Rafiki Documentation

Release master

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Rafiki is *Rust* on top of *Simba*.

Project homepage: https://github.com/eerimoq/rafiki

CHAPTER 1

Getting Started

Note: Only the Arduino Due board is supported!

Installation

1. Install Rust. Change the `default toolchain` to `nightly`. Copy `default host triple` and `modify PATH variable` from the printed `Current installtion options`.

```
curl https://sh.rustup.rs -sSf | sh
```

2. Source the environment setup file.

```
source $HOME/.cargo/env
```

3. Install *bindgen* and download the Rust sources.

```
cargo install bindgen
rustup component add rust-src
```

4. Recursively clone the Rafiki repository.

```
git clone --recursive https://github.com/eerimoq/rafiki
```

5. Build and run the hello world example.

```
cd rafiki
source setup.sh
cd examples/hello_world
make -s -j4 BOARD=arduino_due run
```

CHAPTER 2

User Guide

Contents:

Hello World application

Let's start with the *Rafiki* "Hello World" application. It examplifies what an application is and how to build and run it. It consists of two files; `main.rs` and `Makefile`.

main.rs

main.rs defines the application entry function `main()`.

```
#[macro_use] extern crate rafiki;

use rafiki::kernel::sys;

#[no_mangle]
pub fn main(_: isize, _: *const *const u8) -> isize
{
    sys::start();

    println!("Hello World!");

    0
}
```

Makefile

Makefile contains build configuration of the application.

```
NAME = hello_world
BOARD ?= linux

RAFIKI_ROOT = ../..
include $(RAFIKI_ROOT)/make/app.mk
```

Build and run

Cross-compile, link and then run on an Arduino Due:

```
$ cd examples/hello_world
$ make -s BOARD=arduino_due run
<build system output>
Hello world!
$
```

CHAPTER 3

Boards

The boards supported by *Rafiki*.

Arduino Due

CHAPTER 4

Examples

Below is a list of simple examples that are useful to understand the basics of *Rafiki*.

There are a lot more examples and unit tests on Github that shows how to use most of the *Rafiki* modules.

Hello World

About

This application prints "Hello World!" to standard output.

Source code

```
#![no_std]

/**
 * @section License
 *
 * The MIT License (MIT)
 *
 * Copyright (c) 2014-2017, Erik Moqvist
 *
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 * obtaining a copy of this software and associated documentation
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 * restriction, including without limitation the rights to use, copy,
 * modify, merge, publish, distribute, sublicense, and/or sell copies
 * of the Software, and to permit persons to whom the Software is
 * furnished to do so, subject to the following conditions:
 *
 * The above copyright notice and this permission notice shall be
 * included in all copies or substantial portions of the Software.
```

```
 *
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 * MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
 * NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS
 * BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN
 * ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN
 * CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
 * SOFTWARE.
 *
 * This file is part of the Rafiki project.
 */

#[macro_use] extern crate rafiki;

use rafiki::kernel::sys;

#[no_mangle]
pub fn main(_: isize, _: *const *const u8) -> isize
{
    sys::start();

    println!("Hello World!");

    0
}
```

The source code can also be found on Github in the examples/hello_world folder.

Build and run

Build and run the application on an Arduino Due.

```
$ cd examples/hello_world
$ make -s BOARD=arduino_due run
...
Hello world!
$
```

CHAPTER 5

License

The Rafiki project as a whole is licensed under the following MIT license:

The MIT License (MIT)

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CHAPTER 6

Indices and tables

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