Top Ten HPC Research Insights from 2012

Addison Snell, Christopher G. Willard, Ph.D.,
Laura Segervall, Michael Feldman

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EXECUTIVE SUMMARY

Intersect360 Research has identified ten trends emerging in 2012 that will influence HPC markets in the years to come. This report presents our analysis of the following trends and some predictions on how these will affect the industry in 2013.

1. Accelerators Entering the Early Adopter Phase in HPC: Accelerator use is in the early stages but study results point to continued penetration of the market.
2. Big Data — More Than Hadoop: Big Data is much broader than the MapReduce ecosystem.
3. IOPS is King, Capacity is Queen: Big Data performance matters, even to enterprise computing.
4. Facility Costs Move Front and Center: More users are picking up the costs of data center power and cooling.
5. InfiniBand Longevity: Penetration into storage networks will be key.
6. Commercial Sector Spending Looks Strong: Public sector and academia are recovering, but continue to lag.
7. CPU Cores Proliferate on CPUs and Accelerators: Users explore the limits of parallelism as processor architectures diversify.
8. Hardware Spending Rebounds: Spending on new hardware gets a post-recession boost.
9. Users Show Preference for Private Clouds: Private, not public clouds are the primary choice for HPC and big data.
10. HPC Market Shakes Off Recession: Growth is expected to accelerate, but unknowns remain.

COMPANIES MENTIONED IN THIS REPORT

- AMD
- Intel
- Nvidia

Intersect360 Research
P.O. Box 60296 | Sunnyvale, CA 94088 | Tel. [888] 256-0124
www.Intersect360.com | info@Intersect360.com

TECHNOLOGIES COVERED IN THIS REPORT

- HPC system elements
  - Systems, clusters
  - Memory configurations
- Processor elements
  - System processors
  - Accelerators and co-processors
    - GPU computing
    - FPGAs
    - Other accelerators or co-processors
- Storage elements
  - Storage systems
    - Storage area networks (SAN)
    - Direct-attached storage (DAS)
  - Storage components
    - Disk drives
    - Solid-state disks (SSDs), flash drives
    - Tape libraries
- Interconnect elements
  - Storage interconnects
  - LAN interconnects
  - Interconnect standards
    - Ethernet
    - InfiniBand
    - Fibre Channel
- Software elements
  - Application software
    - In-house developed applications
- Facilities-level technologies
  - Power optimization
  - Cooling optimization
- Cloud computing, grid computing, utility computing
  - Public cloud technologies
  - Private cloud technologies
  - Hybrid cloud technologies
  - Grid computing
- Other technology trends
  - Big Data trends

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- Analytics
- Data mining
- MapReduce
- Hadoop

- Government programs or investment in HPC

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