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 Dynamic Voltage Frequency Scaling (DVFS) to achieve a possible power efficiency gain. However, it was not possible to identify and estimate the possible power efficiency gain, using the current processes and design methodology.

Solution:
Silexica’s SLX uses an advanced architectural modeling technique with power models, which enables users to analyze, optimize and implement multicore software not only for performance but also for power and energy consumption. SLX 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 SLX, Huawei Wireless was able to identify that an implementation of DVFS would reduce the peak power by over 30% and furthermore improve the power efficiency by over 30%. The results have influenced the direction of Huawei for the development of the next generation of baseband stations.