The SciNet/UofT NVIDIA Centres

SciNet, University of Toronto

September 26, 2011

GPGPU In the SciNet/UofT Community

- A year+ of cross-University collaboration among GPGPU users
- Information sharing about system design, programming
- SciNet: Teaching, ARC Cluster for research
- Many other departments had own activities
- Last year's summer GPGPU research workshop
- gpgpu@scinet.utoronto.ca

The SciNet/UofT NVIDIA Centres

- Continuing on cross-University collaboration among GPGPU users
- Formalize, solidify existing connections under umbrella of NVIDIA Teaching/Research Centers
- Interested teams from SciNet, UTIAS, Biochem, ECE, Biomed, Astro/CITA, Sunnybrook
- Put together Teaching Centre, Research Centre applications
- PI: Daniel Gruner

NVIDIA Teaching Centre

- Brings together graduate teaching in:
  - ▶ ECE (Moshovos, "Programming Massive Multiprocessors using CUDA", Spring)
  - ▶ Astro (Pfeiffer/Dursi, GPGPU Scientific Programming, Summer)
  - ▶ Chemistry (Mahadevan, "Modelling and Optimization of Chemical / Biomedical Networks")
- Plus training at SciNet

NVIDIA Research Centre

- Brings together research in:
  - ▸ UTIAS (Groth group)
  - ▸ Biology (Yip, Tillier, Poms groups)
  - ▸ Chemical Physics (Colberg)
  - ▸ Astro/CITA (Pfeiffer, Pen groups)
  - ▸ ECE (Tate, Abdelrahman groups)
  - ▸ Medical Imaging (Martel group @ Sunnybrook)

Success

- Sept 2011; annually renewable
- Teaching: teaching support
    - 1/2 TA
    - Extensive teaching/assignment materials
    - Automated marking testbed
    - 100 GTX480s for teaching
- Research:
    - Technical contacts at NVIDIA HQ
    - Seeding program for new tech

Activities Ahead: Teaching

- SciNet: Introduction to GPGPU w/ CUDA (Full day, Dec 12)
- ECE: Programming Massive Multicore Processors with CUDA (Spring Semester)
- SciNet/CITA: GPGPU Scientific Programming (minicourse, Summer Semester)
- Note: SciNet training courses may now be available for graduate credit (Astro, Physics). Inquire for details

Activities Ahead: Research

- Regular GPGPU Research Workshops
- Continue biweekly GPGPU research lunches hosted by H. Pfeiffer (CITA) ?
- Regular telecon meetings with NVIDIA staff on technical issues, new technologies

All Are Welcome!

- $\approx$ 50 Teaching GTX480s still available
- Teaching materials, automated testing harness for marking, TA support available
- Research meetings, collaborations open to all
- Must participate in annual renewal writeups, activities of the centres
- Whole purpose: to strengthen, deepen connections between the GPGPU community Toronto-wide. Come aboard!