MASTER THESIS – IMPLEMENTING 5G PROTOCOL SPECIFIC ACCELERATION ON CLOUD BASED FPGAS

Background
Mobile networks are used all over the world and are the cornerstone in the networked society, where everything that benefits from a connection 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
In the cloud industry, there is a growing trend of offering FPGA as a service. As this offering matures FPGAs might become common as an application acceleration tool in cloud environments.

One example is the Amazon EC2 F1, which is a Cloud compute instance with field programmable gate arrays (FPGAs) that you can program to create custom hardware accelerations for your application. F1 instances are easy to program and come with everything you need to develop, simulate, debug, and compile your hardware acceleration code, including an FPGA Developer API and Hardware Developer Kit (HDK).

The work consists of a study and evaluation of a cloud deployable FPGA based accelerator for packet scheduling.

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. Interest in FPGA and cloud development is a merit.

Extent
1-2 students, 30hp each

Location
Ericsson AB Mjärdevi, Linköping

Preferred Starting Date
Spring 2018

Keywords
Cloud, FPGA, Hardware Acceleration

Contact Person
Johan Wibeck
+46 10 711 40 06
johan.wibeck@ericsson.com