1 Attendance
Present:
 Benjamin Hugo
 Heinrich Strauss
 Brandon Talbot
 Prof. James Gain
 Dr. Patrick Marais

(Prof. James Gain's Office, Building 18, UCT Upper Campus)
from 12h00 to 13h00

2 Agenda
Progress on Zero-Length Encoder (Heinrich)
- Progress still too slow
- might get first pass GPU out
  - will result in low project mark
- Concentrate on implementations over write-up

Progress on Predictive Encoder (Benjamin)
  - Ben's writing up
- trying to remove atomic locks
- tweaking kernel to squeeze out performance
  - (this is an addiction and must be avoided)
- next: must get proper gzip, bzip2, rar comparison
- from Friday discussion - kernel runs at 16Gb/s on Honour Lab GT670
- MemCpy back to CPU killing throughput
- from 6gbps to 1gbps
  - Suggestion: use pinned memory; adjust block sizes

Progress on Arithmetic Encoder (Brandon)
- Content Copying - must include time from CPU to hard drive
- pinned memory was tried (still using thrust libraries, experimental)
  - pinned memory is faster for reduction papers available online
- Brandon's implementation is slower than other implementations online
  - must ensure that CUDA code is not defaulting to emulated in software
  - Could be related to Kepler vs. Fermi architecture changes
- Tried swapping on Global Cache
  - Cannot be done on Fermi
- Considering three arrays to store sums
  - Fermi architecture doesn't allow ptr to ptr copies
- Should finish early next week, then concentrate on writing

- Element swapping could be faster

3 Post Meeting Action Items

Action: *Leverage Benjamin and Brandon as team-members*
Assigned To: Heinrich
Deadline: Project Coding Duration

Action: *Compare implementations to gzip, bzip2 and rar*
Assigned To: Project Members
Deadline: Project Write-up

Action: *Code Implementation Due*
Assigned To: Project Members
Deadline: 10 October 2013

Action: *Must have a meeting with Jason (before thesis hand-in)*
Assigned To: Project Members
Deadline: 25 October 2013

Action: *Final Draft Write-up Due*
Assigned To: Project Members
Deadline: 21 October 2013

Action: *Final Write-up Due*
Assigned To: Project Members
Deadline: 28 October 2013

4 Further Meetings
Patrick and James away next weekend and week. Next meeting to be scheduled for 15 October (preferably with Jason Manley present).

Notes from meeting:
- Pinned Memory should always be a little faster; if not, there is an implementation problem
- There are Fermi's on campus for Old Mutual Financial Modeling Project - nice-to-have, not necessary for this project; access to hardware can be requested from OM project members)
- NVIDIA GPUdirect is a possibility once it arrives (confirm viability)
- Parallelising memory copy and kernel execution will give an observable speedup
- Ensure drafts are timeously submitted - do not leave for last second.