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**Post-Doc/ Research Engineer position open at National University of Singapore.**

We are looking for two candidates to join our research group – one as a Post-doctoral researcher and another as a research engineer. The openings are in the project of Thermal Aware 3-Dimensional Multi-Core Systems Design. More details about the project can be found below.

**Project Description**

**Thermal Aware 3-Dimensional Multi-Core Systems Design**

Multi-core systems are increasingly used to meet the performance constraints of high-performance computing (HPC) applications. However, most of these systems are implemented in a 2D IC, which seems to become complex, inefficient and uneconomic with the advancement in the process technology due to inefficient scalability of interconnects with respect to the logic. A viable alternative to cater for such limitations of interconnects is a 3D IC, where multiple layers of logic can be stacked vertically and they can be connected by high speed small vertical interconnects.

Integration of various types of cores in a 3D IC provides several advantages, but at the cost of increased power density within the chip, which results in serious thermal problems, affecting performance and reliability of the system. While there are few works that target to mitigate the thermal issues in 3D multi-core architectures, very few target real-time applications with strict timing deadlines.

In this project, we will perform investigations to identify a promising 3D multi-core architecture to support a set of real-time applications and to devise techniques for thermal-aware mapping of different simultaneous active applications while guaranteeing their performance (throughput) constraints. The 3D architecture is expected to integrate different types of cores such as general purpose processors and accelerators to achieve a promising architecture. The real-time applications to be mapped on the architecture will be streaming multimedia applications (e.g., MPEG-4 decoder, JPEG decoder, MP3 decoder) that are omnipresent in modern electronic systems such as smart phones, tablets, PDAs, etc.

**Requirements**

- All candidates should have at least a good Bachelor's degree from a reputed university with excellent grades (PhD for Post-docs).
- A genuine interest and curiosity in the subject matter and excellent analytical and communication skills in English speaking and writing are required.
- Good programming skills (especially on scripting, assembly-level and C languages) as well as good hardware-design skills (especially using VHDL/Verilog and component-based design) are important.
- Experience in using FPGAs and working with multimedia applications will be an added advantage.

**Application Deadline**

The application should be received by **November 30, 2014**.

**Contact**

Please send your detailed application, including a CV and certificates, as email to Akash Kumar ([akash@nus.edu.sg](mailto:akash@nus.edu.sg)).