Market Guide for Servers

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Initiatives: Data Center Infrastructure

Enterprises regularly invest to refresh old servers without evaluating alternative vendors or products, yielding technical debt and overinvestment. Infrastructure and operations leaders should use this research to decide if, when and how to switch or add new server vendors.

Additional Perspectives

- Invest Implications: Market Guide for Servers
  (03 June 2020)

Overview

Key Findings

- A stable group of about 10 vendors dominate the $80 billion server market, although China-based vendors are growing at the expense of U.S.-based vendors.

- Even as the server market remains essentially flat, rapid public cloud adoption is increasing the mix of compute delivered off-premises.

- Most Gartner clients buy new servers from their incumbent vendor, with only nominal consideration of other providers.

Recommendations

I&O leaders responsible for data center infrastructure should:

- Use the opportunity of a server refresh to evaluate hyperconverged infrastructure as an alternative to stand-alone servers and storage.

- Ensure the best-fit servers at market prices by running competitive RFQs that include two to three vendors in addition to your incumbent vendor.

- Enable future pervasive automation by choosing server vendors and products that support a broad range of vendor, third-party and open-source automation toolsets.

Strategic Planning Assumption
In 2025, the largest server vendor (based on worldwide unit shipments) will be headquartered in China.

**Market Definition**

A server is a physical appliance designed to run a variety of general-purpose computational tasks for multiple networked users or devices, and marketed by the manufacturer as a server. Servers can be deployed in on-premises data centers; in service provider facilities, including colocation and public cloud providers; and at edge and remote office locations.

*Integrated systems covered in the 2018 Market Guide for Compute Platforms are being moved to other documents to enable more detailed coverage of those specialized products.*

**Market Description**

The $80 billion server market is mature, with a stable group of large global vendors. The market includes ARM, Itanium, mainframe, MIPS, RISC and x86 servers. In 2019, 99.6% of server units shipped and 91.5% of end-user spending was in x86 servers. Vendors generally no longer differentiate x86 servers through hardware specifications, but instead focus on management tools and features to enable automation. Vendors are increasingly bundling software and services into server hardware proposals with consumption-based offerings as an alternative to outright purchases (see Figure 1).

*Figure 1: Top 3 Vendors in Each Super Region (by End-User Spending, 2019)*

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**Top 3 Vendors in Each Super Region (by End-User Spending, 2019)**

![Map showing top 3 vendors in each super region](image)

*Source: Gartner*

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Market Direction

Server technical innovation is increasingly driven by the needs of hyperscale service providers instead of enterprise end users. Other server market influencers include:

- The continued public cloud IaaS growth (with 22% forecast CAGR through 2023), including new on-premises distributed cloud options like Amazon Web Services (AWS) Outposts and Microsoft Azure Stack Hub.
- The rapid hyperconverged system adoption, which grew seven-fold in end-user spending between 2015 and 2019, and is forecast for 21% CAGR through 2023.
- The successful introduction of EPYC processors, with AMD growing in x86 server unit market share from 2% in 1Q18 to 6% in 4Q19.
- Growing demand for specialized servers with multiple GPUs, FPGAs or ASICs for machine learning workloads.
- The evolution of virtualization to include containers, with 75% of global organizations expected to be running containerized applications in production by 2022.

A new trend is increasing technology stack heterogeneity between China-based and U.S.-based server vendors. This split stems from geopolitical and trade issues. Examples of these issues include U.S. government restrictions on Sugon and Huawei, and development inside China of Jintide x86 and Kungpeng ARM processors. IT leaders must now evaluate geopolitical risks of their vendors when sourcing servers. Gartner believes enterprises will be forced by regulation or efficiency to commit to only one of these bifurcating technology stacks.

Market Analysis

While most Gartner clients have a single preferred vendor, some maintain a dual-source strategy, and nearly all have some heterogeneity in their existing server inventory. Three common questions Gartner receives about acquiring servers are answered below.

Should You Change Vendors (or Add a Second Vendor)?

Although many servers are nearly identical and highly compatible between vendors, most Gartner clients rebuy from their incumbent vendor with only nominal consideration of others. Changing vendors often occurs only after a series of poor support experiences, or after a strategic relationship with the vendor degrades.

Other reasons cited by Gartner clients for changing or adding server vendors include:
- Significant downtime incidents blamed on the vendor.
- The discovery through price benchmarking that they are receiving poor discounts.
Switching vendors can result in a one-time significant price reduction, as vendors offer their largest incentives to displace competitors. Subsequent purchases rarely retain these high discounts, although some Gartner clients negotiate successfully to lock in initial discounts for future purchases.

Because server failures sometimes trigger IT leaders to consider other vendors, Gartner clients often ask which server vendors have the lowest failure rates. Comprehensive failure rates that would allow server products to be fairly compared are not publicly available. While some models occasionally experience more frequent problems, the most widespread hardware failures often affect multiple vendors due to the use of commonly sourced components.

While servers have similar features, switching or adding new server vendors can require tool and process changes. System administrators using vendor-specific server monitoring and configuration management tools, like Dell EMC OpenManage and Hewlett Packard Enterprise (HPE) OneView, must likely change tools. Drivers, agents and golden images may need to be changed or added. Patching tools or scripts may need to be rewritten. Switching blade vendors can be especially burdensome on staff due to heavy integration of blade architectures with vendor-specific management tooling.

Using vendors with strong integrations with automated configuration tools like Terraform, Puppet, Chef and others can help abstract some of the differences. When considering changing vendors, solicit input from your technical staff, some of whom are likely to have used other vendors’ servers before. Ask potential new vendors to give or loan servers for proof-of-concept testing to validate what changes might be needed in your environment.

Even if you’re not changing server vendors, evaluate changing models or configurations. For example, many Gartner clients refreshing five- to 10-year-old blade servers evaluate both blade and rack server alternatives.

How to Do a Server RFQ

Competitive RFQs involving two to four different server vendors will yield the best prices. Begin by describing why you need new servers. It could be to add capacity for business growth, or to replace systems about to fall out of support. Translate these business needs into an RFQ that includes, but is not limited to, the technical requirements. Verify that technical requirements don’t include brands or vendor-specific terms that would unnecessarily exclude other vendors.

Select the criteria that you will use to compare responses. Assign a weight or importance to each criterion before issuing the RFQ. Do not include requirements or questions in the RFQ the answers to which you already know, or that won’t influence your decision (see Figure 2).
Responses from vendors should include a bill of materials (BOM) with manufacturer part numbers, list prices and the proposed price for each component. Reject proposals that just include a single bundled price alongside a summary of the system configuration. Pricing information should be requested in an unlocked spreadsheet. See the downloadable “Toolkit: Sample Price Format for Server Quotes” for an example of a response format for prices. Hardware, software and warranty/maintenance portions should be separated and summarized. Any licenses, subscriptions or warranties that are not perpetual should list the term length, and the options and prices for renewal (see Table 1).

### Table 1: Typical Criteria Used to Compare RFP Responses

- Relationship with/strategic nature of vendor
- Discounted price
- Application/software compatibility
- Past support experiences/local support availability
Direct Versus Indirect Purchase?

Purchasing directly from a vendor can yield 0% to 5% lower prices than purchasing from a reseller. Many Gartner clients nevertheless use system integrators (SIs) or resellers for their additional services or supply chain logistics. For large purchases, price negotiation is often with the vendor, even when product delivery is via a reseller.

For large purchases, issuing RFQs to multiple resellers for products from a single vendor will not result in significant price competition between resellers. Server vendors employ deal-registration programs that assign deals or customers to specific resellers, or grant best pricing to the first or incumbent reseller. For smaller server purchases, resellers can show some price differentiation by accepting lower margins to win business.

Purchasing Contract or Transactional Purchase?

For multiple purchases expected over time, choose a contract over separate transactional purchases to get discounts based on the larger combined volume. Purchasing contracts usually guarantee a price or discount over a one- to five-year period. Typically they include a committed purchase volume or a discount table that grants larger discounts as volume rises. Server purchasing contracts are often part of broader agreements that include other products lines. For example, a purchasing contract with Cisco might cover both servers and networking equipment. Because component prices such as memory and NAND flash change over time, Gartner recommends that purchasing contracts specify discount percentages instead of set prices.

Other Negotiation Tips

- Differentiated features or models in vendor portfolio
- Ease of management, including staff skills and compatibility of management tools
- Vendor roadmap/future system expandability
- Vendor market share or amount of usage within industry or application

Identify your incumbent vendor’s main competitors, and include them in the RFQ to ensure vigorous competition.

Source: Gartner (June 2020)
Focus negotiations on the high-cost and high-margin items where vendors have the most flexibility, including CPUs, memory, SSDs and warranty upgrades.

Look for different memory and storage permutations that yield similar capacity at lower prices or higher performance.

Time your purchases based on vendors’ fiscal quarters and year-ends, when they are most motivated to cut deals.

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**Should You Use an Integrated System or Public Cloud Instead of Stand-alone Servers?**

The need to replace a large, aged server fleet often triggers I&O leaders to consider alternatives. The most common alternatives investigated by Gartner clients are public cloud IaaS, hyperconverged infrastructure and integrated systems.

**Public Cloud Infrastructure and Platform Services**

- Cloud infrastructure and platform services (CIPS) include the pay-per-use infrastructure as a service (IaaS) compute services from cloud vendors including Microsoft Azure and AWS. The term CIPS reflects the evolving integration of platform- and infrastructure-related services into a unified offering.

- Adopt public cloud CIPS only as part of an overall cloud strategy, not for ad hoc replacement of servers. Favor public cloud IaaS for new workloads, especially those based on cloud-native technologies such as containers. Choose public cloud IaaS where business agility is valued over infrastructure costs, and when budgets support operating expenditure (opex) rather than capital expenditure (capex). Only adopt public cloud CIPS when cost governance, security controls and data-privacy guardrails are in place.

**Hyperconverged**

- Hyperconverged infrastructure, such as Nutanix Acropolis (AOS) and Dell EMC VxRail, foregoes the storage array. Instead, data is stored on the local disks of each server, with a software-defined storage (SDS) layer providing redundancy and modern data services. HCI products rarely include network switches.

- Consider hyperconverged for general-purpose use when you are highly virtualized and can realize the benefits from its simplified management. Do not use hyperconverged for applications with extremely high or tight performance requirements, or when software licensing dictates bare-metal server usage. Plan to also use hyperconverged for remote office/branch office (ROBO) and edge deployments, and for stand-alone VDI projects.

**Integrated Infrastructure Systems**
Integrated infrastructure systems (IISs), sometimes called converged systems, include Dell EMC’s VxBlock. IISs provide a shared general-purpose infrastructure, sold and supported by one vendor, often as a single SKU. They are integrated by the vendor with proprietary software for controlling, managing and updating the entire hardware stack.

Recently, vendors have released a new category of IIS called distributed HCI (dHCI). dHCI enables more storage configuration flexibility than traditional hyperconverged through scale-out external controller-based (ECB) storage (see “How I&O Leaders Should Leverage New dHCI Solutions”).

Choose integrated infrastructure systems for centralized IT that buys and manages infrastructure at a “rack” scale rather than an individual server scale. An IIS makes sense when you prefer “buy” over “build,” and when you value a single point of contact for all support and maintenance.

Integrated Stack Systems

Integrated stack systems (ISSs), also called dedicated infrastructure, consolidate one particular application, with hardware and software optimized for that specific workload. An example of a popular ISS is Oracle’s Exadata Database Machine.

Consider ISSs when maximizing the performance or minimizing the licensing costs of application software is more important than the architecture of the underlying infrastructure. Choose an ISS when your organization prefers “buy” over “build,” and when you can get value out of consolidating workloads into a single platform.

Representative Vendors

Market Introduction

In Table 2, we have selected the largest server vendors as measured by market share and Gartner client inquiry volume (see Note 1 for inclusion criteria).

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Portfolio Name(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cisco</td>
<td>Unified Computing System (UCS)</td>
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<tr>
<td>Dell</td>
<td>PowerEdge</td>
</tr>
<tr>
<td>Fujitsu</td>
<td>PRIMERGY, PRIMEQUEST, SPARC Servers, GS21 Mainframe</td>
</tr>
</tbody>
</table>
### Vendor Profiles

**Cisco**

Cisco's Unified Computing System (UCS) is focused on value-based servers that integrate deeply with the vendor's networking products. Cisco's UCS blades enjoy a loyal following among enterprise system administrators due to the vendor's profile-based server management tools and highly customizable networking capabilities. Cisco blades are often deployed as part of integrated systems, including those co-developed with Dell EMC (VxBlock), NetApp (FlexPod) and Pure Storage. Cisco also sells rack-based and multinode servers that can leverage many of the same differentiated networking features of the blade servers. Separately, Cisco UCS E-Series Servers are

<table>
<thead>
<tr>
<th>Vendor</th>
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<tbody>
<tr>
<td>H3C</td>
<td>UniServer</td>
</tr>
<tr>
<td>Hewlett Packard Enterprise (HPE)</td>
<td>Apollo, Cray, Integrity, Integrity NonStop, ProLiant, SGI, Superdome Flex</td>
</tr>
<tr>
<td>Huawei</td>
<td>Atlas, FusionServer, KunLun, Kunpeng, TaiShan</td>
</tr>
<tr>
<td>IBM</td>
<td>LinuxONE, Power Systems, IBM Z</td>
</tr>
<tr>
<td>Inspur</td>
<td>Inspur</td>
</tr>
<tr>
<td>Lenovo</td>
<td>Flex System, ThinkSystem</td>
</tr>
<tr>
<td>NEC</td>
<td>Express5800, Express5800 Fault Tolerant (FT), NX7700</td>
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<tr>
<td>PowerLeader</td>
<td>PowerLeader</td>
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<tr>
<td>Sugon</td>
<td>Sugon</td>
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</table>

Source: Gartner (June 2020)

The vendors listed in this Market Guide do not imply an exhaustive list. This section is intended to provide more understanding of the market and its offerings.
embedded or plug into certain Cisco routers for ROBO and network function virtualization (NFV) use cases. Cisco has recently pivoted its server strategy to include broader hybrid cloud management capabilities, such as its Intersight cloud-based infrastructure management tool.

Cisco leverages a strong channel ecosystem and established relationships with enterprise end users from its networking business. In 2019, Cisco was the largest blade server vendor (by revenue) in the Americas super-region, and a close second to HPE globally. Gartner believes Cisco's relatively smaller market share for rack servers stems from partner focus on high-value, high-margin use cases with larger enterprises.

See also “Vendor Rating: Cisco.”

**Dell**

*Note: “Dell” is used in this document to refer to the Infrastructure Solutions Group business unit of Dell Technologies.* Dell is the largest server vendor by market share, with 20% of revenue and 16% share of units worldwide in 2019. Dell offers a broad and deep portfolio of x86-based servers. The vendor targets enterprises, service providers, high-performance computing (HPC) data centers, ROBO sites and edge locations. It also offers semicustomized server solutions for select hyperscale and OEM customers.

Dell differentiates its PowerEdge line of modular, rack, tower and multinode x86 servers with feature-rich server management tools. These include Dell’s iDRAC baseboard management controller and OpenManage server monitoring, automation, security and server life cycle management software.

Dell has a worldwide direct sales force and channel partner network. About half of Dell’s revenue from servers was in the Americas super-region in 2019. While most server vendors maintain extensive partnerships with multiple independent software vendors (ISVs), Dell enjoys a particularly strong relationship with VMware due to a common ownership structure. Dell is relatively strong among midsize enterprises that prefer a direct sales approach, through which Gartner clients generally perceive Dell as very price competitive.

**Fujitsu**

Fujitsu was the top vendor in both server units and revenue in the Japan market in 2019, and the eighth largest worldwide. Fujitsu offers an extensive set of server products, including PRIMERGY-brand x86 servers, fault-tolerant PRIMEQUEST x86 servers, SPARC-based UNIX servers, mainframes and supercomputers. Fujitsu developed its own ARM-based A64FX CPU, and has begun shipping its Exascale-class Fugaku supercomputer, scheduled to begin general operation in 2021. The vendor is using this same technology to offer commercial systems under the PRIMEHPC FX brand.

Fujitsu has a reputation for generally delivering high-quality products, with strong technology and engineering reservoirs to draw on. Fujitsu sales and marketing is most comfortable with core
enterprise solutions. In 2018, Fujitsu announced changes to its business operating model to focus on offering digital transformation services, with modifications to improve international market opportunities.

See also “Vendor Rating: Fujitsu.”

H3C

H3C is a joint venture between Unisplendour (51%) and HPE (49%). H3C's server business currently focuses on the China market. H3C is the exclusive provider of HPE servers in China, selling under both the HPE and H3C logos. In addition, H3C has its own server brand (UniServer) designed locally to fit the needs of Chinese users. Combining H3C with its HPE resale business, H3C accounts for 15% of revenue share and 12% of unit share in 2019 in the Chinese market.

The UniServer portfolio includes x86-based one- to eight-socket servers that support Intel, AMD and Jintide processors. H3C also offers ARM-based server models, primarily to enable localization opportunities in the China market. H3C has a large installed base and an intensive countrywide channel network, enabling good coverage across small, medium and large enterprises. H3C has made progress in hyperscale customers by providing custom design servers. Chinese companies generally believe H3C, as a local technology provider, can address the security concerns of the Chinese government better than foreign-based vendors.

Hewlett Packard Enterprise (HPE)

HPE is the second-largest server vendor by market share, responsible for 18% of end-user spending and 12% of units shipped in 2019. HPE maintains a large installed base and partner network around the world, including leading market share within the EMEA super-region. HPE offers a wide and deep server portfolio, including industry-standard x86, fault-tolerant, mission-critical, scale-up, HPC, AI-optimized and edge servers. HPE also offers many of its servers through a consumption-based pricing program (GreenLake) with on-demand capacity.

The majority of HPE's server sales are from the HPE ProLiant line of x86 tower, rack, blade and modular servers. HPE leads the worldwide market in blade sales, and is transitioning its large installed base from c-Class BladeSystem to its composable infrastructure-based Synergy system. HPE differentiates its x86 servers through enterprise-focused management, automation and security features, including its iLO baseboard management, OneView management console and InfoSight monitoring service.

In 2019, HPE acquired supercomputer and HPC system vendor Cray. Cray joined HPE's broad HPC and AI server portfolio, which already included Apollo servers and products from its 2016 SGI acquisition. Within the mission-critical system segment, HPE is in the midst of a multiyear transition from Itanium to x86-based hardware and virtualized environments.

See also “Vendor Rating: Hewlett Packard Enterprise.”
Huawei

Huawei is a leading information and communications technology (ICT) infrastructure and smart device provider. Huawei offers a broad server product portfolio targeted at enterprises, service providers, HPC data centers, ROBO sites and edge environments. FusionServer is Huawei’s industry-standard x86 server brand, with products ranging from single-socket to four-socket servers, including rack, blade, high-density and liquid-cooled systems. Huawei also offers the KunLun scale-up, mission-critical server based on x86 architecture. In 2019, Huawei launched the ARM-based TaiShan server, which uses the Huawei-designed Kunpeng processor.

By using purpose-built chips, interconnect, drive controllers, network chips and management controllers, Huawei differentiates by designing for high performance and offering strong infrastructure management tools. Huawei has also developed its own accelerator optimized for AI workloads (Ascend), offered in its Atlas AI/ML solutions.

Huawei has penetrated successfully into broad verticals within China through both an established channel network and a direct sales force. In markets outside China, the vendor leverages its significant presence among communication service providers to expand into enterprise segments. However, U.S. government prohibitions are limiting the adoption of Huawei servers in some countries.

See also “Vendor Rating: Huawei.”

IBM

IBM offers Z mainframe and Power Systems servers, both based on IBM-designed processors, along with related operating system, clustering and management software.

IBM offers about a dozen models of Power Systems servers, which use the POWER processor. Power Systems servers have per-core performance and scaling advantages over x86 servers, although data center standardization onto x86 has reduced demand for high-reliability, scale-up servers. The Power System installed base is mostly mission-critical workloads using IBM’s proprietary AIX (UNIX) or IBM i (formerly called AS/400) operating systems. However, IBM today focuses on promoting “greenfield” deployments of Power Systems for Linux-based workloads, including HPC, SAP HANA and machine learning. IBM has had recent success with large-scale deployments of Power for supercomputers, including the two largest supercomputers in the world (Summit and Sierra; see Note 2). In 2019, IBM handed control of the POWER ISA (Instruction Set Architecture) to the OpenPOWER Foundation within the Linux Foundation.

IBM Z dominates the market for mainframe. In 2019, IBM introduced its next-generation z15, which brought improved capacity and enhanced security features compared to the prior z14. In addition, IBM has continued to evolve its LinuxONE mainframe line, designed to enable organizations to leverage Linux skills within a highly scalable mainframe environment.

See also “Vendor Rating: IBM.”
Inspur

Inspur is the third-largest server provider in the world in both revenue and units. Inspur has grown rapidly, doubling its worldwide server unit market share between 2016 and 2019. It is the leading server supplier of Chinese hyperscale data centers and web-based companies. Inspur has expanded aggressively into global markets targeting service providers and telecom customers outside of China. Gartner estimates that about half of Inspur’s server business is within the service provider market.

Inspur’s broad server portfolio includes an especially wide variety of multinode servers; servers supporting GPUs, FPGAs, and ASICs; open-architecture systems (including OCP, ODCC, and Open19); and edge servers. Inspur competes aggressively in the AI market with its accelerator-optimized servers, supplemented with software and management tools for machine learning. In addition to x86 servers, Inspur also offers servers using the POWER processor architecture.

Inspur targets hyperscale customers through a collaborative Joint Development Model (JDM). This business model leverages Inspur’s supply chain and manufacturing expertise to produce custom solutions at large volumes.

Lenovo

Lenovo offers a broad portfolio and large installed base of x86 servers across all geographies. Lenovo’s server portfolio primarily comprises one- to eight-socket rack, blade, tower and dense systems under the ThinkSystem brand name. The vendor also uses its ThinkSystem servers in its HPC-targeted solutions, and in its ThinkAgile integrated systems that involve partners Microsoft, Nutanix and VMware. In addition, Lenovo delivers customized servers to hyperscalers through its “original design manufacturer (ODM)+” business model.

Lenovo differentiates on management, reliability and security, and by offering local manufacturing capability. It has factories located in Brazil, China, Hungary, Mexico and the U.S. Lenovo also offers products optimized for the local market in China, including using some locally designed x86 processors. Recently, Lenovo has introduced its TruScale Infrastructure Services consumption-based model for on-premises infrastructure.

Lenovo is an established data center infrastructure brand with distributor, value-added reseller (VAR) and system integrator (SI) relationships around the world. The vendor focuses strongly on the HPC market, as is evidenced by its position as the leading vendor on the Top 500 list. Lenovo also offers its servers as part of workload-specific solutions (such as SAP HANA infrastructure) and integrated systems (such as its ThinkAgile hyperconverged solutions).

Also see “SWOT: Lenovo Data Center Group, Worldwide.”

NEC

NEC is a global IT provider, marketing a broad set of IT and communication products and services. NEC was the 10th largest server vendor by units shipped in 2019. It provides a broad server
portfolio, but does not sell its entire portfolio in all geographies. Its business is concentrated in Japan, where it is the No. 2 server vendor. In addition to standard x86 servers, NEC also sells mainframes, fault-tolerant systems and supercomputing systems (including the NEC SX-Aurora TSUBASA portfolio).

NEC serves organizations of all sizes and covers horizontal customer segments, focusing on high-quality products and support rather than low-price buyers. A product strategy that emphasizes reliability and stability has led to particularly strong success in the government, financial and telecommunications sectors. Recently, NEC has shifted the focus of its server business toward bundled solutions targeting areas such as IoT/edge, security and AI. NEC has also made R&D investments in quantum computing.

Also see “Vendor Rating: NEC.”

**PowerLeader**

PowerLeader is a Chinese server vendor with a primary presence in China. It builds rack and tower servers as well as customized solutions for specific workloads. PowerLeader offers a wide variety of SKUs and options to address different workloads, including storage, AI/ML, HPC and specialized storage servers for video surveillance. In addition to standard x86 servers, PowerLeader develops servers optimized for the Chinese market using locally developed processors, including Loongson, Phytiun, Kunpeng and Jintide.

PowerLeader focuses primarily on small and midsize businesses (SMBs) in China, where it has established market coverage capability. Its flexibility in customization and broad portfolios makes PowerLeader’s products easy to integrate by various solution providers and ISVs. The vendor also sells servers to some service providers. Its SMB focus makes PowerLeader more vulnerable to impacts from enterprises shifting to the cloud and macroeconomic conditions.

**Sugon**

Sugon is a China-based server vendor with a long history in HPC and supercomputers. It builds rack, blade, tower and multinode servers based on x86 processors from Intel and AMD, ranging from single-socket up to eight sockets. Sugon also has server systems based on processors developed in China, such as Loongson and Hygon — the latter from a Sugon-AMD joint venture.

Sugon’s primary market is in China, with strong presences in the government and education sectors. The vendor has successfully penetrated into Chinese hyperscale customers and service providers, and is expanding into a wider range of enterprise verticals. Since 2H19, Sugon’s server business has been affected by the U.S. government’s blacklisting to source components from U.S. companies. As a result, the company is increasingly shifting its focus to systems based on local technology.

**Supermicro**
U.S.-based Supermicro is both a vendor and ODM supplier of servers and storage. Supermicro sells directly and through distributors, targeting SMBs, enterprises, service providers and hyperscale users. The vendor continually refreshes a broad portfolio of different server form factors, including optimized solutions for multinode, HPC and GPU-based servers. Products range from low-cost mainstream servers through to custom designs for at-scale hyperscale data centers. Supermicro pursues a first-to-market strategy leveraging deep engineering capabilities and global supply chain management.

The publicly held Supermicro was relisted on Nasdaq in early 2020 after a two-year absence stemming from financial filing issues. Among Gartner clients, Supermicro has a relatively strong presence with large-scale deployments in the U.S., especially at sophisticated financial and research organizations. Supermicro has a reputation among Gartner clients for low-cost servers, although its services and direct sales channel are viewed as less robust than other branded vendors.

Table 3 lists additional vendors that did not meet our inclusion criteria, but represent market niches that are emerging or important to Gartner clients.

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Market Subsegment</th>
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<tbody>
<tr>
<td>Atos</td>
<td>Scale-up x86; SAP HANA-optimized systems</td>
</tr>
<tr>
<td>Nokia</td>
<td>Rack-scale computing systems for telco</td>
</tr>
<tr>
<td>NVIDIA</td>
<td>High GPU count systems for machine learning</td>
</tr>
<tr>
<td>Penguin Computing</td>
<td>HPC</td>
</tr>
<tr>
<td>Quanta Cloud Technology (QCT)</td>
<td>ODM for self-built systems used by hyperscalers</td>
</tr>
<tr>
<td>Wiwynn</td>
<td>Open Compute Project (OCP) systems</td>
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</table>

Source: Gartner (June 2020)

**Market Recommendations**

Although the fraction of compute delivered via the public cloud is increasing, purchases of new on-premises servers remain a significant part of the infrastructure budget. I&O leaders optimizing server investment decisions should:
Evaluate hyperconverged infrastructure and integrated systems as alternatives before buying new stand-alone servers.

Run competitive bids for new servers that include other vendors in addition to your incumbent vendor.

Favor server vendors and products that support a broad range of automation toolsets.

Ensure that vendors provide pricing transparency in quotations and bid responses though line-item pricing.

Take trade and geopolitical issues into account when evaluating server vendors.

**Note 1: Representative Vendor Selection**

Representative vendors include companies that manufacture and sell servers that met the market definition, and also met one or more of these criteria:

- Top 10 vendor in server units shipped, worldwide (2019)
- Top 10 vendor in end-user spending, worldwide (2019)
- Top 10 vendor in both server units and spending within either the China or North America regions
- Vendor about which Gartner analysts received a significant number of questions from end-user clients during 2019

Market shares are per “Market Share: Servers, All Regions, 4Q19 Update.”

**Note 2: Gartner’s Initial Market Coverage**

This Market Guide provides Gartner’s initial coverage of the market and focuses on the market’s definition, rationale and dynamics. Based on the November 2019 TOP500 list.

**Recommended by the Authors**

- Market Share: Servers, All Regions, 4Q19 Update
- Forecast Analysis: Servers, Worldwide
- Market Definitions and Methodology: Servers
- How to Optimize a Compute Infrastructure Deal
- Market Guide for Server Virtualization
- Hype Cycle for Compute Infrastructure, 2019
Decision Point for Data Center Infrastructure: Converged, Hyperconverged, Composable or Dedicated?

Recommended For You

Building a Business Outcome-Focused Architecture Team (BMO)

Consumability-Focused Enterprise Architecture (ADP)

Diagnosis of EA Stakeholder Perception Problems (The Hartford)

Project-Centric Master Data Management (Townes)

Product Management of EA Activities (adidas)