Secondment report

Name: ESR2.2 Raphael SEGABINAZZI FERREIRA
IRP title: **Innovative real-time operating system for error management for single- and multi-core units**

From: BTU
To: TUT
Period: May 2nd – June 1st, 2019

Activities during the secondment

- **Scope and objectives.**
  - To evaluate Operating System (OS) support in conjunction with fault monitors (from ESR1.3 Nevin George from BTU) in an existing Self Health Aware Monitoring Framework developed by the Smart Hardware Research Center (SHARC) at TUT;
  - To evaluate the integration of the Fine-Granular approach for OS management of Functional Units (FU) into the mentioned framework.
- **Activities**
  - Training on Functional Demonstrator of the System Health Aware Monitoring Framework;
  - Brainstorming on points of addition towards:
    - support for Monitoring elements and its benefits;
    - support and implementation of the Fine-Granular approach and its monitoring and management from the OS side;
  - Regular progress meetings;
  - Initial implementation of the Fine-Granular Functional Unit management infrastructure into the Self Health Aware Framework.
- **Main results achieved**
  - Agreed in an initial concept for integration of the Fine-Granular approach for OS monitoring and management of Functional Units into the framework;
  - Integration and implementation of the infrastructure for the Fine-Granular approach into the framework has started.
- **Next steps**
  - Finish the implementations necessary for the aforementioned integration;
  - Evaluate the resulting system performing measurements on performance impact, area overhead and health awareness improvement.
- **Optional request for support or a technology/tool available at host:**
  - Support was provided by local experts, especially in respect to the framework and its demonstrator.

Self-evaluation

Overall score: 5
I consider this secondment successful, with regards to the research objectives achieved, skills developed, supervision quality, diversity of the resources. (Agree = 5 … Disagree = 1)

Optional comments: TUT and the SHARC research group has already projects in system health awareness monitoring and demonstrators built for that. My personal project and interests are in the integration of the Fine-Grained approach for Operating System monitoring and management of Functional Units into the mentioned framework from SHARC. For that an initial concept was created, and the integration activities have started.

Date of the report approval by the supervisor: November 11th, 2019

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