Mac OS HD:Users:pfac:Desktop:host.pdf**Heterogeneous Platforms**

**One or more computational nodes** interconnected, allowing different CPU chips to work together;

**Accelerator devices** inside the computational nodes, working side by side with the CPU;

**Distributed Memory** architectures: data has to be explicitly transferred between distinct memory spaces.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** |
|  | | | | | | | | |
| **Intel** | *Paxville*  2 cores |  | *Kentsfield*  4 cores | *Dunnington*  6 cores |  | *Beckton*  8 cores | *Westmere*  10 cores | *Knights Corner*  60 cores |
| **NVidia** |  | *G80*  128 cores |  | *GT200*  240 cores | *Fermi*  512 cores |  |  | *Kepler* *GK110*  2,688 cores |

**Environmental Setup**

* 2× Intel Xeon E5-2650 @ 2.00 GHz
  + 8 cores;
  + HyperThreading technology (2 threads / core);
  + Sandy Bridge micro-architecture;
* 64GB of RAM @ 1333 MHz (NUMA)
* Intel C++ Compiler 12.0.0
* Intel Math Kernel Library 11.0
* Armadillo C++ linear algebra library 3.800.2

**Methodology**

* Best result of 3 measurements, which differ no more than 5%;
* Minimum: 10 measurements;
* Maximum: 20 measurements;
* Block size: 64