Many of the next generation supercomputing systems have GPUs as their core performance capability. Therefore, it is getting more important to develop the ability of GPU performance optimizations. In the presentation, an example of GPU performance optimization is introduced with focusing on optimization process, interaction between key players, and suggestions for lowering barriers for GPU performance optimization. SAM++ is a GPU-port of System for Atmospheric Modeling (SAM). The details of SAM++ performance metrics are collected on the Summit system of Oak Ridge National Laboratory using Nvidia Nsight profiling tools. The low-level performance metrics are analyzed from several perspectives including comparisons to the theoretical peak performance as well as the metrics collected from other programs. Well-known analysis techniques such as roof-line analysis are also applied. From the analysis several “distinctive” characteristics of SAM++ are identified and communicated with the author of SAM++ porting. The author soon could translate the performance analysis result to the modifications of the underlying GPU porting framework, Yet Another Kernel Launcher (YAKL). As a result, it was possible to get overall 1.5X speed-ups in one configuration of SAM++ within a week. From the collaboration, the merit of “division of labor”, separating speed-up work from performance analysis, is well accepted. Furthermore, we could elaborate an idea of “Optimization Knowledge Database” to lower barriers of GPU performance optimizations.