

## Market Forecast

### Worldwide HPC Market Forecast by Geographic Region, 2020-2025

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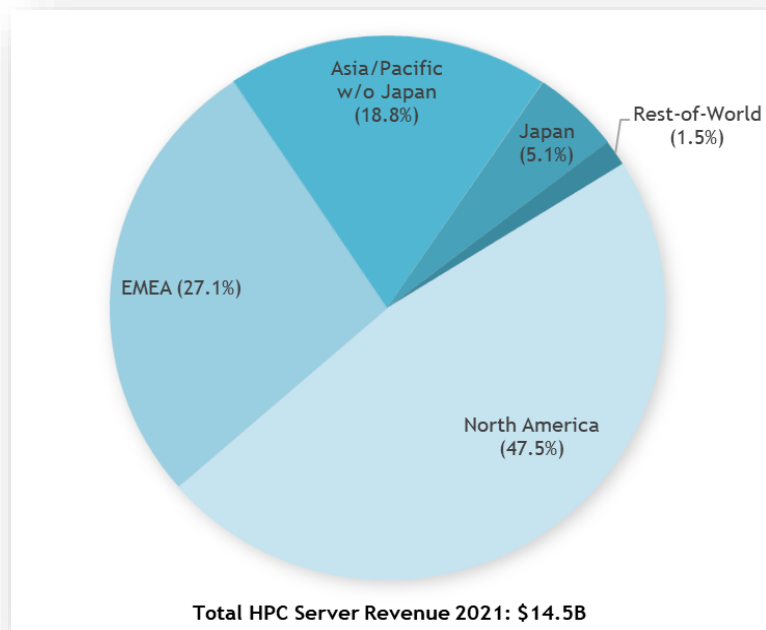
#### HYPERION RESEARCH OPINION

#### Worldwide HPC Market by Geographic Region Revenue

Hyperion Research forecasts that the worldwide HPC server market will reach \$14.5B in 2021. Nearly half of the worldwide spend on HPC servers currently come from North America, primarily from US customers. Hyperion Research anticipates that the worldwide HPC technical server market will grow at an 8.0% CAGR over the forecast period (2020-2025) to reach nearly \$20B in 2025.

#### FIGURE 1

#### Worldwide HPC Server Market by Geographic Region 2021



Source: Hyperion Research, 2021

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## THE WORLDWIDE HPC MARKET FORECAST BY GEOGRAPHIC REGION

This Hyperion Research study presents our latest five-year forecast (2020-2025) for HPC server systems. Worldwide revenue for the HPC technical server market grew less than 1% from 2019 to 2020 due to the economic impact of global pandemic. Hyperion Research anticipates that the worldwide HPC technical server market will grow at an 8.0% CAGR over the forecast period (2020-2025) to reach nearly \$20B in 2025.

- The Supercomputer market segment, HPC systems priced at \$500,000 and up, is projected to show the highest growth rate (9.0% CAGR), driven by the installation of many high-priced exascale systems worldwide.
- The Divisional and Departmental segments will also exhibit strong growth (8.1% and 8.8% five-year CAGRs, respectively).
- The Workgroup segment is expected to remain relatively flat over the forecast period (following a major decline from 2019 to 2020).

**TABLE 1**

### Worldwide Technical Server Market Forecast by Price Band (\$M)

(\$M)	2019	2020	2021	2022	2023	2024	2025	CAGR '20-'25
Supercomputer	\$5,118	\$6,021	\$6,258	\$7,726	\$8,653	\$9,401	\$9,251	9.0%
Divisional	\$3,164	\$2,849	\$3,091	\$3,532	\$3,858	\$4,156	\$4,199	8.1%
Departmental	\$3,193	\$3,324	\$3,726	\$4,234	\$4,625	\$4,968	\$5,078	8.8%
Workgroup	\$1,894	\$1,329	\$1,475	\$1,456	\$1,430	\$1,422	\$1,373	0.7%
Total	\$13,368	\$13,523	\$14,550	\$16,947	\$18,565	\$19,947	\$19,901	8.0%

Source: Hyperion Research, 2021

## THE HPC MARKET BY GEOGRAPHIC REGION FORECAST

Hyperion Research divides the worldwide HPC server market forecast into five regions: North America, EMEA, APAC without Japan, Japan, and Rest-of-World. The US HPC market, traditionally the largest in the world, is currently being driven by US DOE's investments in exascale-class and related petascale machine systems due to roll out over the next few years. In the Japanese market, the spike in 2020 was due to the acceptance of the one-off Fugaku system installation at RIKEN, at a cost of over \$1 billion. For subsequent years, Japan's HPC market will likely return to its typical rates. Not including the Fugaku system, the Japanese market is anticipated to grow at 9.2% from 2020 to 2025. For its part, much of the growth in the Chinese market, at least for the high end, will be driven by a combination of government-sponsored exascale rollouts as well as a multiyear effort to upgrade the HPC capabilities in a number of government HPC centers scattered throughout the country. Likewise, an aggressive EU plan to install a number of exascale-class systems, combined with a handful of similar national-level aspirations, will be a major driver of growth there.

**TABLE 2****Worldwide Technical Server Market Forecast by Geographic Region (\$M)**

(\$M)	2019	2020	2021	2022	2023	2024	2025	CAGR '20-'25
North America	\$6,119	\$5,424	\$6,904	\$8,019	\$8,789	\$9,286	\$9,073	10.8%
EMEA	\$3,871	\$3,686	\$3,944	\$4,607	\$5,070	\$5,534	\$5,521	8.4%
Asia/Pacific w/o Japan	\$2,416	\$2,492	\$2,735	\$3,189	\$3,507	\$3,869	\$4,010	10.0%
Japan	\$746	\$1,699	\$745	\$854	\$893	\$920	\$939	-11.2%
Rest-of-World	\$217	\$222	\$222	\$279	\$306	\$339	\$358	10.0%
<b>Total</b>	<b>\$13,368</b>	<b>\$13,523</b>	<b>\$14,550</b>	<b>\$16,947</b>	<b>\$18,565</b>	<b>\$19,947</b>	<b>\$19,901</b>	<b>8.0%</b>

Source: Hyperion Research, 2021

**MARKET CONTEXT: MARKET GROWTH DRIVERS**

There are several factors driving long-term revenue growth rate across all segments of the HPC sector:

- The desire to have multiple exascale-class systems with prices over \$300 million is expected to provide high growth at the upper end of the market, especially in 2022 to 2024.
- The expansion of AI-based capabilities into a wider range of HPC-related workloads will drive growth across all sectors.
- The trend within traditional enterprise IT datacenters that are applying AI and HPDA to grow and optimize the outcomes of the business units they support and that are utilizing HPC-enabled AI to provide the necessary infrastructure.
- New users adopting HPC-enabled AI capabilities will also drive growth.
- HPC infrastructure is increasingly being adopted by a broader customer base.
- The growing use of HPC capabilities built on hybrid on-premises/cloud architectures is driving both on-premises and cloud growth.
  - On-premises system procurements will continue to grow to support new specialized architectures and/or key hardware/software features for a growing set of demanding workloads.
- The rise of edge-to-data center architectures. There will be rapid development of new HPC related use cases that can take advantage of emerging and early deployment of IoT, 5G, and edge computing capabilities.
  - These use cases will require performant distributed and HPC datacenter servers to address a wide range of new sensor/telemetry data in many formats and data transfer rates.

- Also required will be stringent real-time operational requirements for fast decision-making that can react to changing conditions or priorities, all while operating with high reliability and virtually no downtime.
- The emergence of use-case-specific architectures tuned to key workload requirements results in sites buying multiple systems instead of a single system.

## MARKET SEGMENT DEFINITIONS

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This Hyperion Research study presents an overview of Hyperion Research's forecast for the HPC server market for the 2020-2025 period. 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

### ***Definition of Technical Computing (HPC)***

Hyperion Research uses the terms *technical computing* and *high-performance computing (HPC)* to encompass the entire market for computer servers used by scientists, engineers, analysts, and other groups using computationally and/or data-intensive modeling and simulation applications.

Technical servers range from small servers costing less than \$5,000 to the large-capability machines valued in hundreds of millions of dollars. In addition to scientific and engineering applications, technical computing includes related markets/applications areas such as economic analysis, financial analysis, animation, server-based gaming, digital content creation and management, business intelligence modeling, and homeland security database applications. These areas are included in the technical computing market based on a combination of historical development, application type, computational intensity, and associations with traditional technical markets.

## METHODOLOGY

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The forecasts in this study are based on a number of Hyperion Research information sources, including our 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). Hyperion Research provides 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.

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