
Summary

Through the course of this chapter, it has become evident that parallelization is a crucial tool to have for performance optimization work. On many servers and workstations around the world, CPUs and GPUs idle and waste precious hardware resources because applications fail to tap into the machine's full computing power. With the Task Parallel Library at our disposal, taking advantage of all available CPU cores is easier than before, although synchronization problems, oversubscription, and unequal work distribution leave some interesting issues and pitfalls to deal with. On the GPU front, C++ AMP and other libraries for general-purpose GPU computing are flourishing with algorithms and APIs to parallelize your code on hundreds of GPU cores. Finally, unexploited in this chapter, remain the performance gains harvestable from distributed computing—*the cloud*—which is the biggest trend in IT today.