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Presents

HiPerGator

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- **Mission**
  - Support opportunities for research and scholarship
  - Enhance UF Faculty's ability to compete for external funding
  - Provide high-performance, large-scale computing resources to UF researchers
  - Provide support for the use of those resources
  - Support UF in its quest for "Top 10" Status

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- **What We Have Now**
  - ~ 800 servers
  - ~ 7000 Scheduled Cores
    - 2.2 GHz to 3.0 GHz
    - Several Processor Generations
    - X86_64 ABI (Intel and AMD)
  - 8 GB to 1024 GB of RAM
  - 230 TB HA Scratch Storage

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- **What is HiPerGator?**
  - A collection (cluster) of 256 computers (nodes)
    - 16,384 Cores
    - 65.5 TB of RAM
    - 2.1 PB of Disk-Based Storage
  - What kind of computers?
  - What do you mean by "collection"?

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- **HiPerGator Nodes**
  - 4 Opteron 6378 Processors
    - 16 Cores per Processor
    - 2.4 GHz
    - 2 NUMA Nodes
  - 256 GB RAM (4 GB/Core)
  - InfiniBand (FDR) HCA
  - 1 TB (local) Disk Drive

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- **HiPerGator Network(s)**
  - **Management**
    - Gigabit Ethernet
    - Monitoring and Maintenance
  - **Data**
    - GigE and 10GigE
    - For Non-InfiniBand Nodes
  - **InfiniBand**
    - FDR (56 Gbps)
    - Sub-Microsecond Latency
    - Data, Messaging, Storage

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- **Using HiPerGator**
  - **Access via Login Servers**
    - ssh (primarily)
    - hipergator.hpc.ufl.edu
  - **Batch System (PBS/Torque)**
    - qsub, qdel, qstat, etc.
    - Jobs schedule and run asynchronously
  - **Interactive Use**
    - Several Interactive and Test Nodes
    - Identical to the batch nodes

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- **HiPerGator Schedule**
  - Some technical issues remain
  - Grand Opening: May 7th
  - Early Access Users: May 14th
  - General Availability: ??

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HiPerGator Perspective

	2004 Dell Cluster	HiPerGator
Nodes	200	256
Sockets	2	4
Cores/Socket	1	16
Total Cores	400	16,384 (40x)
Total RAM	400 GB	65,536 GB (163x)
TFLOPS (HPL)	1.325	119.54 (Est) (90x)
Top 500 Rank	225	225 (Est)

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- **HiPerGator: Bottom Line**
  - Not about tflops, bps, usecs, etc.
  - Productivity
    - Faster Results
    - Reducing "Time to Discovery"
    - Research Competitiveness
  - Making UF a "Top 10" Public Research University.

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Questions?