VALPARAISO UNIVERSITY

COMPUTING AND INFORMATION SCIENCES

LittleFe

Background

This clustering system incorporates multiple motherboards similar to those used in a variety of small PCs or industrial computing applications, and is linked by specialty software and a gigabit Ethernet switch to provide a platform whose behavior under heavy computing loads, in general, will experience constraints similar to enterprise and supercomputer class systems when faced with complex computing challenge. This 'balanced' configuration affords students and faculty a way test solutions before approaching larger platforms like those found at the National Laboratories and Supercomputing Centers. It was assembled at the University as part of an ongoing interdisciplinary faculty/student project team, provides unique teaching and research capabilities to projects and students. Interestingly, the aluminum cage means it is light and sturdy enough to travel – as checked luggage – to conferences and technical symposia.

Technical Specifications

- Processing – LittleFe v4d:
  - 6 nodes, each with AS IMB-151D Bay Trail Motherboard, hosting:
  - **Intel Atom J1900 Celeron CPU**
  - NVidia 4-Plus-1 Quad Core ARM Cortex-A15 (4 cores)
- Interconnect: Gigabit Ethernet
- Power:
  Cluster runs on 1 standard US outlet
- RAM: **4** GB DDR3 per node (24 GB total)
- Storage: 1 128MB Solid State Drive/cluster
- Operating System: Ubuntu Linux 14.04
- Cooling: 6x CPU fans

Curricular Use

- (planned) Parallel and Distributed Computing Elective (Graduate and Undergraduate levels)
- (as time permits) Operating Systems
- (as requested) Courses in Electrical and Computer Engineering, Data Science

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