Sandia Secure Processor – a Native Java Processor

Gregory L. Wickstrom, Brent T. Meyer, and Kwok Kee Ma
Sandia National Laboratory

Abstract:

The Sandia Secure Processor (SSP) is a new native Java processor that has been specifically designed for embedded applications. The SSP's design is a system composed of a core Java processor that directly executes Java bytecodes, on-chip intelligent IO modules, and a suite of software tools for simulation and compiling executable binary files. The SSP is unique in that it provides a way to control real-time IO modules for embedded applications. The system software for the SSP is a "class loader" that takes Java .class files (created with your favorite Java compiler), links them together, and compiles a binary. The complete SSP system provides very powerful functionality with very light hardware requirements with the potential to be used in a wide variety of small-system embedded applications.

This paper gives a detail description of the Sandia Secure Processor and its unique features.