

Market Forecast

Worldwide HPC Broader Market Forecast Update, 2017-2022

Earl Joseph, Steve Conway, Bob Sorensen, and Alex Norton

July 2018

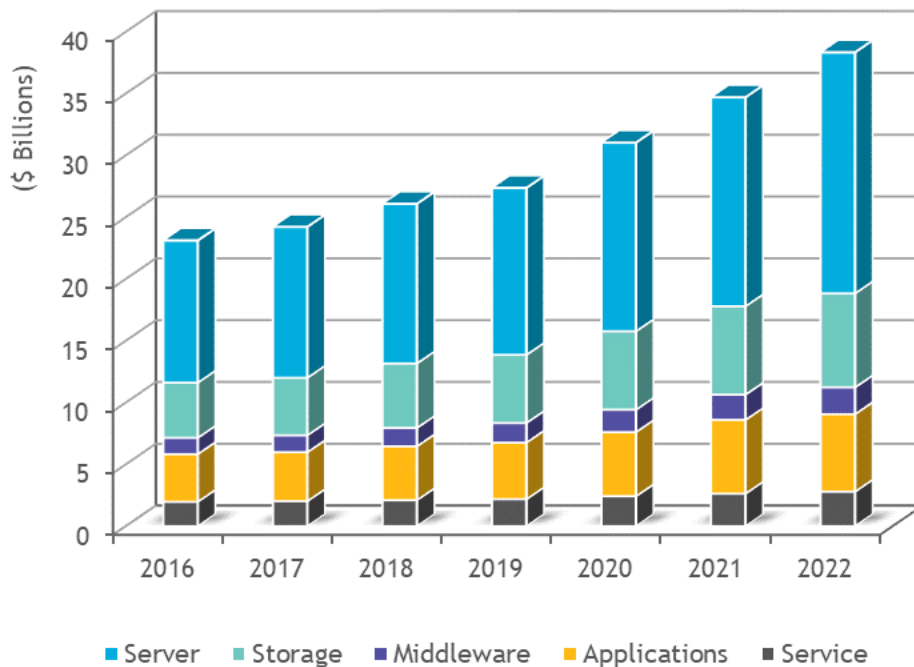
HYPERION RESEARCH OPINION

Worldwide HPC Broader Market Revenue Snapshot

Hyperion Research forecasts that the worldwide HPC broader market (servers, storage, software, and service) will expand at a 9.6% CAGR to more than \$38.3 billion in 2022, up from \$24.2 billion in 2017. See Figure 1.

FIGURE 1

Broader Market Revenue Trends



Source: Hyperion Research 2018

Note: This page is intentionally blank.

IN THIS REPORT

This Hyperion research study presents our latest five-year forecast for the HPC broader market covering the 2017-2022 period.

Worldwide revenue for the HPC technical server market grew 5.7% from 2016 to 2017 to a record \$12.2 billion. For the HPC technical server sector, Hyperion Research predicts CAGR growth of 9.7% to \$19.5 billion between 2017 and 2022.

- The Supercomputer market segment for HPC systems priced at \$500,000 and up will show the highest growth rate (14.4% CAGR), driven substantially by the global exascale race.
- The Divisional and Departmental segments will continue to exhibit healthy growth, and the Workgroup segment is rebounding to robust growth following several years of decline.

TABLE 1

2016-2022 Worldwide Total Technical Computer Market Revenue Forecast by Competitive Segment (\$ Billions)

	2016	2017	2018	2019	2020	2021	2022	CAGR 17-22
Supercomputer	4.4	4.8	4.9	5.1	6.3	7.5	9.2	14.4%
Divisional	2.2	2.3	2.4	2.5	2.6	2.8	3.0	5.9%
Departmental	3.1	3.3	3.5	3.8	4.0	4.2	4.5	6.1%
Workgroup	1.6	1.7	1.9	2.0	2.1	2.2	2.4	6.7%
Total	11.5	12.2	12.9	13.5	15.2	16.9	19.5	9.7%

Source: Hyperion Research, 2018

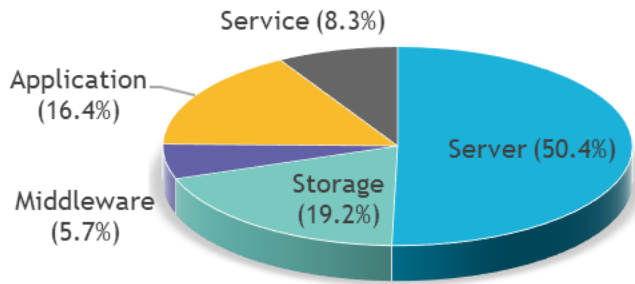
THE BOARDER MARKET FORECAST

Additional HPC-related technologies including storage, middleware, applications, and service doubled the total revenue for the HPC sector to \$24.2 billion in 2017 (See Figure 2), with a projected CAGR of 9.6% between 2017 and 2022 resulting in a total HPC revenue base of over \$38 billion in 2022.

Within the HPC market, storage is the fastest growing segment. Hyperion Research estimates 2017 HPC-related storage revenue at \$4.6 billion, growing to \$7.6 billion in 2022, a 10.3% CAGR (See Table 2).

FIGURE 2

2017 Revenues by the Broader HPC Market Areas



Total = \$24.2B

Figure 2

Source: Hyperion Research 2018

TABLE 2

Revenues by the Broader HPC Market Areas (\$Billions)

	2016	2017	2018	2019	2020	2021	2022	CAGR 17-22
Server	\$11.5	\$12.2	\$12.9	\$13.5	\$15.2	\$16.9	\$19.5	9.8%
Storage	\$4.4	\$4.6	\$5.2	\$5.5	\$6.3	\$7.1	\$7.6	10.3%
Middleware	\$1.3	\$1.3	\$1.4	\$1.5	\$1.8	\$2.0	\$2.2	9.6%
Applications	\$3.8	\$3.9	\$4.3	\$4.5	\$5.1	\$5.9	\$6.3	9.6%
Service	\$1.9	\$2.0	\$2.1	\$2.1	\$2.4	\$2.6	\$2.9	6.7%
Total Revenue	\$23.1	\$24.2	\$26.0	\$27.3	\$31.0	\$34.6	\$38.3	9.6%

Source: Hyperion Research 2018

MARKET CONTEXT: MARKET GROWTH DRIVERS

Hyperion Research is expecting a number of factors to drive healthy growth rates across all segments of the HPC sector going forward. These drivers include:

- Major exascale systems being installed in 2022, including in Japan, US, China and Europe
 - Hyperion Research expects a dramatic increase in revenues at the highest end of the HPC market over the next few years, starting with pre-exascale systems in 2018 to 2021, and then full exascale systems in 2021 to 2022. Hyperion Research estimates that the supercomputer segment of the HPC market will be one of the fastest growing with a CAGR of 14.5% between 2017 and 2022.
- Hyperion Research expects that important revenue gains in the HPC sector writ large will be driven by the HPDA sector. Hyperion Research projects that HPDA server revenues will grow at a CAGR of almost 17.0 % out to 2021, and new commercial analytics emerging within that space will see a CAGR of over 29.5% during the same time frame.
 - Examples here include AI (machine learning and deep learning) use cases, especially fraud and anomaly detection, precision medicine, affinity marketing and business intelligence.
 - Of particular importance will be the ability of HPC systems to empower big data analysis on a near-real time basis, an increasingly necessary requirement for many application spaces.
 - Requirements for new HPC systems with a broad range of architectures to support development and operational capabilities in the artificial intelligence sector, especially in the areas of machine and deep learning.
- The continued expansion of HPCs into the traditional modeling and simulation environment as more and more commercial and government users turn to advanced computing to meet their toughest computational requirements for larger problem sizes, higher modeling fidelity, and more aggressive iteration methods, all operating under the requirement for faster turnaround time.

MARKET DEFINITIONS

The data in this study is based on Hyperion Research's segmentation of the technical market, which is as follows:

Supercomputers: Systems purchased to support technical applications and sold for \$500,000+

Technical divisional servers: Systems purchased to support technical applications and sold for \$250,000-\$499,999

Technical departmental servers: Systems purchased to support technical applications and sold for \$100,000-\$249,999

Technical workgroup servers: Systems purchased to support technical applications and sold for under \$100,000

METHODOLOGY

The forecasts in this study are based on a number of information sources, including Hyperion Research's technical computing systems quarterly census database, vendor results for the historical years, discussions with vendors and users on future business directions and expectations, end-user studies, and in-depth interviews with users.

The forecasts were developed based on Hyperion Research's technical computing systems forecast model, which targets compute servers. This model initially considers competitive segments (supercomputers, technical divisional servers, technical departmental servers, and technical workgroup servers), forecasting system unit shipments, revenue, and average sales price by industry/application segment. The forecasts include estimates for second-tier and new-entrant vendors selling into the HPC server market space.

The forecasts provided in this study include only server systems used in technical computing applications. Systems sold into commercial (nontechnical) applications and desktop technical computers are not included in this study.

Note: All numbers in this document may not be exact due to rounding.

About Hyperion Research, LLC

Hyperion Research provides data-driven research, analysis and recommendations for technologies, applications, and markets in high performance computing and emerging technology areas to help organizations worldwide make effective decisions and seize growth opportunities. Research includes market sizing and forecasting, share tracking, segmentation, technology and related trend analysis, and both user and vendor analysis for multi-user technical server technology used for HPC and HPDA (high performance data analysis). We provide thought leadership and practical guidance for users, vendors and other members of the HPC community by focusing on key market and technology trends across government, industry, commerce, and academia.

Headquarters

365 Summit Avenue
St. Paul, MN 55102
USA

612.812.5798

www.hpcuserforum.com and www.HyperionResearch.com

Copyright Notice

Copyright 2018 Hyperion Research LLC. Reproduction is forbidden unless authorized. All rights reserved. Visit www.hpcuserforum.com to learn more. Please contact 612.812.5798 and/or email info@hyperionres.com for information on reprints, additional copies, web rights, or quoting permission.