



AimValley is a world-class engineering and innovation center that designs and builds networking solutions. We are based in Hilversum, with colleagues in Canada, India and France. We started in 2003 as a spin-off from Lucent Technologies (a successor from the American company AT&T), which is why we have a strong background in telecommunication solutions and have built-up a vast expertise in real-time processor technology. Our telecom experience creates a perfect crossover to the HealthTech sector, where we are establishing our footprint, through developing innovative connectivity solutions for medical device manufacturers. Most of our design & development is done in-house.

Product development entails the preparation of requirements documents, specifications of system architecture, electronic development (board design, system certification, mechanical design), FPGA/ASIC & software development, system verification, and product/factory introduction. AimValley uses FPGAs to process high-speed transmission functions. Real-time requirements are key in our software development.

Our business is about people and our teams are dynamic, skilled and passionate about technology. Recruiting and training the right talent is an essential part of the AimValley DNA. We have over 95 employees of which 75% work as a design expert in the R&D organization. All R&D employees have a college or university-level education.



Project Introduction - NOC of Xilinx ACAP

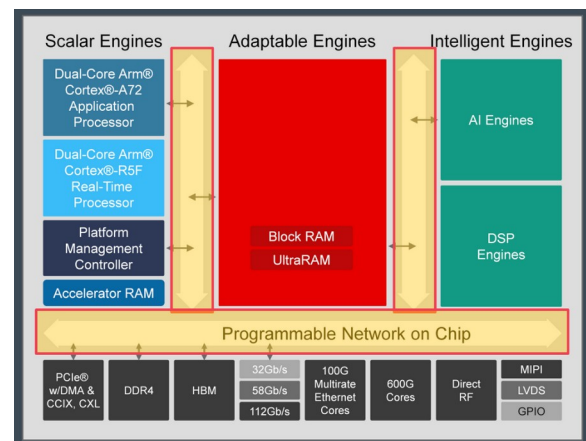
The latest Xilinx Versal ACAP FPGAs are built around a network-on-chip (NOC). This NOC is designed for high bandwidth connectivity within the FPGA. This NOC is flexible and can be used in a wide variety of designs.

For many projects in Aimvalley bandwidth is not the only parameter. Also latency and being able to handle many small chunks of data are key-parameters. Xilinx normally advertises maximum available bandwidth. But in practice choosing the right balance between all these parameters is a challenge for many designs. Example applications are:

- High-bandwidth connectivity to high-density SDRAMs, both internal and external to the FPGA
- Low speed CPU interface to configuration of the designed
- Low latency data-path connectivity between sub-components of the designed
- Variable sized ethernet-packet connectivity between sub-components of the design

Project Description

The assignment comprises of investigating the capabilities of the NOC and build test designs which demonstrate the capabilities of the NOC in the various areas of application as described above. The performance of these test design must be evaluated. From these example design, an overview of capabilities and recommendations should be provided to AimValley.



Complexity

- > The architecture of the NOC and FPGA must be understood.
- > Expectations should be defined upfront
- > Finding/creating representative test designs must be well aligned with AimValley

Keywords for this project

- > Network on Chip
- > Versal ACAP
- > Vivado Toolkit

Affinity

- > FPGAs
- > AXI protocol
- > Xilinx

Skills

- > Independent
- > Competent in English
- > Digital design knowledge

Are you a student with a can-do attitude and a passion for technology?
AimValley is your company!

Why not join us today: students@aimvalley.com