



## INSIGHT

# Takeaways from the Most Recent HPC QView: Settling Dust But Some Changes in the Air

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## IDC OPINION

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IDC reported in the most recent release of IDC's Worldwide High-Performance Technical Server QView that worldwide quarterly HPC server revenue grew by more than 7% from 4Q14 to 4Q15 to over \$3.06 billion, and annual revenue for the worldwide 2015 HPC server sector grew to over \$11.36 billion in 2015, an 11.2% increase over 2014. In detail:

- IDC QView analysis reveals that Hewlett Packard Enterprise (HPE) continues to solidify its lead as the world's largest HPC supplier, driving the bulk of the increase in the overall HPC market and locking up almost 35% of 4Q15 worldwide HPC server revenue in the process.
- The battle for second place has become essentially a two-way tie between Dell and Lenovo.
- Cray is now larger than IBM, and the two companies occupy the fourth and fifth places, respectively.
- SGI is the sixth-largest provider.
- Sugon has grown well to reach the seventh place (refer to Figure 1 in the Situation Overview section).

## IN THIS INSIGHT

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This IDC Insight looks at recent noteworthy developments in the technical computing market including an update on the market size and market share within various HPC sectors, highlights on some of the more interesting market trends that have surfaced over the past eight quarters, and questions on potential disruptive technology developments that could upset the status quo within the HPC supplier base.

## SITUATION OVERVIEW

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IDC's High-Performance Technical Computing group has just released its Worldwide High-Performance Technical Server QView with technical and market data up to and including the fourth quarter of 2015. In total, worldwide HPC server revenue grew by more than 7% from 4Q14 to 4Q15 to over \$3.06 billion and annual revenue for the worldwide 2015 HPC server sector grew to over \$11.36 billion, an 11.2% increase over 2014. This document provides some highlights of the more expansive and detailed QView study. In addition:

- **Hewlett Packard Enterprise solidifies its lead:** In the past four quarters, HPE has increased its lead over its major competitors in the worldwide HPC sector, currently holding almost 35% of the worldwide technical server market and earning about 2.25 times the revenue of its closest competitor. Perhaps more importantly, HPE occupies a strong position across the entire HPC

sector, holding leadership roles in three of the four IDC-defined HPC categories: supercomputers (over \$500,000), departmental (\$100,000-\$250,000), and workgroup (under \$100,000). HPE is the second-largest single supplier in the divisional category (\$250,000-\$499,000), although its grip there has shown some recent weakness.

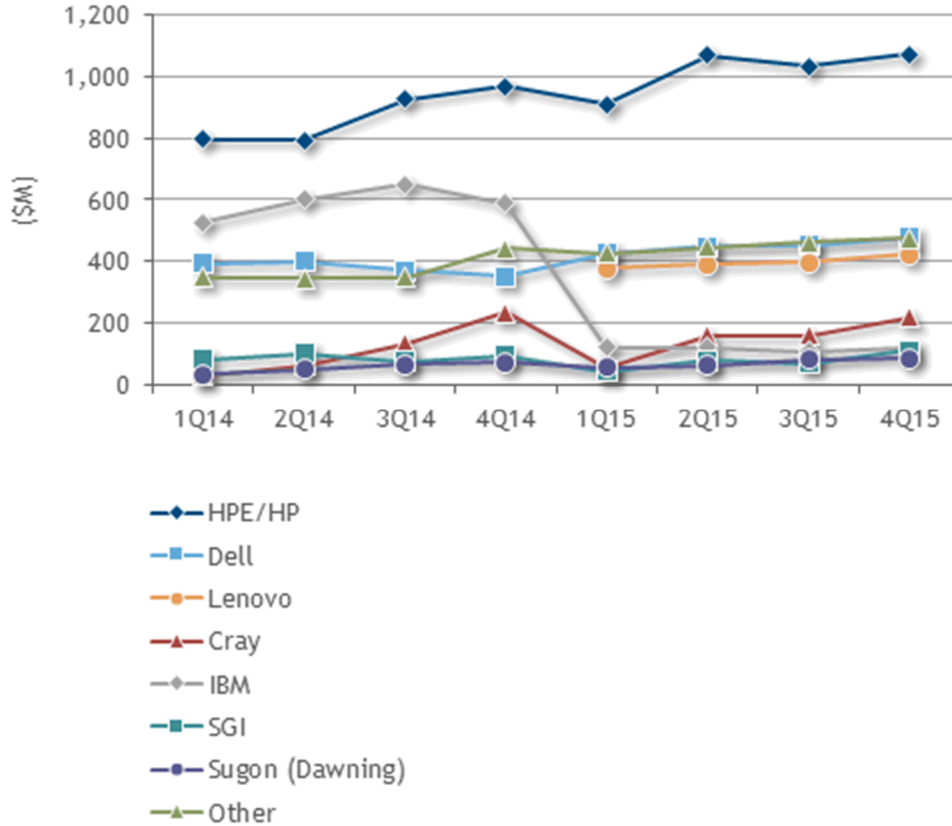
- **Lenovo scores (some) gains:** With a full year of sales by IBM and Lenovo on the books following the sales of IBM's x86 server line to Lenovo, it seems that the dust has settled for both companies, with the bulk of the transferred business (but far from all of it) landing at Lenovo. Specifically, the leading Chinese HPC vendor saw its HPC revenue increase from being a small player prior to the IBM acquisition to over \$420 million in 4Q15. Since the acquisition, Lenovo has shown three straight quarters of revenue increases, marking up a total revenue increase of about 12% from 1Q15 to 4Q15. The bulk of Lenovo's gains has been in the divisional sector, where Lenovo currently holds the top spot and derives almost 40% of its total technical computing revenue.
- **IBM struggles post x86 sale:** IBM's total HPC server revenue fell by about 80% from \$586.2 million in 4Q14 (which was the last quarter that included both its x86 line and its Power Systems server sales) to about \$116.5 million in 4Q15 for its remaining Power Systems server line. Although it is unclear whether the sale of IBM's x86 server line affected the firm's prospects for its remaining Power Systems servers, over the past three quarters, Power Systems server sales have been essentially flat. However, IBM is just starting a full refresh of its Power-based systems. As such, despite the overall strong growth in the HPC market, the combined sales of Lenovo and IBM in the most recent quarter (4Q15) are only about 90% of what IBM's total sales were in the last full quarter (4Q14) before the sale of IBM's x86 line to Lenovo.
- **Dell moves up the list:** Dell has shown impressive growth in the past eight quarters and increased its worldwide technical revenue by more than 19% in the past year. The bulk of Dell's growth has been due to its impressive gains in the divisional sector of the technical server market. Indeed, in the past eight quarters, Dell has seen its revenue in this segment of the server market more than triple to over \$90 million, while HPE saw its divisional revenue decline by almost 30% in the same time frame, the only sector where HPE revenue declined.
- **The rise of the others:** Although the HPC sector has been dominated by a handful of major players, it is clear that the emerging category of "other" is making a significant move into the sector and its recent success as a group is very substantial. IDC tracks more than 30 smaller vendors in the "other" category today. Indeed, led by traditional companies like Hitachi, Inspur, and RSC, plus new original design manufacturers like Quanta and Wistron of Taiwan, "bare-bones" server makers like Super Micro, and a handful of Asian white-box makers that market primarily to large datacenters, the "other" category as a group combines to form a virtual tie for second place with Dell in the overall worldwide technical server market and these companies are the second-largest supplier to the divisional server market, with over one-third of the market share there in the last quarter of 2015. Indeed, this group has more than doubled its revenue in the HPC sector over the past eight quarters. The strong growth of the "other" category shows that entry barriers for new HPC server vendors remain relatively low, and that the rising use of readily available market ("commodity") technologies may continue to lower the barriers.
- **Cray stays a perennial leading supercomputer provider:** Despite supplying only about 7% of the total worldwide HPC server market, Cray continues to be a powerful player in the highest end of the HPC sector, the supercomputer sector, where systems sell for \$500,000+. Second only to HPE in this highly visible and volatile segment of the HPC sector, Cray continues to be a significant player despite having no major presence in any other segment of the HPC market. Indeed, successfully navigating the traditional ups and downs in supercomputer

segment revenue from one quarter to the next, Cray has shown the overall highest revenue growth rate of any major supercomputer vendor over the past eight quarters.

Figure 1 shows the quarterly HPC server revenue for major vendors. Figure 2 shows the quarterly HPC server revenue by segment, and Figure 3 shows the quarterly divisional HPC server revenue by major vendors.

**FIGURE 1**

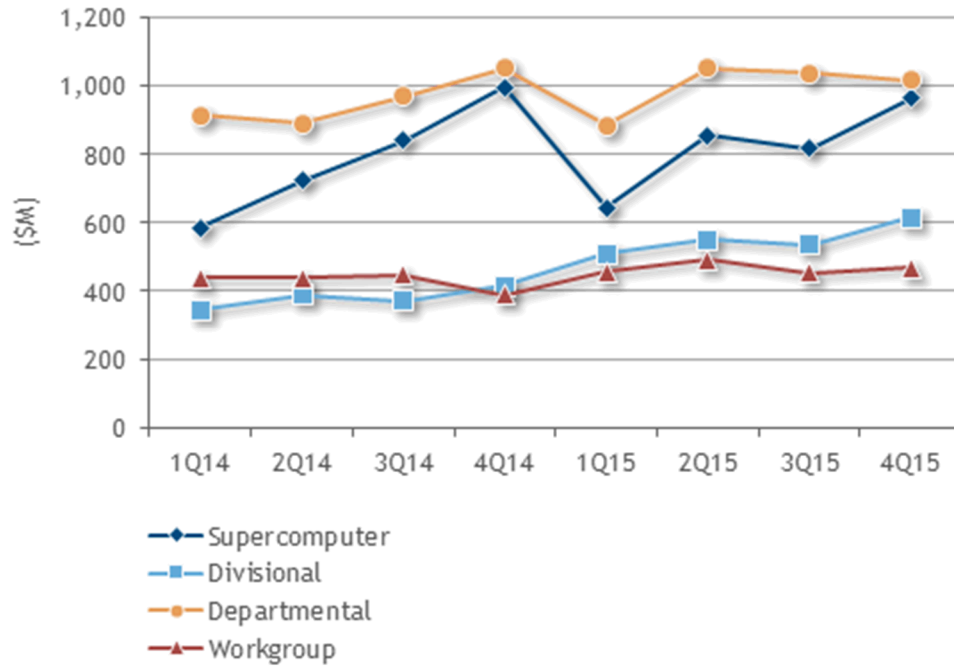
**Worldwide HPC Server Revenue by Major Vendor, 1Q14-4Q15**



Source: IDC, 2016

**FIGURE 2**

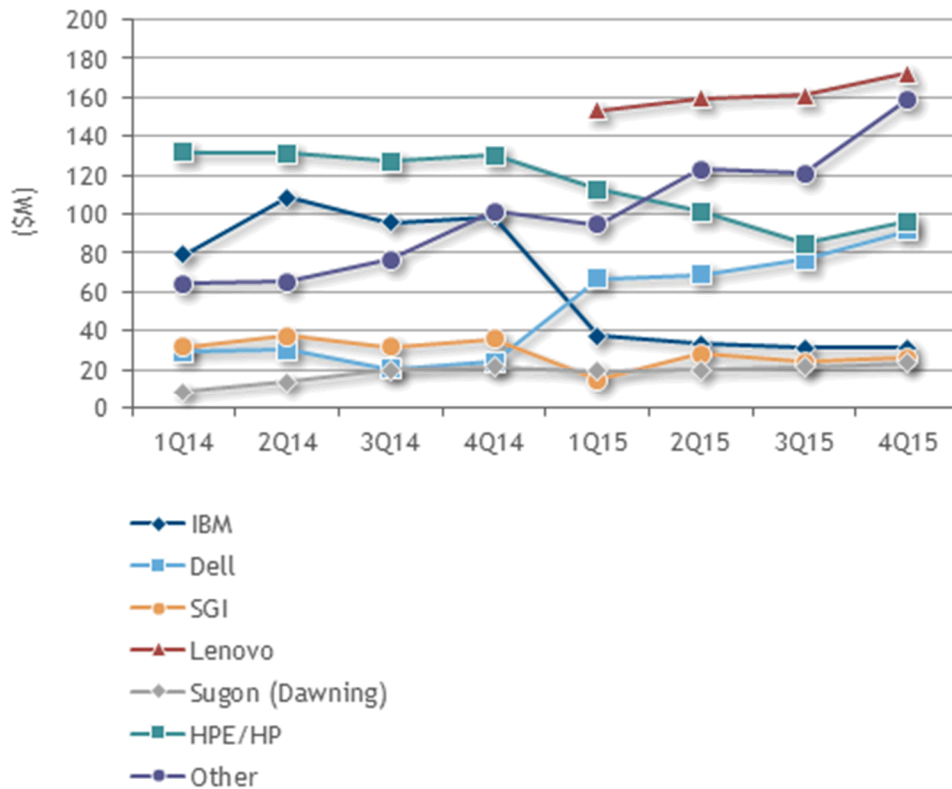
**Worldwide HPC Server Revenue by Segment, 1Q14-4Q15**



Source: IDC, 2016

FIGURE 3

Worldwide Divisional HPC Revenue by Major Vendor, 1Q14-4Q15



Source: IDC, 2016

## FUTURE OUTLOOK

A look back at the past eight quarters reveals that, apart from the IBM-Lenovo sale, there has not been much turmoil in the HPC sector and that the market, while showing strong growth, is moving forward in a relatively predictable manner from the vendors' perspective. That said, the IBM-Lenovo sale has shifted the HPC market vendor positions greatly.

IDC believes that this situation is about to change. Owing to a number of new developments in the field, IDC believes that the next few years could see some significant shifts in the prospects of HPC vendors. Although it is too early to accurately predict what these changes will mean to the sector, it is important to at least array some of the more potentially transformative developments on the horizon and the questions they engender. Key questions that IDC is watching closely include:

- How will the soon-to-be-released Intel Knights Landing chip change the dynamics of HPC configurations, and to what extent will the new chip augment or replace Intel's high-end processor offerings? Will Knights Landing create new HPC opportunities and/or fragment some existing ones?
- To what extent will HPC vendors offer new products based on OpenPOWER?

- How fast will users adopt the new versions of NVIDIA GPUs?
- To what extent will HPC vendors offer new products based on chip options like ARM, and what new architectural options will they employ with these chips as a way to differentiate their systems? Likewise, will there be a continued or even growing interest in the use of new accelerators and related FPGA options to fuel development of more varied and innovative HPC architectures?
- What impact will Intel's new Omni-Path interconnect have in the high-performance interconnect sector that is currently a two-horse race between InfiniBand and high-speed Ethernet?
- How will the profusion of new flash-based memory and storage devices change the design of HPC systems that are looking to increasingly serve double duty as both traditional modeling and simulation systems and as servers for big data applications?
- What will be the growing role of the "others," and what does their increased presence in the sector say about the potentially growing interest in HPC and especially in "commodity" HPCs as a preferred marketing mechanism? Could the HPC sector soon be entering a race to the bottom or will innovation in the sector stave off that concern?
- How quickly will HPC workloads migrate to cloud centers, and how will the hardware and software demands of cloud-based HPC providers impact the buying profile of the HPC sector writ large? Will this trend speed up or slow down purchases of onsite HPC systems?
- Finally, which companies will be the players that drive many of these new efforts? Will established players maintain their leadership role for new opportunities, or is the sector entering a new phase where smaller, more nimble start-ups drive major advances going forward?

## About IDC

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