Abstract

When writing software for large computer systems it is often easier, more secure, cheaper and faster to test and debug software on a simulated platform before deploying it to the real hardware. Ericsson Infotech, department of Test Support and Simulated Platforms (TSP) develop such a simulator platform, called Simulator Environment Architecture (SEA). This platform is mainly used for simulating the AXE 10 digital switching system, which is also developed by Ericsson. The AXE 10 system is the heart of the telephone network in Sweden and many other countries.

SEA is a very easy and practical tool for testing software for the AXE 10 switch, but sometimes some of the software that is to be tested has to be run on real target hardware. To be able to achieve this a bridge between the simulated environment and the real hardware is needed, and this is the purpose of this project. The main goal is to investigate if it is possible to connect a real serial Regional Processor (RP) to a Central Processor (CP) simulated in SEA. Both the RP and the CP are parts of the hardware in a real AXE 10 switch. The secondary goal is, if possible, to implement the communication between the real RP hardware and the CP, simulated in SEA.

To accomplish these goals, the hardware for the two communication buses between the CP and RP were first investigated. This hardware investigation revealed four possible solutions, but only two of these solutions were considered suitable for this project. The first possible solution was to use a Regional Processor Handler Magazine Interface (RPHMI) card in the workstation running SEA, and then connect a Serial Regional Processor Bus Handler (RPBH-S) to this card. Then it should be possible to connect real RPs to the RPBH-S. This solution was however considered as being too complex and expensive. The second solution, which was finally chosen, was to use the SERPENT RPB-S emulator. The SERPENT is a piece of hardware that was made especially for connecting RPs to a workstation, and it was therefore ideal for this project. Thus the primary goal with the project was accomplished. The secondary goal was not entirely completed, but an early prototype was designed and partly implemented.