HPE Gen10 Proliant Servers:
A New Compute Experience
Powered by the world’s most secure industry standard servers

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Technology is fueling digital transformation

- Insights from data: Predictive analytics for faster, more efficient deliveries
- New business models: Transforming transportation with new ride-share services
- Efficiency: Banks testing ‘completely automated’ branches
Increasingly, technology is sourced across a Hybrid IT model

Hybrid IT

- Specialized IT
- On-Prem Cloud
- Hosted Cloud
- Multi-Cloud
Introducing a new Compute experience with Gen10

Agility
A better way to deliver business results

Security
A better way to protect your business and data

Powered by the world’s most secure industry standard servers
HPE Servers Gen10 – Relevant and Differentiating Innovations

Most Secure Industry Standard Servers
- Unmatched threat protection through silicon root of trust, extensive standards compliance, and supply chain attack detection
- Unparalleled ability to recover firmware and OS after denial of service attempt or detection of compromised code

Unprecedented High-Speed Memory Capacity with Persistence
- High capacity data acceleration with flash-backed Persistent Memory at multi-terabyte capacities for large data-intensive workloads
- Second generation of memory-centric compute innovation on the path to The Machine

Intelligent System Tuning
- Performance tuning to enable more workloads on more cores at a given CPU frequency for greater application licensing efficiency
- Predictable latency reduction and balanced workload optimization

New Levels of Compute
- Next generation industry standard CPUs with faster processing, higher speed memory access, enhanced software-defined management and security
- Enhanced GPU levels of performance and choice

Increased In-Server Storage Density
- Substantially greater NVMe capacity for large write intensive workloads needing advanced caching/tiering
- Enhanced storage density in servers with more SFF and LFF drives for collaboration and database workloads

More Efficient and Easier Server Management
- Enables large-scale FW deployment
- Improved GUI to simply management with industry standard APIs
- Easy system debug access
- Convenient warranty entitlement validation

Delivering the World’s Most Secure Industry Standard Servers\(^1\) for software-defined compute and converged infrastructure to run diverse workloads and applications across traditional and multi-cloud environments

\(^1\) Substantiation for quantifiable benefits in speaker notes.
Server tuning technology developed in partnership with Intel®

HPE Intelligent Systems Tuning

- **Jitter smoothing**
  - Reduce latency, and deliver deterministic and reliable performance by mitigating processor frequency fluctuation.
  - Ideal for workloads where processor frequency is highly variable (e.g. High Frequency Traders, HPC).

- **Core boosting**
  - Maximize the performance of all of the cores in your processor with higher processor frequencies than standard Intel processor profiles.
  - Reduce core-based licensing costs by using fewer cores.

- **Workload matching**
  - Automatically match the internal server resources to the specific requirements of your workload.
  - Improve performance and save hours of time using preconfigured workload profiles to tune internal server resources.
HPE OneView and iLO 5

- Faster maintenance updates at scale
  - Stage and schedule updates through iLO RESTful API
  - Built-in rollback to revert to last known good (bookmarked) update through iLO 5 repository
  - Firmware and driver inventory improvements with OneView

- Extended server support with OneView
  - Deploy HPE Apollo faster with profile templates
  - Manage HPE ProLiant ML, DL and Synergy
  - Monitor ML, DL, Synergy and Superdome X

- Proactive support with predictive analytics
  - Remote support integration
  - Automatic call logging and parts dispatch
  - Intelligent problem resolution and root cause analysis
  - Contract and warranty display
HPE Gen10 Differentiator: Security
HPE ProLiant Gen10 servers are the world’s most secure industry standard servers

**Silicon Root of Trust (Protect)**
- **Only** HPE offers industry standard servers with major firmware anchored directly into the silicon (root of trust).
- Server essential firmware (iLO 5, UEFI, CPLD, IE, and ME) checks the iLO 5 silicon for an immutable fingerprint that verifies all the firmware code is valid and uncompromised.
- Provides protection through the entire supply chain: manufacturing, distribution, shipping, configuration, and installation to ensure firmware has not been compromised.

**Runtime Firmware Verification (Detect)**
- Regular checking of firmware verifying validity and credibility of essential system firmware. Firmware on other HPE options like drives and NICs can be checked as well. (optional)
- Valid and secure firmware copy stored in lock-box.
- Detection of any compromised code or malware residing in monitored firmware is captured in an iLO audit log and the customer notified.

**Secure Recovery (Recover)**
- Ability to recover firmware to a) factory settings, b) last known good state, and c) not recovering at all taking server off-line after the detection of compromised code.
- Ability to recover other essential server settings.

With the HPE Secure Compute Lifecycle, you have a security foundation to protect against malicious threats that target server firmware, resulting in denial of service and data loss.
HPE Secure Encryption – Controller based encryption
Enterprise-class encryption solution for data at rest

Controller-based data encryption solution protects data at rest on any bulk storage attached to Smart Array and Smart HBA controllers running in RAID mode

Benefits
- Broad encryption coverage
- High availability and scalability
- Simplified deployment and management
- Meets compliance regulations like HIPAA and Sarbanes-Oxley
We’re innovating across our software-defined infrastructure

Partner ecosystem

- Optimization for traditional and cloud native applications
- Joint engineering to deliver new innovation
- Alliances to share expertise and provide centers of excellence

Software-defined intelligence

- Programmable infrastructure via unified, open API
- “No Ops” automated lifecycle management
- Real-time composability of fluid resource pools
- Hybrid IT insights and learnings

Next-generation infrastructure

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Confidential
A next-gen flash storage portfolio that goes beyond the box to accelerate Hybrid IT

- **3PAR StoreServ**: Flexible Tier-1 for the All-Flash Datacenter
- **Nimble Storage**: Predictive flash for new style deployments
- **SimpliVity**: Advanced data services for hyper convergence
- **MSA**: The most affordable flash acceleration

**Features**

- **Protected**: Embedded and app-integrated
- **Predictive**: Analytics driven experience
- **Cloud-Ready**: Data mobility on-premises and off

**InfoSight™**
Predictive Analytics
Endless Fire-fighting with Lost Nights and Weekends

1. Reacting to unexpected problems
2. Spending countless hours interpreting graphs and logs
3. Calling vendor support adds to the frustration

Disruptions, business impact, and wasted time
HPE InfoSight – Using AI to Simplify IT Operations

Self-managing

Self-healing

Self-optimizing

Storage  Servers  Networking  Converged

Powered by **HPE InfoSight:** AI for the Data Center
Leading AI for Hybrid Cloud
Collecting and Analyzing Millions of Sensors per Second

**Customer Impact**
- Predictive Support Automation
- Preemptive Recommendations
- Proactive Management
- Continuous Improvement

**Cloud-Based AI Platform**
- Predictive Analytics Engine
- Global Learning
- Recommendation Engine

**Cross-Stack Telemetry**
- VMware
- Oracle
- SQL Server
- IBM
- Compute
- Network
- Storage
HPE InfoSight: Improving efficiency through AI

5 key steps in the machine learning and predictive analytics process of InfoSight

1. Observing – the 1000s of data points and sensors built into the HPE server and storage products
2. Learning – applying advanced pattern recognition to the sensor data collected across all devices globally
3. Predicting – anticipating problems based on the observations and learnings
4. Recommending – intelligent decisions that prevent issues, improve performance, and optimize resources
5. Acting – automation resulting in game-changing benefits and outcomes
HPE InfoSight – AI for your Hybrid Cloud World

No more wasting time

Effortless Management

Predicts and prevents problems

85%
Less time spent managing storage issues¹

79%
Lower storage operational expenses²

86%
Issues automatically opened and solved³

¹ ESG Whitepaper, Sept. 2017 – Assessing the financial impact of HPE InfoSight Predictive Analytics
² Illustrates potential savings based on customer surveys. HPE does not provide financial advice
³ Internal study of HPE Nimble Storage’s installed base
HPE InfoSight brings artificial intelligence to HPE Servers*

**Predictive Analytics**
- Data analytics for server security
- Predictive data analytics for parts failure

**Global Learning**
- Server Wellness Dashboard
- Global inventory of servers

**Recommendation Engine**
- Recommendations to eliminate performance bottlenecks on servers

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*HPE ProLiant servers, HPE Synergy compute modules & HPE Apollo systems (Gen10, Gen9, and Gen8 with iLO 5 and iLO 4)*
HPE InfoSight for Servers* =

HPE InfoSight™ =

Active Health System Viewer (AHSV)

Diagnose
Advise
Collect

HPE iLO
Integrated Lights-Out (iLO)

*HPE ProLiant servers, HPE Synergy compute modules & HPE Apollo systems (Gen10, Gen9, and Gen8 with iLO 5 and iLO 4)
Active Health System (AHS) - [www.hpe.com/servers/ahs](http://www.hpe.com/servers/ahs)

- Is your server’s “Flight Data Recorder”
- Records 1000s of system parameters and diagnostics telemetry 24x7 on the server
- Collects health, system configuration, and performance information
  - Does NOT collect personally identifiable or network security information
- Used by HPE support to diagnose and resolve server issues quickly
- Includes a web based viewer that provide customers that provides recommended repair actions based on experience and HPE best practices
- Uses no host resources
- Available on HPE ProLiant servers, HPE Synergy compute modules & HPE Apollo systems (Gen10, Gen9, and Gen8 with iLO 5 and iLO 4)
Server Management
Your infrastructure automation engine built with software-defined intelligence

HPE OneView

Software-defined infrastructure innovations transform IT admin efficiency

Customer Needs:
- Fast, simple, reliable, out-of-band firmware and driver updates
- Template based automation of infrastructure management
- Eliminate silos across servers, storage and networking

Key New Features:
- Non disruptive firmware updates on fabric for HPE Synergy
- Automated provisioning of 3PAR and StoreVirtual storage
- Unified API transforms infrastructure into a single line of code
- Auto-discovery for new infrastructure added for DL, ML, Apollo
- Enhanced security leveraging scope based access control, two factor authentication, and SNMPv3
- Deploy, update, re-deploy physical machines like VMs
- Stateless compute eliminates expense of boot disks
- 53% reduction in average software build time with Docker container host

Up to 73% reduction in operator time performing firmware updates

1, 2: Substantiation for quantifiable benefits in speaker notes.
Secure server management from anywhere, anytime
HPE iLO 5

Ideal For:
- Uncompromising security
- Hassle-free server management and integration into infrastructure management ecosystem using industry standards
- Intuitive, user-friendly server maintenance

Key New Features:
- Immutable Silicon Root of Trust for Secure Start with ability to automatically rollback to known-good firmware
- Common Access Card (CAC) 2-factor authentication support
- OpenLDAP support
- Additional iLO Security modes
- Granular control of all iLO interfaces
- Runtime Firmware Verification to verify integrity of iLO and BIOS
- With 2x the CPU MHz in iLO 5, virtual media performance is twice as fast vs. iLO 4
- IPMI enhancements for increased interoperability with industry IPMI tools
- iLO Service Port for better at the server management
- Backup/restore of iLO configuration settings

Maintain complete control of your secure server, proactively managing it with ease and minimal manual intervention

Learn more: www.hpe.com/info/ilo

1 Substantiation provided in notes
Enhanced Security
iLO Advanced Premium Security Edition

Ideal For:
- Prompt detection of security breaches required for sensitive data or regulatory compliance
- Workloads where server uptime is essential
- Secure redeployment of servers
- Encryption of Top Secret level data

Key New Features:
- Based on HPE Silicon Root of Trust and built on the World’s Most Secure Industry Standard Servers¹
- Runtime firmware verification periodically checks iLO and UEFI firmware for compromised code
- Automatic firmware recovery in the unlikely event compromised code is detected.
- Secure erase of NAND/user data
- CNSA mode for Top Secret level encryption algorithms
- Ability to recover other server settings and the operating system

HPE Security Delivery

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<td>Everything in iLO Standard plus CAC &amp; Kerberos 2-Factor authentication</td>
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<tr>
<td>iLO Standard</td>
<td>Standard Security Features</td>
<td>The most secure industry standard servers in the world, powered by our new Silicon Root of Trust</td>
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<td>HW Options</td>
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¹ Substantiation provided in notes

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Increased performance delivered through iLO Advanced
HPE Intelligent System Tuning (IST)

Ideal For:
- Maximum processor throughput even in workloads sensitive to processor latency
- Ability to easily tune server parameters without needing years of experience or trial-and-error

Key New Features:
IST leverages technology developed in-part with Intel:
- **Workload Matching** Tune BIOS settings with preconfigured server profiles that match your workload for improved performance and time savings.

- **Jitter Smoothing** Mitigate frequency fluctuations for deterministic performance, reduced latency, and improved workload throughput.

- **Core Boosting** Enable higher performance across more processor cores without overclocking and lower core-based licensing costs.¹

HPE Intelligent System Tuning

![Workload Matching](image)
![Jitter Smoothing*](image)
![Core Boosting*](image)

*Require iLO Advanced Premium Security Edition and iLO Advanced licenses

¹Available on the Gen10 ProLiant DL380 and Apollo XL230K with Intel Xeon Scalable 6143 Gold processor. High performance heatsinks and fans are also required.
Server provisioning made easy
Intelligent Provisioning

Ideal For:
- Hassle free provisioning without need for external media
- Simple interface to check for availability for updated drivers and firmware
- End-of-life decommissioning is a key security requirement for some customers

Key New Features:
- Intelligent Provisioning is now available via iLO
- No need for any optical discs or external media
- Faster updates and improved wizards for complex configurations
  - Launch Intelligent Provisioning up to 3x faster\textsuperscript{1} on Gen10 servers
  - Up to 22\% faster\textsuperscript{2} initial set up with intelligent provision with Gen10 vs. Gen9 servers
- Integrated Erase utility which to wipe system data and reset hardware settings
- Access to all Advanced BIOS (RBSU) settings from IP

Intelligent Provisioning is a wizard based embedded server provisioning utility which makes it extremely easy to take your server from out of the box into production.

Learn more: https://www.hpe.com/servers/intelligentprovisioning

\textsuperscript{1} Substantiation provided in notes
Secure, feature-rich server boot
UEFI BIOS

Ideal For:
− Secure local or remote boot
− Support for new devices like Persistent Memory
− Enterprise-class reliability and performance

Key New Features:
− Secure Start powered by Silicon Root of Trust
− Support for Scalable Persistent Memory
− Up to 67% reduction in server boot times with similar configurations¹ (Gen10 vs. Gen9)
− Enablement of memory RAS features such as Address-Based Memory Mirroring and HPE Fast Fault Tolerant
− Smart Array configuration now available on UEFI boot mode
− Redfish API conformant
− New 10+ Workload Matching profiles based on customer performance needs
− New pre-boot environment user interface optimized for either keyboard or mouse

Unified Extensible Firmware Interface (UEFI)

Based on the latest industry-standard specifications, UEFI BIOS is a set of interfaces between the system, the operating system, and other components.

¹ Substantiation provided in notes

Learn more: https://www.hpe.com/servers/UEFI
Automate your HPE Server using PowerShell
HPE Server Cmdlets for Windows PowerShell

Ideal For:
- Extend existing PowerShell-based management of Windows server, Azure, and VMware to manage HPE servers

Key New Features:
- New PowerShell cmdlet modules:
  - iLO 5 support
  - BIOS
  - NVDIMM
  - Raw cmdlets to manage iLO RESTful API
  - Firmware updates
- Standard Windows PowerShell architecture via Cmdlets to automate HPE Servers management
- Multithreading support – manage multiple servers at the same time

Manage your HPE server in Windows-centric environments using standard PowerShell architecture and scripting model

All our sample script available on GitHub

PS C:\> Get-HPiLOHostPower 192.000.1.1 -username admin -password admin123

IP : 192.000.1.1
HOSTNAME : ilo.mynet.hp.net
STATUS_TYPE : OK
STATUS_MESSAGE : OK
HOST_POWER : ON
Get more out of your iLO Advanced license

iLO Amplifier Pack

Ideal For:
- Detailed and up to date inventory for 1,000s of servers
- Hassle free server updates at scale without the need to create or maintain customized scripts

Key New Features:
- Runs basic and detailed inventory on Gen 8, Gen 9 and Gen10 HPE (Rack, Tower, Blade, Apollo) servers with iLO, including firmware, hardware and iLO licenses
- Scales up to 10,000¹ servers for discovery and detailed inventory with or without iLO Federation
- Simplifies update management tasks making it easier and faster with an intuitive GUIs
- Built on iLO REST API and existing HPE tools like SUM, SUT and AMS

Learn more: [https://www.hpe.com/servers/iloamplifierpack](https://www.hpe.com/servers/iloamplifierpack)

¹ Substantiation provided in notes
Simple and Secure server updates
Smart Update (SUM and the SPP)

Ideal For:
- Simple and easy-to-use update process
- Reduces maintenance windows, downtime, and personnel needed
- Fully validated set by HPE
- Secure and tamper proof updates

Key New Features:
- Integrated with iLO 5 via the management network
- Built-in rollback to revert to last known good (bookmarked) update
- Update staging and scheduling (RESTful API)

Learn more: [www.hpe.com/info/smartupdate](http://www.hpe.com/info/smartupdate)
Deriving actionable insights from server diagnostics
Active Health System Viewer

Ideal For:
- Lower possible server downtime
- Actionable insights into server diagnostic information
- Seamless support

Key Features:
- Self-Diagnostics for common server errors without need for HPE personnel intervention
- Over 25% of common server errors can now be resolved¹ through Active Health System Viewer’s self-diagnostics.
- Active Health System Viewer allows customers to resolve issues up to 2X faster²
- Initiating a support case through Active Health System Viewer can save you up to 20 minutes of phone interview time³
- Firmware analysis aiding planning for firmware updates
- Automated support entitlement check for the server and creation of support case for server errors that need HPE intervention
- Portal based model to ensure non-disruptive rule updates

Learn more:  www.hpe.com/servers/ahs
www.hpe.com/servers/ahsv

Unparalleled actionable insights into server errors aiding lower server downtime

Supported on: All servers with iLO 4 and above

¹ Substantiation provided in notes
In summary

**Agility**

- A new experience using software-defined infrastructure
  - Intelligent Systems Tuning
  - HPE OneView / HPE iLO 5
  - HPE Persistent Memory

**Security**

- The world’s most secure industry standard servers
  - HPE Secure Compute Lifecycle
  - Silicon Root of Trust
  - NIST Security Controls

**HPE InfoSight**

- For ProLiant Servers
  - AI for the Data Center
  - Simplified IT Operations

Built on HPE software-defined infrastructure and Gen10 Compute platform
New Gen10 products
The new formula for server virtualization
HPE ProLiant DL385 Gen10

Agile Design
- **Modular Chassis** offers flexibility and takes advantage of the 128 PCIe lanes providing support for up to 24 NVMe drives

Agility for Virtualization
- **14% more processor cores** for greater Virtual Machine density
- **33% greater memory capacity** for better VM performance and price/performance

Secure Infrastructure
- **HPE Silicon Root of Trust** secures the entire server life cycle
- **AMD Security** with AMD Secure Processor, Secure Memory Encryption and Secure Encrypted Virtualization

Choose this **purpose-built platform for virtualization**
HPE ProLiant DL325 Gen10
Delivering 2P performance at 1P economics

Virtualization Agility
- Up to 27% better price/performance
- 14% more processor cores for greater VM density\(^1\)
- Up to 2TB of DDR4 2666 MT/s HPE Smart Memory

Flexible Design
- Innovative design with ample I/O and networking
- Support for a to 10 NVMe

Built in Security
- HPE Silicon Root of Trust secures the entire server life cycle
- AMD Security with AMD Secure Processor, Secure Memory Encryption and Secure Encrypted Virtualization

1 AMD EPYC™ 7601 Processor as compared to the Intel® Xeon® Platinum 8180 Processor, 32 cores per processor vs 28 cores, October 2017
The Most Compact and Versatile Rack Server

HPE ProLiant DL20 Gen10 Server

Secure infrastructure
- Silicon root of trust powered by iLO 5
- Protects selected code and data from disclosure or modification at the application level with Intel® SGX supported on HPE ProLiant DL20 Gen10 Server
- Trusted Platform Module (TPM) prevents unauthorized access to the server and reliably store artifacts used to authenticate the server.
- HPE Secure Encryption

Enterprise class capabilities in a compact dense rackmount server fulfilling a wide variety of requirements
- Optional iLO port allows bandwidth to be dedicated to network traffic for higher network performance
- Short depth chassis of 15.05” provides mobility to deploy
- Outstanding configuration flexibility with 6SFF /2LFF drives, 290W or 500W or 800W 48VDC Redundant Power Supply, FlexLOM and PCIe slots.

Ideal space-efficient rack-mount server for core SMB business workloads like web, file, print-serving, out to the advanced edge, and for custom applications for Telco and OEM.
The dense compute standard for multi-workload environments
HPE ProLiant DL360 Gen10

Industry-leading performance
- Double the capacity of NVDIMMs supporting up to 192GB per system

Flexible design
- Unmatched expandability packed in a dense 1U rack design
- Ability to mix and match storage within the same chassis

Agile, secure infrastructure
- Reducing risk of cyber or physical attacks with asset and data protection
- Up to 1.3x more NVMe storage capacity¹ and M.2 support on riser

¹ Substantiation for quantifiable benefits in speaker notes.

Deploy this 2P secure platform for diverse workloads in space constrained environments
The industry-leading server for multi-workload compute
HPE ProLiant DL380 Gen10

Standardize on the industry’s most trusted compute platform.

Flexible design
- Optimized performance for highly parallel workloads – Image Processing, App dev/test, cloud computing

Industry-leading performance
- Up to 27x faster checkpoint operations enabling significantly faster business operations\(^1\)
- At least 20x faster database restart preserving maximum system uptime\(^2\)

Agile, secure infrastructure
- Reducing risk of cyber or physical attacks with asset and data protection
- Up to 58% more storage capacity making it ideal for big data bulk storage, Email analytics and NoSQL databases\(^3\)

1, 2, 3. Substantiation for quantifiable benefits in speaker notes.
The high-density scale-up server for business critical workloads
HPE ProLiant DL560 Gen10 Server

Choose this scale-up platform to optimize datacenter utilization

Scalable performance
- Secure Compute with up to 4 processors
- High performance options with Intelligent System Tuning, Persistent Memory and expanded NVMe capacity

Impressive density
- Unique design enables scale-up performance and I/O expandability with large storage and memory footprint in 2U
- Flex Slot power supplies with slot design to accommodate extra I/O

Flexible and secure
- Flexible drive bay supports multiple combinations of SFF drives
- Silicon root of trust powered by iLO 5
ProLiant's most powerful and versatile 2P tower
HPE ProLiant ML350 Gen10 Server

Delivers the ideal set of performance and expandability for changing business needs

**Versatile performance**
- Broader GPU supporting both active/passive options to accelerate performance in graphic processing, VDI, surveillance and security applications, retail and medical imaging
- Up to 71% performance¹ boost with the Intel® Xeon® Platinum processors over previous generation

**Expandability without compromise**
- Increased expandability with 8SFF Express Bay supporting 8 NVMe PCIe SSDs for high intensive read/write access workload
- Ability to mix and match storage within the same chassis

**Security innovations**
- Reducing risk of cyber or physical attacks with asset and data protection
- Secure Recovery with firmware rollback

¹Intel® measurements. Up to 71% performance increase of Intel Xeon Platinum vs. previous generation E5 v4 average performance based on key industry-standard benchmark calculations comparing 2-socket Intel Xeon Platinum 8180 to E5-2699 v4 family processors. Any difference in system hardware or software design or configuration may affect actual performance. May 2017.
The high performance 1P tower with enterprise-class features

HPE ProLiant ML110 Gen10 Server

Right-sized balance of performance and price for growing SMBs
- Compact with less than a 19-inch depth, quiet, affordable
- Optional Redundant Fan and Redundant Power Supply prevent data loss and downtime, making your server more reliable
- 3/3/3 warranty

Ease of deployment
- Build a functional server by leveraging the supported ClearOS Software
- HPE Pointnext Services simplifies all stages of the IT journey

Industry leading security
- Reducing risk of cyber or physical attacks with asset and data protection
- Secure Recovery with firmware rollback

Optimized for growing business needs by providing enterprise class features such as redundancy, reliability, and manageability
The Ideal Small Office 1P Tower with Enterprise-Class Features

HPE ProLiant ML30 Gen10 Server

Secure infrastructure
- Silicon root of trust powered by iLO 5
- Protects selected code and data from disclosure or modification at the application level with Intel® SGX supported on HPE ProLiant ML30 Gen10 Server
- Trusted Platform Module (TPM) prevents unauthorized access to the server and reliably store artifacts used to authenticate the server.

Enterprise-Class Features to Achieve Business Growth with The Lowest TCO
- Optional iLO port allows bandwidth to be dedicated to network traffic for higher network performance
- 3D graphics cards to support CAD modeling, basic digital content creation, and medical imaging
- M.2 with NVMe SSD support delivers outstanding speed for boot drive
Workload Optimized Storage Server for Big Data Solutions
HPE Apollo 4510 Gen10 System

HPE Apollo 4510 Gen10 System offers revolutionary storage density in a 4U form factor fitting in HPE Standard 1075mm Rack. The front drive drawers with side loaded design for 60 LFF HDDs is purpose built for Big Data solutions.

Purpose-built for Big Data Solution Workloads
- Dense storage and compute capabilities: 60 LFF in front two driver drawers, side loaded and 2 SFF SAS/SATA/NVMe/SSD or 2 UFF Dual M.2 in 4U form factor
- Improved computing power: Supports Intel® Xeon® Processor Scalable Family with up to 26 cores and memory speeds up to 2666 MT/s providing computing power for Big Data applications

Scale-Out System for Enterprise Customers
- Scale-out friendly: enterprise customers can scale out the data center capacity without deploying 1200 mm or deeper racks.
- Standard server depth: one of the highest storage capacities in any 4U server fitting in HPE Standard 1075mm Racks

Comprehensive Server Security
- Silicon Root of Trust: Only HPE offers the industry standard server with firmware anchored into the silicon
- Commercial National Security Algorithms: Only HPE offers the highest level of security and cryptography
- Secure Recovery: Recover firmware to last known good state, if code compromised
- Firmware Runtime Validation: Daily firmware check and alert of compromised code
Composable Infrastructure: HPE Synergy
Accelerating Data Center Modernization - Gen10

The first instantiation of a Composable Infrastructure

Industry leading technology

A single infrastructure for both traditional and cloud native apps

HPE Synergy
Your infrastructure as code

HPE OneView Composer
Integrated software-defined intelligence

Image Streamer:
Instantly provision operating environments on stateless infrastructure

Composable Fabric
Rack scale multi-fabric connectivity eliminates standalone TOR switches

Composable Storage
High-density integrated storage Compose any compute with any storage (SDS, DAS, SAN)

Composable Frame
Scaling simple and automated at rack/row scale Photonics and memristor ready for investment protection

Composable Compute
Provides the performance, scalability, density and configuration flexibility
Composable Infrastructure defined

**Fluid Resource Pools**
- Single infrastructure of disaggregated pools of compute, storage and fabric that boots-up ready for any workload
- Physical, virtual and containers
- Auto-integrating of resource capacity

**Software-Defined Intelligence**
- Template-driven workload composition
- Frictionless operations

**Unified API**
- Single line of code to abstract every element of infrastructure for full infrastructure programmability
- Bare metal interface for Infrastructure as a Service
HPE Synergy
Composable Infrastructure with Gen10 Compute

Full Height Compute Module
Full Height, double-wide Compute Module
Storage Module
Composer
Half Height Compute Module
Front Panel/Synergy Console

Fabric Module
SAS Connection Module
Power supplies
Fans
Interconnect Link Module
Thank you