Module A: Elementary Notions of Heterogeneous Computing

Reference Material

There is no single resource that can serve as a good reference for all of the concepts covered in this module. Furthermore, as yet, there is no definitive text on heterogeneous computing. Below we list a book and several articles that covers fundamentals of heterogeneous computing and the performance and programmability issues thereof. The list includes two survey articles written for an audience with some background in heterogeneous computing. We also include two papers that specifically deal with the pedagogy of heterogeneous computing.

[1] W Hwu Wen-mei. *Heterogeneous System Architecture: A new compute platform infrastructure*. Morgan Kaufmann, 2015.

[2] Mohamed Zahran. Heterogeneous computing: Here to stay. *Communications of the ACM*, 60(3):42–45, 2017.

[3] Sparsh Mittal and Jeffrey S Vetter. A survey of cpu-gpu heterogeneous computing techniques. *ACM Computing Surveys (CSUR)*, 47(4):69, 2015.

[4] Sparsh Mittal. A survey of techniques for architecting and managing asymmetric multicore processors. *ACM Computing Surveys (CSUR)*, 48(3):45, 2016.

[5] Ganesh Gopalakrishnan. Formal methods for surviving the jungle of heterogeneous parallelism. In *Parallel and Distributed Processing Symposium Workshops & PhD Forum (IPDPSW), 2012 IEEE 26th International*, pages 1321–1324. IEEE, 2012.

[6] Julian Gutierrez, Fritz Previlon, and David R. Kaeli. Employing student retention strategies for an introductory GPU programming course. In *2018 IEEE/ACM Workshop on Education for High-Performance Computing, EduHPC@SC, Dallas, TX, USA, November 12, 2018*, pages 31–40, 2018.