedded-hal
- knurling
  - defmt
- probe-rs

Ecossistema

https://craigjb.com/2019/12/31/stm32l0-rust/

Ecossistema

blink

https://github.com/rp-rs/rp2040-project-template

```
## cargo-generate

cargo generate --git https://github.com/rp-rs/rp2040-project-template \
    --branch main --name blink

## toolchain

rustup target install thumbv6m-none-eabi
cargo install flip-link
cargo install elf2uf2-rs --locked

cd blink && cargo run
```

FIM

Links

```
- https://doc.rust-lang.org/book/
- https://github.com/rust-embedded/wg
- https://github.com/rust-embedded/awesome-embedded-rust
- https://rtic.rs
- https://embassy.dev/
```

Arduino

```
void setup() {
    pinMode(LED_BUILTIN, OUTPUT);
}

void loop() {
  digitalWrite(LED_BUILTIN, HIGH);
  delay(1000);
  digitalWrite(LED_BUILTIN, LOW);
  delay(1000);
}
```