

Embedded Microcontroller Programming

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Learn Embedded Linux with ARMulator

uCLinux is an excellent way to study the embedded operating systems for an engineer, student, hobbyist, Linux-enthusiast. I am interested in Embedded Linux for ARM microcontroller. Before buying a new mcu evaluation board, there is a smart way to study the Embedded Linux. That is studying it with the emulator called **ARMulator**.

I tested on **Fedora Core 6** Linux with GCC 3.4.x ([how to install gcc 3.4 for FC6](#)).

What you get

Here are some files you can use to put together uClinux running in the GDB/ARMulator.

- [gdb-5.0.tar.bz2](#) - The original gdb-5.0 archive.
- [gdb-5.0-uclinux-armulator-20060104.patch.gz](#) - Patches against gdb-5.0 based heavily on the ARMulator changes from Ben Williamson with changes to behave like an Atmel AT91 device.
- [linux.2.4.x.gz](#) - A precompiled uClinux kernel binaries that you can run in the emulator.
- [romfs.2.4.x.gz](#) - romfs images to use with the above kernels.

Building the Debugger/Emulator

```
tar xvf gdb-5.0.tar.bz2
gunzip gdb-5.0-uclinux-armulator-20060104.patch.gz
patch -p0 < gdb-5.0-uclinux-armulator-20060104.patch
cd gdb-5.0
export CC=gcc34
./configure --target=arm-elf
make
make install
```

Running the precompiled binaries

The ARMulator expects the romfs to be in a file called "bootrom". You must use the matching kernel/romfs combo's.

```
gunzip romfs.2.4.x
gunzip linux.2.4.x
ln -s romfs.2.4.x boot.rom
arm-elf-gdb linux-2.4.x
...
gdb> target sim
...
gdb> load
...
gdb> run
```

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