

SOLUTION BRIEF

Intel® Data Center Blocks for Cloud
ZeroStack*



Self-Driving Cloud Infrastructure for Increased Business Agility

Creating Business Value with a Flexible, Scalable, Self-Driving Hybrid Cloud Platform from ZeroStack* Running on the Intel® Xeon® Scalable Processor

The powerful Intel® Xeon® Scalable Platform combined with the Intel® SSD series delivers outstanding performance that has proven to satisfy the data throughput performance requirements of many key industrial applications.

The Intel® Xeon® Scalable Platform provides:

- a **solid foundation** for designing powerful data center platforms and realizing leaps in agility and scalability
- **new standards** in platform convergence, computing, storage, memory, networking, and service continuity
- **access to entire CPU's resources** with Intel® Mesh Architecture, which uses Intel® Xeon® Scalable Platform with up to 28 cores where all the cores have a shared last-level cache (LLC), six memory channels, and 48 PCIe* channels
- **dynamic scaling** without affecting virtualization performance and other application deployments



Data is being created at an astounding rate: 1.7 megabytes of new information every second for every human, totaling to an estimated 44 zettabytes of data by 2020.¹ For businesses, maximizing the value of this data requires storage and compute infrastructure that can keep up. Flexible hybrid cloud platforms based on technologies from ZeroStack* and Intel can help. These platforms provide the processing power and speed to handle high volumes of data while enabling cloud infrastructure optimization for enhanced efficiency and agility. In addition, by freeing customers from vendor lock-in, elastic hybrid cloud models can lead to improved cost control and efficiencies.

The Best of Both Worlds—Private Cloud Control with Public Cloud Ease of Use

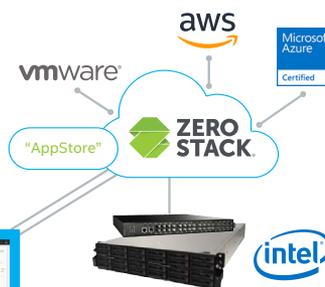
ZeroStack's self-driving cloud, running on a hyperconverged platform powered by the Intel® Xeon® Scalable processor, helps customers leverage the power of hybrid cloud, making it easy to combine the advantages of private and public clouds into a single, integrated environment. With a hybrid cloud platform from ZeroStack and Intel, businesses large and small gain the ability to access the right level of computing and low-latency service for their specific needs. Workloads move dynamically between clouds, and services can be spun up quickly to capitalize on new business opportunities.

ZeroStack™ DevOps Hub

Automated resource allocation, capacity planning and patching / upgrades

Public Cloud Experience

- Cloud management / monitoring
- Self service through web interface
- Infrastructure systems management



Private Cloud Control

- Self-healing cloud software
- AWS, Azure Cloud & VMware integration
- Red Hat and Microsoft partner
- Hyperconverged hardware



Streamline Operations, Reduce Costs, and Improve Reliability

ZeroStack's intelligent cloud platform is web managed to simplify operations and reduce operational overhead and costs. By automating tasks such as resource provisioning, it accelerates the application deployment process significantly while ensuring that IT retains control of sensitive data on premises.

Leveraging features of the Intel Xeon Scalable processor, the ZeroStack platform delivers hyperconverged cloud, along with software-defined storage, compute, and network resources. Management and security features include microsegmentation, virtual machine (VM) firewalling, and integrated accounting for showback and billing. IT admins and developers can each use the web browser of their choice to drive the cloud experience. The on-premises, self-healing control software on hyperconverged hardware ensures that all users receive the always-on cloud uptime that they expect, removing any potential bottlenecks in the data flow.

Solutions that Fit Your Application Needs

Intel and ZeroStack are committed to simplifying the path to delivering hybrid cloud services by developing the foundational technology that powers high-performance, energy-efficient, highly available and secure cloud environments. The Intel and ZeroStack solution is available in multiple All-Flash (AF) and Hybrid (HY) system configurations, each designed for specific workloads and use cases. For example, Intel and ZeroStack have identified the following use cases as having great potential for the ZeroStack solution—Advanced Analytics, Big Data, and Databases:

1 Compute-Heavy Applications: Removing Bottlenecks to Streamline Advanced Analytics Processing

Mapping infrastructure to software to reduce computational back pressure associated with data- and compute-heavy artificial intelligence (AI) workloads can be a challenge. Intel and ZeroStack have optimized a configuration that addresses back-pressure concerns for compute-heavy applications. This configuration is best matched to applications such as batch processing, distributed analytics, multi-player gaming, video encoding, IoT development, edge computing, and blockchain development.

For consistently high performance from storage volumes, a solid state drive (SSD)-heavy configuration delivers the fastest speed, highest IOPs, lowest latency, and a longer mean time between failures (MTBF) because there are no moving parts.

The flexibility and automation inherent in the ZeroStack cloud running on an Intel Xeon Scalable processor allows customers to create their own app-specific, compute-heavy configurations with a high number of vCPUs, memory, and storage. For example, for an intensive, number-crunching application, ZeroStack's cloud software can create local data pools for high locality. If the data processing includes random IOs and not batch processing, SSD pools can provide very high IO throughput.

2 Storage-Heavy Applications: Predictable Performance, Linear Scaling, and High Availability for Big Data

Big Data applications like Splunk*, NoSQL*, Hadoop*, and others test the performance and scalability limits of traditional infrastructures, requiring good sequential and random performance across large datasets and multiple nodes. Intel and ZeroStack deliver performance equivalent to bare metal deployments while significantly simplifying infrastructure management from virtualized big data installations.

For data processing and data mining applications, when access speed is not the key requirement, hard disk drives (HDDs) provide the most cost-effective storage. Adding SSDs, as needed, to improve IOPs and reduce seek times can compensate for any reduction in speed. Intel® Optane™ SSDs, which combine breakthrough storage technology and radical innovation in memory, offer exceptional performance acceleration and responsiveness.

3 Memory-Heavy Applications: Eliminating Underused Database Silos

In memory-intensive applications such as Spark* or NoSQL, the ZeroStack/Intel platform enables distributed web-scale stores that provide in-memory caching for key value types (Memcache and Redis). Hyperconverged solutions from ZeroStack and Intel bring the predictable performance, scalability, and cost benefits of web-scale IT to transactional and analytical database environments for unstructured data. Customizable server configurations allow customers to limit capacity and increase VM performance, as needed.

Engage with Us Today

Innovative cloud technologies from Intel enable partners to develop infrastructure solutions that meet their customers' specific service delivery needs.

Contact your Intel sales representative or Intel authorized distributor for any inquiries.

To find a supplier, visit <https://www.intel.com/content/www/us/en/partner/where-to-buy/overview.html>

For more information on Intel® Data Center Blocks visit: [intel.com/dcb](https://www.intel.com/dcb)

For more information about ZeroStack visit: www.zerostack.com

Optimized Pre-Configurations

ALL-FLASH WITH INTEL® OPTANE™ SSD CONFIGURATION: FOR COMPUTE- AND MEMORY-HEAVY APPLICATIONS			
ORDER CODE	FEATURES		QTY. PER SYSTEM
ZSB2224BPAF2 All-Flash with Intel® Optane™ SSD, 144 Cores (36/node), 63.8TB raw capacity, 1TB memory (256GB/node)	Chassis	Intel® Server Chassis H2224XXLR3 (24x2.5" U.2 Drives)	1
	Board	Intel® Server Node HNS2600BPS24	4
	Processor	Intel® Xeon® Gold 6140 Processor (18 Cores, 2.3 GHz, 140W)	8
	Memory	RDIMM 32GB - DDR4, 288-pin, 2666MHz	32
	Storage Tier	"Hot" Storage Tier - Intel® Optane™ SSD DC P4800X Series (375GB, 2.5in U.2)	8
		"Warm" Storage Tier - Intel® SSD DC S4500 Series (3.8TB, 2.5in SATA 6Gb/s)	16
	Networking	2x10GbE SFP+ and 2x1GbE RDMA	4
	Boot Device	Boot Device - Intel® SSD DC P3100 Series (256 GB, 80mm M.2)	4
	RMM	Remote Management Module Lite 2	4

ALL-FLASH CONFIGURATION: FOR STORAGE- AND MEMORY-HEAVY APPLICATIONS			
ORDER CODE	FEATURES		QTY. PER SYSTEM
ZSB2224BPAF1 All-Flash, 128 Cores (32/node), 73.6TB raw capacity, 1TB memory (256GB/node)	Chassis	Intel® Server Chassis H2224XXLR3 (24x2.5" U.2 Drives)	1
	Board	Intel® Server Node HNS2600BPS24	4
	Processor	Intel® Xeon® Gold 6130 Processor (16 Cores, 2.1 GHz, 125W)	8
	Memory	RDIMM 32GB - DDR4, 288-pin, 2666MHz	32
	Storage Tier	"Hot" Storage Tier - Intel® SSD DC P4600 Series (1.6TB, 2.5in U.2)	8
		"Warm" Storage Tier - Intel® SSD DC S4500 Series (3.8TB, 2.5in SATA 6Gb/s)	16
	Networking	2x10GbE SFP+ and 2x1GbE RDMA	4
	Boot Device	Boot Device - Intel® SSD DC P3100 Series (256 GB, 80mm M.2)	4
	RMM	Remote Management Module Lite 2	4

HYBRID CONFIGURATION: FOR COST-OPTIMIZED DEPLOYMENTS			
ORDER CODE	FEATURES		QTY. PER SYSTEM
ZSB2224BPHY1 Hybrid, 96 Cores (24/node), 47.2TB raw capacity, 512GB memory (128GB/node)	Chassis	Intel® Server Chassis H2224XXLR3 (24x2.5" U.2 Drives)	1
	Board	Intel® Server Node HNS2600BPS24	4
	Processor	Intel® Xeon® Gold 5118 Processor (12 Cores, 2.3 GHz, 105W)	8
	Memory	RDIMM 16GB - DDR4, 288-pin, 2666MHz	32
	Storage Tier	"Hot" Storage Tier - Intel® SSD DC S4600 Series (1.9TB, 2.5in SATA 6Gb/s)	8
		NOT INCLUDED: "Warm" Storage Tier - designed for spinning drives (2TB, 2.5in SATA 6Gb/s)	16
	Networking	2x10GbE SFP+ and 2x1GbE RDMA	4
	Boot Device	Boot Device - Intel® SSD DC P3100 Series (256 GB, 80mm M.2)	4
RMM	Remote Management Module Lite 2	4	



¹ <https://www.forbes.com/sites/bernardmarr/2015/09/30/big-data-20-mind-boggling-facts-everyone-must-read/#136e095f17b1>

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at intel.com.

Software and workloads used in performance tests may have been optimized for performance only on Intel® microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For more complete information visit intel.com/performance.

Cost reduction scenarios described are intended as examples of how a given Intel-based product, in the specified circumstances and configurations, may affect future costs and provide cost savings. Circumstances will vary. Intel does not guarantee any costs or cost reduction.

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