Diploma Thesis Assignment

Bc. Lukáš Zaorálek

Study Programme: N2647 Information and Communication Technology
Study Branch: 2612T025 Computer Science and Technology
Title: Podpora CUDA kódu v multiagentní platformě JADE
CUDA code support in Multiagent platform JADE

Description:
The main goal of the Master Thesis consists in the extension of existing Multiagent platform called JADE.
At the end, agents running under JADE will be able to execute CUDA code accelerated on graphic cards.
The thesis will be divided into following parts:
1. Introduction to CUDA with reference to the utilization of CUDA within MAS
2. Introduction to Multiagent simulations, basic concept and application area of MAS
3. Integration of PTX code transfer using ACL messages and running of this code
4. Design and implementation of experimental concept of MAS with CUDA code
5. Evaluation of performance tests and summary results

References:
1. MULTIAGENT SYSTEMS: Algorithmic, Game-Theoretic, and Logical Foundations
2. A GPU-Based Multi-Agent System for Real-Time Simulations
3. Developing Multi-agent Systems with JADE
4. Multi Agent Navigation on the GPU
5. Multiagentní Ráčeni, simulace a plánování výroby [In Czech]
6. Multiagentní systémy v medicíně (Diplomová práce) [In Czech]

Extent and terms of a thesis are specified in directions for its elaboration that are opened to the public on
the web sites of the faculty.

Supervisor: Hussam Abdulla

Date of issue: 19.11.2010
Date of submission: 06.05.2011

[Signature]
doc. Dr. Ing. Eduard Sojka
Head of Department

[Signature]
prof. RNDr. Vladimír Snášel, CSc.
Dean of Faculty