# HPC User Site Census: Systems

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## EXECUTIVE SUMMARY

The *HPC User Site Census: Systems* report, part of Intersect360 Research's Site Census series, provides a detailed examination of the server systems installed at a sample of High Performance Computing user sites. The market research firm surveyed a broad range of users about their current computer system installations, storage systems, networks, middleware, and the applications software supporting these computer installations. Other reports in this series include: *HPC User Site Census: Applications; HPC User Site Census: Interconnects/Networks; HPC User Site Census: Middleware;* and *HPC User Site Census: Storage*.

The goal in this report is to discover system-level trends within HPC user communities by examining supplier penetration, architecture trends, and node configurations.

Key findings of this Site Census survey include the following:

- Dell, Lenovo, and HP were the top-named vendors out of 43 vendors in Intersect360 Research's all-site database. The top five named vendors (also including SGI and Cray) captured 55% of the systems market. IBM, after holding one of the top two positions, moved to the number six position after the sell-off of its x86 business. Dell was the top-named vendor at academic and commercial sites, while sharing that position with Lenovo at government sites.

- Dell, followed by Lenovo, was the top-named vendor for number of nodes installed when outliers (i.e., systems with 2,000 or more nodes) are excluded.

- Two-processor nodes continue to dominate cluster installations at surveyed sites, with 66% market share. Four-processor nodes are installed on about 15% of the clusters. Both percentages have been relatively consistent over the past four years.

- Multi-core processors represent the majority of systems shipped since 2006. For installations and upgrades in 2013+, single-core processors account for just 1% of systems. Eight-core processors hold the greatest share, followed by ten-core processors.

- Memory usage per node and processor is growing. Average memory per core has almost doubled since 2009, resulting in average memory per node almost quadrupling in size. As core count increases, so will memory requirements, affecting system design and cost.

- Accelerators are used on about 29% of the installed base of systems. Share of systems with accelerators increased slightly from 40% to 43% when comparing systems last modified in 2013+ to systems last modified in 2012.