DANDELION

MICROKERNEL REAL-TIME OPERATING SYSTEM WRITTEN IN RUST

This project aims to create a real-time operating system using the Rust language, providing basic and essential functionality. It addresses a large area of techniques so as to reach three defined goals :

- determinism
- correctness
- predictability

The main objectives are the multilevel scheduler (using *rate monotonic* & *earliest deadline first*), the static process prioritization, and the signal-based IPC. Only the IPC may not be fully completed. The code's operation is checked with the testing framework embedded in the build tool.

The major difficulty faced was the immaturity of the language and the instability of the environment, however, it is a temporary issue. Rust is likely to become exceptionally suitable for such projects in the future by its guaranteed memory safety.

Kirsch, Sanvido, Henzinger 2005 •
Buttazzo 2011 •
Matsakis & Klock 2014 •
Nelson, Nejad, Molnos et al 2014 •
Heldring 2018 •

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MEET YOUR CONSTRAINTS.

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