Introduction

Mark3 is a real-time development platform for AVR and ARM Cortex-M0 microcontrollers written using C++. It features a fully-featured RTOS kernel, device drivers, and middleware, as well as a suite of examples and unit tests.

Due to being written in C++ for AVR using the GCC toolchain, it also integrates directly into Arduino, without additional modifications to the source.

Directory Layout

`arduino`	Scripts and staging directory for exporting Mark3 for Arduino
`bootloader`	Source and makefiles for the Mark3 Bootloader
`build`	Platform/variant/toolchain specific build configuration files
`docs`	PDF and HTML documentaiton
`drivers`	Device driver libraries
`examples`	Application code examples
`fonts`	Fonts converted from TTF to bitmapped, C++ library fonts
`kernel`	Main RTOS kernel code
`services`	Optional support libraries and middleware
`stage`	Directory where build artefacts are placed
`tests`	Unit testing framework

Building the source

To build the source, the Mark3 build system requires the following:

```
avr-gcc toolchain
make support
```

On debian-based distributions, such as Ubuntu, the avr toolchain can be installed using:

```
apt-get install avr-libc gcc-avr
```

On Windows, the toolchain is provided as part of AVRStudio. Please see the “Build

System” section of the docs for instructions on configuring the system on Windows.

Once a sane build environment has been created, the kernel, libraries, examples and tests can be built by running **`build.sh`** from the root directory. By default, Mark3 builds for the atmega328p target, although other supported targets can be configured through environment variables. See the **`base.mak`** makefile, and “Building the Kernel” in the docs for more information on configuring these variables.

Exporting the Source

In addition to providing a full recursive-make based build system, the kernel source for a given target can be exported directly to a .zip file for convenience. Run **`export.sh`** for any supported target (the full list of targets is listed below) to create a .zip archive of the kernel source and port code. If doxygen and pdflatex are available from your OS, documentation will also be generated (HTML and PDF) on the fly and included in the archive.

Supported targets

Currently, Mark3 supports the following AVR parts:

- atmega328p
- arduino
- atmega644
- atmega1284p
- atxmega256a3 (*experimental)

The following Cortex M0 parts are supported as well:

- Atmel samd20
- ST Micro stm32f0

Additional Documentation

Please see the doxygen documentation in the ./docs folder for more information. A lot of work has gone into documenting the project, and that's the best place to start if you have any questions. The code examples are fairly comprehensive (as are the unit tests), so these should be referenced as necessary. And of course, the source is very well-documented, so don't be afraid to browse through it.

Contact

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The official website for this project is located at:

www.mark3os.com