

	Multi- Processing (4 Processes, 1.6 million records per process)	Multi- Threading (10 threads, 630K records per thread)	MPI (4 slaves, 1.6 million records per slave)
Time taken (in seconds)	36.99	44.97	32.34

MPI performs the best when it comes down to processing huge chunks of data. With 4 slaves, it takes around 32 seconds to process 6.4 million records and return the desired results. Even while working with a small dataset as in our case, we notice a considerable performance gain (4 seconds less) than multiprocessing (second best technique). This is the reason MPI is preferred the most for massive data processing in distributed systems.

Multiprocessing performs well too with 4 independent processes taking 37 seconds to process 6.4 million records. Although not as efficient as MPI, multiprocessing can still be considered a good option for processing massive datasets.

Multithreading takes 12 seconds more than MPI and 8 seconds more than multiprocessing to perform the same task. In practice, Multithreading is efficient for I/O intensive tasks and falls way behind in performing computation extensive tasks, which is the case here.