Master Thesis –
DPDK Abstraction of GPU Acceleration

Background
Mobile networks are used all over the world and are the corner stone for the networked society, where everything shall be connected. To support the vast amount and diversity of data expected in future networks, Ericsson are developing products to drive and support the networked society. The subjects for Master Thesis are defined to investigate and develop algorithms, architecture, tools etc. to support huge increase of speech, data and massive IoT for Radio Access Networks.

Thesis Description
DPDK stands for Data Plane Development Kit. DPDK is a set of libraries and drivers for fast packet processing and these libraries can be used to receive and send packets within the minimum number of CPU cycles. DPDK is designed to run on any processors. The first supported CPU was Intel x86 and it is now extended to IBM POWER and ARM. DPDK is an Open Source BSD licensed project.

GPUs contain a significant amount of compute resources but are a bit tricky to use. For our packet processing needs it would be interesting to see how you could abstract this using DPDK interfaces.

Task
- Evaluate a DPDK cryptodev implementation of a suitable encryption algorithm on a GPU.

The thesis will be concluded with a result presentation for the Ericsson team.

Qualifications
This project aims at students in electrical engineering, computer science, computer engineering or similar.

Extent
1-2 students, 30hp each

Location
Ericsson AB Mjärdevi, Linköping

Preferred Starting Date
Spring 2019

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