# Home Exam 2

## INF5063

15. October 2010

# Introducing codec63

- A real video encoder is quite large
  - x264 about 50.000 lines of code
  - VP8 about 35.000 lines of code

- Codec63 is based on the MJPEG encoder of H1
  - Adds Inter-prediction
  - No intra-prediction, rate control, in-loop filter, sub-block, slice nor B-frame support
  - However, it has every opportunity for parallel optimizations and architecture adaptations
  - We provide an encoder and decoder as precode

# GPU Adaptation

- The encoder runs quite slow, and is not suitable for realtime encoding of live HD video
- Take advantage of the GPU using either OpenCL or CUDA to improve the performance without doing optimizations that severly degrades compression efficiency
  - E.g., you may use optimized MV search patterns as long as they are *sound*, and can reach the edge of the search area.
    - Please cite the relevant publication for the MV search pattern
- The focus of the assignment is on architecture adaptation

# Competition

- At the end of the course we will arrange a competition
- The fastest c63 encoder wins
  - Both GPU entries and Cell entries are eligible
- The details will be announced later, but a few things is worth noting
  - The input should be assumed live video – no deep pipelines
  - There will be a limit on quality degradations and output size
    - No cheap tricks
- The group members with the fastest GPU and Cell implementation will each get a prize