Multi-Client Study

2020 HPC Multi-Client Study: HPDA-AI Usage and Forecast

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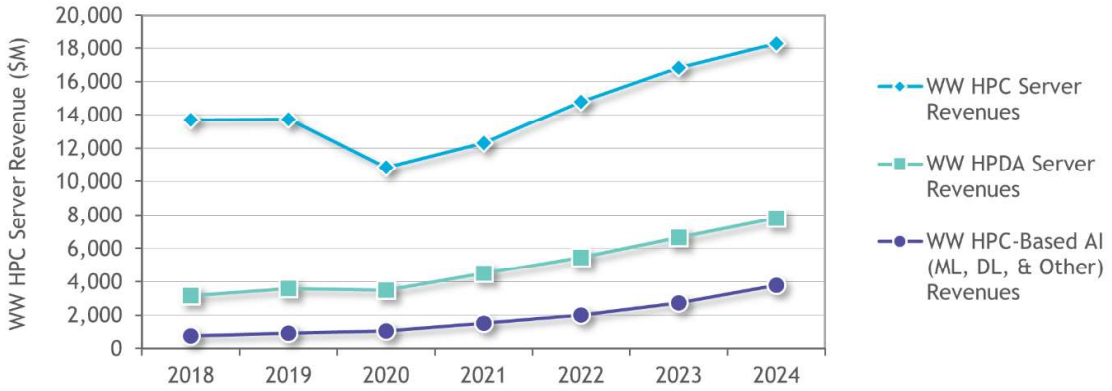
This annual study is part of the sixth edition of Hyperion Research's high-performance computing (HPC) end-user-based tracking of the HPC marketplace. It covers 194 user sites with 1,849 HPC systems. This report focuses on high performance data analysis (HPDA) and its artificial intelligence (AI) subset.

HYPERION RESEARCH OPINION

Ten years ago, Hyperion Research coined the term “high-performance data analysis” (HPDA) to refer to data-intensive ("Big Data") workloads utilizing HPC resources. HPDA problems are characterized by large data volumes, along with time-criticality and algorithmic complexity that are atypical for enterprise business workloads. AI workloads are an important, fast-growing subset of HPDA problems that seek to extract meaning from the data itself rather than primarily from simulating physics-based models. Hyperion Research divides AI workloads into machine learning (ML), deep learning (DL) along with "Other AI" methodologies such as graph analysis and semantic analysis. The more recent rise of data-ravenous ML, DL, and other AI methods has challenged HPC architectures to become less compute-centric ("f/lopsided") and data-friendlier. First-generation exascale systems are being designed to provide better balance so they can efficiently support both established HPC tasks and newer AI workloads. Accompanying this architectural trend is a shift toward using performance gains on real-world applications with varied requirements as the primary measure for success rather than standard benchmarks.

FIGURE 1

Worldwide HPC Revenues ($Millions)



Source: Hyperion Research, 2020

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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 & 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.

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