Abstract

Currently efficiency of data storage management and data transfer in networking is needed. The big size files make storage device full and data transfer takes a long time. This problem makes compression into one of best solutions to solve this issue. But to produce best compression ratio, more time and more resource is needed. This reason makes the use of compression less abandoned.

In the other side, the growth of hardware technology specially in Graphics Processing Unit (GPU) is increase. GPU is not only used to process image and video rendering but also can support Central Proscessing Unit (CPU) to process common computation. GPU has multicore that can parallelize the computation, so the computation can be completed faster as long as it can be parallelized. In this case, NVIDIA has CUDA that can process common computation in GPU.

Parallelization of compression can solve time and resource issue during compression process and GPU can help compression to be process in parallel. The compression algorithm that can be executed in parallel is Lempel Ziv Storer Szymanski (LZSS). LZSS is a lossless compression method. This compression is dictionary based. This method utilizes the repetition of a phrase in a digital data. The same phrase in digital data can be replaced with one code so data size can be minimized.

The results of compression file test with this method lead the conclusion that compression process can be accelerated with
parallelizing compression process. The more thread are used, running time of compression process can be reduced.

**Keyword**: compression, CUDA, LZSS, parallel computation