

How to get μ C Linux running on the Altera DE2 board.

Adam Eliason
Group #02
Winter 2013

Set up your BashRC file

- In the terminal, navigate to your home directory (example: /afs/ualberta.ca/home/e//eliason)
- Type “gedit .bashrc” and press enter
- Add the following lines to the bottom of the file:

```
export PATH=$PATH:/opt/altera/10.1sp1/nios2eds/bin
export PATH=$PATH:/opt/altera/10.1sp1/quartus/bin
export PATH=$PATH:/opt/altera/10.1sp1/quartus/sopc_builder/bin
export PATH=$PATH:/opt/altera/10.1sp1/nios2eds/bin/gnu/H-i686-pc-linux-gnu/bin
export PATH=$PATH:/opt/altera/10.1sp1/nios2eds/bin/linux
export PATH=$PATH:/opt/altera/10.1sp1/quartus/linux
export PATH=$PATH:/opt/altera/10.1sp1/quartus/linux64
```

****Note: If a new version of Quartus has been installed (as planned for Winter 2014), this directory will have changed. Please update as required.**

- Save the file, and exit gedit. In the terminal type “source ~/.bashrc” to reload your bashrc file.

Program the Board

- Unzip the attached file. Ensure the .so (libdinkum_alt.so, libjtag_atlantic.so, and libjtag_client.so) files are in the same directory as the μ C Linux files. Once again, if a new version of Quartus has been installed (newer than 10.1sp1), you may have to update these files, they were found in various /opt/altera/10.1sp1/ folders.
- Open the terminal, and navigate to where you unzipped the folder. Type “nios2-configure-sof DE2_NIOS_HOST_MOUSE_VGA.sof”. This programs the sof hardware file onto the board.
- Next type “nios2-download -g ZImage_DE2_NIOS_HOST_MOUSE_VGA_v1.6” in the terminal, this programs μ C Linux distro on the board.
- Finally type “nios2-terminal” in the terminal, this launches nios2-terminal and converts your terminal to the μ C Linux command interface (so everything you do in this terminal is done/interacting with μ C Linux on the board). To test, type “ls” and it should list the μ C Linux folders in the root directory running on the board.

Assign an IP address

- In your μ C Linux terminal, type “ifconfig eth0 hw ether 00:11:22:33:44:55” to assign the board a mac address.
- Next type “ifconfig eth0 192.168.1.2” to assign it an IP address (this can change based on which IP you want). FYI: The board does not play nice with the U of A network.
- Set the netmask by typing “ifconfig eth0 netmask 255.255.255.0”
- From here you can test the network connectivity by pinging another machine (type “ping 192.168.0.1”) on the network (must be an IP assigned to a machine that will reply to a ping). Once again, this will not work on the University of Alberta network, and should be done by connecting to a router or laptop.

References

http://www.alterawiki.com/wiki/TryOutuClinux#For_DE2_2C35_dev_board

<http://www.ccm.ece.vt.edu/twiki/bin/view/Main/LinuxOnNIO2Installation>

<http://www.alteraforum.com/forum/activity.php>