Tesla C1060 Driver Installation and CUDA Toolkit & SDK setup on Linux

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* Note: Commands listed below may be different on different types of Linux than Ubuntu

1. Install Linux
   - Versions that I tried (all of them are 64-bit)
     a. Ubuntu 9.04 Desktop (Kernel 2.6.28-11): failed (cannot load the nvidia driver)
     b. Ubuntu 9.04 Desktop (Kernel 2.6.28-15): same as the above
     c. Ubuntu 8.04 Desktop (Kernel 2.6.24): same as the above (CUDA 2.3 not supported)
     d. Ubuntu 8.10 Desktop (Kernel 2.6.27): succeeded!
     - Install 8.04 and upgrade to 8.10 (Do not try the latest version, try older version that still gets support for the latest NVIDIA driver and CUDA toolkits and SDK)
     - In Server versions, you need to install a lot more of packages, including X window.

2. Get kernel source
   - apt-get install linux-source

3. Configure kernel source
   - tar xvfj linux-source-?????.tar.bz2
   - cd linux-source-?????
   - make oldconfig && make prepare

4. Install some packages that are required
   - apt-get update
   - apt-get install ****
     - what goes in ****: kernel-package, binutils, libxi-dev, libxmu-dev, libglut-dev, freeglut-dev, ...
     - Names can change. try search the actual package names as the following
       - ex) apt-cache search libx
       - ex) apt-cache search OpenGL, and so on...

5. Get the latest NVIDIA driver and CUDA SDK & Toolkit
   - go http://nvidia.com/cuda
   - click “Developing with Cuda” ->  “Get Cuda”
   - Choose your OS type properly
   - Download three files (driver, SDK, toolkit)

6. Quit the X-window
   - Ctrl + Alt + F1, login as root

7. Stop the X server
   - /etc/init.d/gdm stop (must be root from now on)

8. Driver Install
   - chmod +x (for three downloaded files at the above)
   - run cudadriver_2.3_****
     (Do not use –update parameter, it won't get you the latest version anyway)
• You will see the message that the installer cannot test something, but will assume it is okay. You can ignore that message.

9. Backup xorg.conf and configure
   • cp /etc/X11/xorg.conf /etc/X11/xorg.conf.original
   • nvidia-xconfig
   Since you are using Intel integrated graphics for the display and Tesla for CUDA computing, you need configure the xorg.conf file manually
   • vi /etc/X11/xorg.conf
     o Remember! You should have Two "Device" sections
     o Different Identifier name for each. Name it on your own.
     o Check busid of tesla board by the command, "lspci | grep 3D"
     o You should see something like “XX:YY.Z 3D Controller: nVidia Corp.”
     o Include Busid as the following
       Section "Device"
       Identifier "Intel GMA"
       EndSection
       Section "Device"
       Identifier "Tesla"
       Driver "nvidia"
       Busid "pci:XX:YY:Z" < note that it's not a dot but colon
       EndSection
     o In the "Screen" Section, Device name should coincide with the Identifier of the display you are using.
       Section "Screen"
       ****
       Device "Intel GMA" < see the Identifier name of the above
       EndSection
     o Comment out any subsections in "Screen" that have nvidia-something.

• Reboot the machine (reboot now)

10. Driver installation verification
    • It’s okay if you can’t run nvidia-settings. Even if the nvidia-setting says that you are not running the nvidia driver, you can actually ignore it.
    • Ismod | grep nvidia
      o should show two lists of nvdia and i2c_core
    • Is /dev/nv*
      o should show /dev/nvidia0 and /dev/nvidia1

11. Toolkit compile
    • run cudatoolkit_???? (must be root)
    • press enter for all of the questions

12. SDK Install
    • run cudasdk_???? (must not be root)
press enter for all of the questions

13. Verify the installation
   - cd ~/NVIDIA_GPU_Computing_SDK/C/
   - make  <- should complete without an error. if any error occurs, install some missing packages as in 4.
   - cd bin/linux/release/
   - ./deviceQuery  <- you should see the Tesla C1060 name and some information of it.