A Comparative Study of GPU Computing by using CUDA and OpenCL

International Journal of Computer Applications
Foundation of Computer Science (FCS), NY, USA

Volume 128
Number 17

Year of Publication: 2015

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Abstract

Parallel computing becomes a need to perform task as soon as possible. This can be done in two way improve hardware or use parallel programming language i.e. improve software. Improvement in the hardware is costlier solution compared to software solution. So we have two basic heterogeneous parallel languages CUDA and OpenCL which run on both CPU and GPU according to necessity. When program does not contain high parallelism it works on CPU which contains less number of cores. On other hand program contain high degree of parallelism so each independent code runs on separate core of GPU. This paper gives the basic idea of the parallel computing and how these carried out. Explain the working of both parallel language CUDA and OpenCL with their detailed architecture. In the last section comparison of both languages is described.

References

1. J. D. Owens, D. Luebke, N. Govindaraju, M. Harris, J. Krüger, A. E. Lefohn and T.


Index Terms

Computer Science
Distributed Systems

Keywords
Parallel Computing, GPU, GPGPU, CUDA, OpenCL.