

Writing a parallel shared memory application that scales well on the future multi-core processors is a challenging task. The contention among shared resources increases as the number of threads increases. This may cause a false sharing problem, which can degrade the performance of an application.

OpenMP Tools (OMPT) [2]- a performance tool APIs for OpenMP- enables performance tools to gather useful performance related information from OpenMP applications with lower overhead. In this paper, we propose a light-weight false sharing detection technique for OpenMP programming model using OMPT. We show that the OMPT framework has the ability to detect unique patterns that can be used to build a quality detection model for false sharing in OpenMP programs. In this work, we treat the false sharing detection problem as a binary classification problem. We develop a set of OpenMP programs in which false sharing can be turned on and off. We run these programs both with and without false sharing and collect a set of hardware performance event counts using OMPT. We use the collected data to train a binary classifier. We test the trained classifier using the NAS Parallel Benchmark applications. Our experiments show that the trained classifier can detect false sharing cases with an average accuracy of around 90 %.