MutekH project home

What is MutekH

MutekH is a portable operating system for embedded platforms originally developed at the ?SoC department of the ?LIP6 Laboratory (?Université Pierre et Marie Curie in Paris).

MutekH is a set of libraries built on top of the Hexo exo-kernel. The exo-kernel can be seen as an Hardware Abstraction Layer (HAL) used to address platform and processors specific implementations. MutekH is fully configurable to match every application needs.

It currently supports the following platforms:

- Soclib based platforms with Arm, Mips and Ppc multiprocessor support
- Pc platform with x86 multiprocessor support
- Unix processes (kernel and application run as standalone unix process)
- Simple platforms bare CPU with hardware (i.e. microcontrollers)

A list of major contributors is available here.

Getting started

The following resources are available to try MutekH easily:

- The MutekH as Unix process quick start guide is a step by step guide to run MutekH embedded in a GNU/Linux or MacOs user process.
- The BuildingExamples page briefly explains how to build example applications.
- The MutekH/SoCLib tutorial is a step by step guide to write a simple MutekH application for a customizable Soclib multi-processor hardware simulator, intended for mixed software/hardware development.
- The MutekH quick start guide for SoCLib is a step by step quide to run MutekH over a complex SoCLib hardware simulator capable of processor heterogeneity, intended for kernel software developers.
- The ?SoCLib livecd provides some sample platforms and applications based on older MutekH revisions.

More advanced topics are available:

- Using MutekH on a AT91SAM7 Arm micro-controller based platform.

Detailed features

Several modules are available:

- Native modules
  - Standard C library (libc)
  - Native Posix threads Support (libpthread)
  - TPC/IP stack networking library (libnetwork)
  - File system support library (libvfs) along with file system drivers (FAT 16/32, ISO9660, RamFS, NFS)

    - ELF binary file format (libelf)
    - ?MutekS (libsrl), static OS for ?DSX
    - Device drivers for various peripherals

- The following libraries have been ported:
    - ?Lua scripting library (liblua)
    - ?Fdlibm standard math library
    - ?LibTermUI terminal driver and getline library

- The following modules are planed:
    - Unix kernel implementation library (libunix)

Some successfully ported applications:

- H264 video decoder (multiprocessor)
- MJPEG and Theora multiprocessor video decoder
- ?Doom video game with network & multiplayer support
- Various application using the ?Lua script engine

Documentation

Quickstart and tutorial documents:

- See Getting started section above for start guides.
- Porting your application
- Using MutekH on a AT91SAM7
- Using the lua microshell example

Developers documentation:

- MutekH API reference manual
- Writing header documentation for the API reference manual.
- Using the BuildSystem
- Adding a driver, or adding a new driver class
- using Flattened device trees to describe hardware.
- Usage of IntegerTypes in MutekH

Getting the source

MutekH is being actively developed, no tarball releases are available yet.

Latest source code can be downloaded from the svn source tree:

```
svn co https://www.mutekh.org/svn/trunk/mutekh/
```

Contact

- A mailing list is available for questions, announcements... You may freely ?subscribe here.