ANALYZING TURBINE BLADE CREEP BEHAVIOR USING COMPUTATIONAL FLUID DYNAMICS

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Relevance. The best design strategy would be not to overlook soft wares that existed for decades, but to develop new applications and algorithms for existing and future architectures. High-performance computing on GPUs has attracted an enthusiastic following in the academic community as well as within the industry, so there is growing expertise among programmers and alternative approaches to software development.

Goal of the work. This work aims to develop this issue into a secure file system using Encryption Algorithm (AES) to provide security and confidentiality for important files and data.The GPU is used to implement the simplest multi-compute encoding of the AES algorithm, which meaning that implementation is a solution to increase file processing throughput.

Result analysis. By looking at the software and hardware evolutions, it is clear that there has been lot of developments done both to the hardware and software to map the general purpose computations onto GPU and now most of the research is concentrated on making these processes much easier for the systems and programmer. Development from shading languages to streaming programming has given a boost for GPU Computing. There are many academic research projects on stream languages, which gave birth to many vendor specific languages, for example Brook+ of AMD is an extension of BrookGPU developed by Ian Buck of Stanford University. NVIDIA’s CUDA is a higher level interface than AMD’s HAL and CAL. Similar to Brook, CUDA provides a C-like syntax for executing on the GPU and compiles offline and exposes two levels of parallelism. CUDA is more flexible and complex, whereas RM (RapidMind, now acquired by Intel and trade named as Ct) is more portable However, all of this flexibility and potential performance gain comes with the cost of requiring the user to understand more of the low-level details of the hardware, notably register usage, thread and thread block scheduling, and behavior of access patterns through memory. Hence all the industries have formed a consortium and trying to develop an industry standard language.

Conclusion. Currently GPU computing has focused only on GPU Cards. But future computing has to focus on using hundreds of accelerators along with CPU cores than symmetric processing. In future GPU architectures, If GPU is directly connected to the memory through the bus, which may alleviate PCI express bottleneck, the computation algorithm and application development will see a new phase altogether.