



SHIRAKUMO

Porting SBCL to the Nintendo Switch

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The Device



- CPU: ARM 4 Cortex-A57 64-bit
- OS: "Horizon OS", proprietary micro-kernel
- SDK: C++, proprietary version of Clang



Immediate Challenges

- Everything is proprietary and under NDA
⇒ Scarce public information
- The OS is not BSD or even fully POSIX
⇒ Need new OS abstractions
- There are no inter-thread signals
⇒ Can't use usual GC tricks
- We are not allowed to create executable pages
⇒ No compilation at runtime



Basic Ideas

- Everything is proprietary and under NDA
⇒ Only publicise our own interfaces
- The OS is not BSD or even fully POSIX
⇒ Write C(++) shim libraries for access
- There are no inter-thread signals
⇒ Use safepoints
- We are not allowed to create executable pages
⇒ Compile everything on linux and shrinkwrap



Build Procedure



Relocation



Garbage Collection



Live Demo



Further Work

- Optimising CLOS dispatch ahead of time
⇒ Christophe? 🙄
- Optimising Trial and Kandria
⇒ Lots of profiling work that can be done on PC
- Porting to the Nintendo Switch 2
⇒ As soon as plebians like us get access from almighty Nintendo





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