Client challenges:
The complexity of system design has skyrocketed in the past few years. When the Huawei wireless team started designing the multicore SoC architecture for the next generation of baseband stations, they faced a huge challenge in meeting the requirements of performance and power efficiency to globally distribute parallel wireless standards (4.5G/5G) on the SoCs. Huawei wanted to use a power management technique called DVFS (Dynamic Voltage Frequency Scaling) to achieve a possible power efficiency gain. However, it was not possible to identify and estimate the possible power efficiency gain, using the current tooling and design methodology.

Solution:
- Silexica’s SLX Tool Suite uses an advanced architectural modeling technique with power models, which enables users to develop and optimize multicore software not only for performance but also for power and energy consumption.
- The SLX Tool Suite contains power-aware automatic software mapping & scheduling for multicores, in order to drastically shorten the time to evaluate the power efficiency change for different distributions of software on multicore SoCs. On top of that, it proposes the ideal distribution solution to meet requirements for any specific system design.

Results:
Using Silexica’s SLX Tool Suite, Huawei Wireless was able to identify that an implementation of DVFS would reduce the peak power by more than 30% and furthermore improve the power efficiency by more than 30%. The results impacted the further direction of Huawei within the development for the next generation of baseband stations.