

1 Windows install of CUDA

Follow the quick install manual [Link to PDF](#) , the install is for 2.0 and it is recommended that you use this version. However if you use Visual Studio 2008 then there exists a Beta version of CUDA 2.1 that works with VS 2008. If you don't have a CUDA enabled GPU, it still shouldn't be any problem installing only the CUDA Toolkit and CUDA SDK and skip the "Verify CUDA-Capable GPU" and "Install the CUDA Driver" part of the install guide. The software emulation is then compiled and run by choosing EmuDebug instead of Debug in the Solution Configurations drop down list.

2 Linux install of CUDA

Follow the install instructions and find additional manuals here. You can get all packages you need for various flavours and versions of Linux (RedHat, OpenSuse, Fedora and Ubuntu) here. For install on Ubuntu 8.10 see last post in this forum. If you do not have any hardware the driver is not needed, it won't even install without the hardware. Just install the toolkit and SDK according to the linked instructions. To compile an emulated version, you write `make emu=1` instead of just `make`.

3 Lab exercise

This is a really simple lab, but it is good for getting you started in CUDA programming.

- Take an already running example from the CUDA SDK projects: Load and run the project example `matrixMul`. What this CUDA example does is a Matrix multiplication $C = A * B$.
- Modify it: What we want it to do is an element-wise multiplication (e.g. $C = A .* B$ in Matlab). First read through the code and try to understand what the kernel does and then clean and modify some parts of the code from the kernel making it calculate an element-wise multiplication. The part of the code that does error checking on the result (search for "//check result") will of course report that the result is wrong. Fix this by just uncommenting the 3 lines of error checking code. You don't need to add any error checking code your self, but at least print out some of the values to the screen and check that $C[i,j] = A[i,j] * B[i,j]$.
- Report your results: You only need to send kernel code to us, nothing else. It is however preferable if you mark the code with your name within the code.