Core Toolchain Setup

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  for MIOS32 application development on Linux
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Preparation

This document assumes that you have a relatively modern x86 based linux distribution. While it may work other distributions, it has only been tested on x86 Ubuntu 10.10. Many of the commands, especially “aptitude” are only available on Debian derived distributions like Ubuntu.

Linux Utilities

subversion

You will need to install subversion to download the svn repository

- sudo aptitude install subversion

wget

Wget is a useful tool for downloading files from the Internet and can be downloaded with:

- sudo aptitude install wget

Required Stuff

Download the MIOS32 repository

Create a directory to download the toolchain to (~/midibox is my personal favourite). and download the repository:

- mkdir ~/midibox
- cd ~/midibox
- svn checkout svnmios.midibox.org/mios32

```
(If that doesn't work try:)
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* svn checkout svn://svnmios.midibox.org/mios32/
```

Linux build utilities

command for installing the basic build tools like “make”
* **Debian/Ubuntu/Mint:** *sudo aptitude install build-essential*
* **Arch Linux/Manjaro:** *sudo pacman -S base-devel*

GNU Multiple Precision Library

If you do not already have libgmp3-dev installed, you must install it (or lib32gmp3-dev if you are using an AMD64 version of linux).
Terminal Commands:
* Debian/Ubuntu/Mint: sudo aptitude install libgmp3-dev (or lib32gmp3-dev)
* Arch Linux/Manjaro: sudo pacman -S gmp

MIOS32 Toolchain

The MIDIbox community have created a modified GNU Compiler Collection, ready for use with the ARM Cortex M3 platform. The toolchain contains all of the tools required to build MIOS32 applications including GCC and NEWLIB.

The Toolchain has currently been compiled for Windows (2000+), Mac OS X (Leopard or newer) and Linux x86 (built on Ubuntu 10.10).

The download directory for the toolchain is http://www.midibox.org/mios32_toolchain

Download the latest “linux” file and extract into your favorite directory, If you extract into /usr/local the toolchain will create /usr/local/mios32_toolchain and various sub-directories containing the toolchain files.

- cd /usr/local
- sudo wget http://www.midibox.org/mios32_toolchain/gcc-arm-none-eabi-xxxxxx.tar.bz2
- sudo tar zxvf gcc-arm-none-eabi-xxxxxx.tar.bz2

replace xxxxxxx with the date of the latest linux toolchain in http://www.midibox.org/mios32_toolchain

You now need to set the path variable for the toolchain bin directory (/usr/local/mios32_toolchain/bin) this is covered in the next section

Environment Variables

If you are using the default bash shell then setting up path variables in the shell is quite easy, in a terminal window just type:

- export VARIABLE_NAME=something

and if you want to check to what the variable has been assigned, type:

- echo $VARIABLE_NAME

this will print what's inside the variable. For example, type:

- export MIOS32_PATH=~/svn/mios32/trunk

to set up the mios32 folder path, then type

- echo $MIOS32_PATH

Adding to the path

To temporarily add the mios32_toolchain bin directory to the path, type:

- export PATH=$PATH:/usr/local/mios32_toolchain/bin

to check that the path variable has been assigned type:

- echo $PATH

You should see the toolchain directory at the end of the path

Setup MIOS32 Environment

The following commands will setup the build environment for MIOS32, you must change MIOS32_PATH to be wherever you installed the svn repository:

- export MIOS32_PATH=~/midibox/mios32/trunk
- export MIOS32_BIN_PATH=$MIOS32_PATH/bin
- export MIOS32_GCC_PREFIX=arm-none-eabi
- export MIOS32_FAMILY=STM32F10x
- export MIOS32_PROCESSOR=STM32F103RE
- export MIOS32_BOARD=MBHP_CORE_STM32
- export MIOS32_LCD=universal

You can add these lines to your ~/.profile file to ensure that they are always set, the editor pico (or nano) is a fairly simple text editor but you may have your favourite.

Building your first application

Once you have completed the above steps, you should be able to build your first application.

- cd $MIOS32_PATH/apps/tutorials/001_forwarding_midi
- make

if this works great! If not, either you made a mistake (or I did!!)

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