When it comes to SAP HANA, the hardware and services matter. Invest in the future with performance-proven, easy-to-deploy solutions delivered by SAP HANA experts.

How will you use SAP HANA?

Are you facing these challenges?

Dell EMC SAP HANA Ready Solutions

Dell EMC SAP HANA Edge Ready Nodes

Dell EMC SAP HANA Ready Nodes

Dell EMC Ready Bundle for SAP HANA Scale Out

Dell EMC Ready System for SAP HANA on VxBlock

SAP HANA Tailored Data Center Integration (TDI)

Technical specifications

Dell EMC SAP HANA TDI Certified components

Why Dell EMC?

Services and financing

Dell EMC Professional Services

Dell EMC Financial Services

Your SAP HANA future starts now

Dell EMC Ready Solutions for SAP HANA

Get all the power of SAP HANA from a partner who can offer proven performance and ease of deployment with solutions optimized for SAP HANA.
When it comes to SAP HANA, the hardware and services matter

Are you using yesterday’s data and technology to make today’s decisions? In a highly competitive business climate, getting actionable insights in real time from terabytes of operational, transactional, structured and unstructured data is vital to success. After all, the speed with which you can process data drives productivity, efficiency, innovation and growth. But the sheer volume of operational data pouring into most organizations often exceeds the amount of data that traditional disk-based analytics systems can process within a reasonable timeframe.

Groundbreaking SAP HANA® in-memory database software gives you the power to run advanced analytics alongside high-speed transactions and get accurate, up-to-date responses in seconds. But when it comes to deploying the database of the future, your choice of hardware matters.

Invest in the future with performance-proven, easy-to-deploy solutions delivered by SAP HANA experts

That’s why Dell EMC and SAP® have teamed up to offer optimally configured SAP HANA solutions. Pairing Dell EMC’s enterprise-class solutions with SAP HANA allows you to execute business analytics and data reporting in a single system. The result is a portfolio of solutions for SAP HANA that offer proven performance and easy deployment, designed and delivered by a team with the expertise to deploy an SAP HANA system that IT can manage like any other database.

Get proven performance
You’re investing in SAP HANA for its blazing fast performance, so naturally you’ll want to deploy it on infrastructure with proven benchmark performance metrics.¹

Deploy quickly and easily
You can get up and running with SAP HANA faster by choosing validated, tested and pre-configured Dell EMC solutions for SAP HANA. Dell EMC provides a complete set of consulting, implementation and support offerings to make SAP HANA as easy as possible. In many cases, you can get up and running in a matter of hours.

Tap into SAP HANA savvy
Dell EMC and SAP have built a strong relationship over nearly two decades, covering system design and delivery, and extensive services expertise at every level. With a focus on the future, Dell EMC has tripled its investment in the advanced analytics space, including building a Global SAP Center of Excellence to foster a tighter partnership and greater co-innovation with SAP. This heightened level of collaboration has led to industry-leading benchmarks and exceptional customer results.²
How will you use SAP HANA?

SAP HANA for blazing analytics
SAP HANA democratizes analytics by automating the most difficult and tedious analytics tasks, making advanced analytics available to all. And it’s blazing fast, so you will recognize massive productivity gains. Enhanced data compression allows you to stream new data in real time and provides nearly unlimited capability for unstructured data analysis. And because you’re loading directly into memory, transformation happens on the fly, and you can eliminate a time-consuming extract, transform, load (ETL) step that often delays reports.

SAP HANA as the foundation for enterprise data warehouse
SAP HANA combines online analytics processing (OLAP) and online transaction processing (OLTP) into a single in-memory database — eliminating bottlenecks for groundbreaking performance. With SAP HANA, transactional and analytical data can live in a single database. This means you have access to the data you need in real time — all the time. Plus, you can pull in data directly from sensors, social media and other sources into SAP HANA to glean additional insights. ETL processing that used to take hours or days can now be run quickly.
Are you facing these challenges?

Reporting and analytics take too long

SAP HANA in-memory technology is designed for speed. Dell EMC enables proven performance for SAP HANA. Accelerate performance across the data center to deliver insights in real time for the largest workloads running on fast, high-performance infrastructure. Faster transaction speeds and accelerated operations mean real-time responsiveness, quick results and increased productivity. Dell EMC solutions for SAP HANA offer up to 24 cores and 48 threads per processor — a 33 percent increase compared to the prior generation — and up to 60 MB last-level cache along with core improvements that deliver:

- Up to 1.3X average performance across key industry-standard workloads
- Use one-third the servers for equivalent performance to lower operational expenses by replacing 4–5 year-old installed platforms, savings include lower network and server maintenance costs by up to 92%, lower utilities costs by up to 73% and lower annual software licensing fees by up to 67.
- Industry benchmarks:
  - Business processing – SAP Sales and Distribution 2-Tier Big Data Analytics
  - SAP BW-AML @ 2 billion (2B) initial records – Advanced Query Navigation Steps/Hour
  - SAP BW-AML @ 4 billion (4B) initial records – Advanced Query Navigation Steps/Hour and Total Runtime Delta Load/Trans. Test

Designing and deploying the underlying infrastructure for SAP HANA is time consuming and complex

You don’t have to dedicate your own internal resources to a long project that may be out of your team’s comfort zone. Each component of your Dell EMC SAP HANA solution is pre-engineered to deliver performance, and carries an SAP certification. When ordered, the system is meticulously assembled, with each component — hardware and software — pre-installed by Dell EMC. The system is then delivered, ready to implement, with an on-site Dell EMC engineer available to install the system in your environment. Many can get to productivity in hours, not days. And your configuration is designed for growth, with modular scalability allowing system expansion without rip and replace.

We need a partner that really knows how to integrate SAP HANA with our existing landscapes and workflows

Dell EMC knows SAP, offering an extensive portfolio of SAP certified components — servers, storage, networking, engineered systems and services. Dell EMC’s portfolio of SAP solutions leverages industry best practices to deliver results for SAP clients. When you’re ready to implement your new solution, Dell EMC offers a suite of services that provide expert configuration, installation, documentation and guidance. Plus, Dell EMC founded a Global SAP Center of Excellence as a think tank for SAP innovations. All this hard work has paid off — Dell EMC was recognized by SAP with the coveted SAP HANA Innovation Award.
Dell EMC SAP HANA Ready Solutions

Dell EMC SAP HANA Edge Ready Nodes
The latest evolution in predictive analytics, streamlined for small- and medium-sized organizations
- Self-service reporting and real-time predictive analytics delivered in a simple, integrated appliance.
- Pre-integrated, Ready Node includes onsite implementation, training, data migration and business adoption seminars.
- Provides advanced analytics without the need for advanced data science training.

Dell EMC SAP HANA Edge Ready Nodes
The capabilities for real-time business analytics and applications in a single system
- Available in several sizes, tuned to use cases and needs
- Support for up to 2TB RAM for analytics and up to 4TB RAM when running as a transactional database for SAP Business Suite on HANA applications
- Easily increase power and performance without rip-and-replace system upgrades.

Dell EMC Ready Bundle for SAP HANA Scale Out
Modular growth using building blocks without disruption to existing systems
- Execute business analytics, performance management and operations in a single system that’s performance benchmarked and certified by SAP for predictable results.
- Optimized analytics solution includes a hardware appliance, preloaded software and a full range of services helping you get to productivity in hours.
- Modular scalability starts with high availability at 2TB RAM and grows in 1TB, 1.5TB or 2TB RAM to 32TB RAM without disruption.
- A full suite of services provides expert configuration, installation, migration, documentation, guidance and support.

Dell EMC Ready System for SAP HANA on VxBlock
The flexibility you need to accelerate implementations
- Support for various SAP versions running on many leading operating systems, as well as multiple types of databases
- Powered by market-leading innovations from Cisco®, Intel® and VMware®, VxBlock uses the most recent technologies for scale-up applications. These innovations let you scale to millions of IOPS and petabytes of data.
- Faster, simpler deployment cuts implementation costs by up to two-thirds.\(^9\)
- Pre-integrated and validated solutions — plus lifecycle management — mitigate risk and further streamline deployment, while simplifying overall operations.

SAP HANA Tailored Data Center Integration (TDI)
A custom approach to SAP HANA, built with certified components
- Choice and flexibility are at the heart of all TDI solutions. You can mix and match any certified server, storage or network components from any vendor, including Dell EMC.
- Design an SAP architecture strategy based on the principles of standardized technology stacks and operations practices, integrating with existing tools and processes.
- Upgrade easily when ready.
# Technical specifications

<table>
<thead>
<tr>
<th>Dell EMC SAP HANA Edge Ready Nodes</th>
<th>Dell EMC SAP HANA Ready Nodes</th>
<th>Dell EMC Ready Bundle for SAP HANA Scale Out</th>
<th>Dell EMC Ready System for SAP HANA on VxBlock Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-server appliance targeting SMBs</td>
<td>Single-server appliance</td>
<td>Includes servers, storage, networking and services</td>
<td>SAP HANA TDI on Engineered Infrastructure</td>
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<td><strong>Compute</strong></td>
<td><strong>Compute</strong></td>
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<tr>
<td>PowerEdge R730xd Server</td>
<td>PowerEdge R930 Server</td>
<td>- PowerEdge R930 Server</td>
<td>Cisco UCS B260 M4, B460 M4, C880 M4, Bullion S4/S8/S16</td>
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<tr>
<td><strong>CPU</strong></td>
<td><strong>CPU</strong></td>
<td><strong>CPU</strong></td>
<td><strong>CPU</strong></td>
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<tr>
<td>Intel Xeon E5-2698 v4</td>
<td>Intel Xeon E7-8880 or 8890 v4</td>
<td>- PowerEdge R930 Server: Intel Xeon E7-8880 or E890 v4</td>
<td>Intel Xeon E5/E7 family</td>
</tr>
<tr>
<td>- Up to 24 DIMMs supporting high-capacity DDR4 memory per PowerEdge R730 Server</td>
<td>- Up to 96 DIMMs supporting high-capacity DDR4 memory per PowerEdge R930 Server</td>
<td>- PowerEdge R930 Server: Up to 96 DIMMs supporting high-capacity DDR4 memory</td>
<td>Range of 128GB-16TB memory per server</td>
</tr>
<tr>
<td>- Range of 256-768GB memory with HANA Edge license for 32GB, 64GB, 96GB, 128GB</td>
<td>- Range of 128GB-2TB memory, up to 4TB for SAP Business Suite</td>
<td>- PowerEdge R630 Server: Up to 24 DIMMs supporting high-capacity DDR4 memory</td>
<td></td>
</tr>
<tr>
<td>- Choice of three compute node sizes: 1TB, 1.5TB or 2TB</td>
<td></td>
<td>- Choice of three compute node sizes: 1TB, 1.5TB or 2TB</td>
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<tr>
<td><strong>External storage</strong></td>
<td><strong>External storage</strong></td>
<td><strong>External storage</strong></td>
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<tr>
<td>NA – Single-node appliance model with internal storage</td>
<td>NA – Single-node appliance model with internal storage</td>
<td>- Storage SC4020 All-In-One Array 2U dual controller with 24 x 2.5&quot; internal drives</td>
<td>Dell EMC Unity Storage Systems</td>
</tr>
<tr>
<td>- Expansion enclosures with 2U 24 x 2.5&quot; drives</td>
<td></td>
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<td>Dell EMC VMAX Storage Systems</td>
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<td></td>
<td></td>
<td>- Redundant Networking S4048 10G TOR switches</td>
<td>Dell EMC VMAX All-Flash Storage Systems</td>
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<tr>
<td></td>
<td></td>
<td>- Redundant Brocade® 6510 Fibre switches</td>
<td>Dell EMC XtremIO All-Flash Storage Array</td>
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<td></td>
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<td>- Dell EMC VPLEX</td>
<td>Dell EMC VPLEX</td>
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<td><strong>Networks</strong></td>
<td><strong>Networks</strong></td>
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<tr>
<td>NA – Networking not part of the appliance</td>
<td>NA – Networking not part of the appliance</td>
<td>- Networking S3048-ON 1G switch</td>
<td>Cisco Nexus 5500UP/9300PX switches</td>
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<tr>
<td>- Redundant Networking S4048 10G TOR switches</td>
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<td></td>
<td>Cisco MDS 9000 Multilayer switches</td>
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<tr>
<td></td>
<td></td>
<td>- Redundant Brocade® 6510 Fibre switches</td>
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<tr>
<td><strong>System software</strong></td>
<td><strong>System software</strong></td>
<td><strong>System software</strong></td>
<td><strong>System software</strong></td>
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<tr>
<td>- Included SAP HANA Edge Edition; Linux</td>
<td>- RHEL or SLES</td>
<td>- Red Hat® Enterprise Linux® (RHEL) or SUSE® Linux Enterprise Server (SLES)</td>
<td>Dell EMC Vision Intelligent Operations software</td>
</tr>
<tr>
<td>- SAP Predictive Suite</td>
<td>- SAP HANA</td>
<td>- SAP HANA</td>
<td>VMware vSphere (optional)</td>
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<tr>
<td>- SAP Lumira advanced visualization software</td>
<td>- VMware (optional)</td>
<td>- Integrated Dell Remote Access Controller (iDRAC)</td>
<td>Red Hat® Enterprise Linux® (RHEL) or SUSE® Linux Enterprise Server (SLES)</td>
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<tr>
<td>- iDRAC</td>
<td>- OpenManage</td>
<td>- iDRAC</td>
<td>SAP HANA</td>
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<tr>
<td>- Lifecycle controller</td>
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</tbody>
</table>
Dell EMC SAP HANA TDI Certified components

<table>
<thead>
<tr>
<th>Servers</th>
<th>Storage</th>
<th>Engineered systems</th>
<th>Data protection and availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dell EMC PowerEdge</td>
<td>Dell EMC Compellant Storage</td>
<td>Dell EMC VxBlock Systems</td>
<td>Dell EMC NetWorker backup and</td>
</tr>
<tr>
<td>Servers:</td>
<td>Arrays:</td>
<td></td>
<td>recovery software v9.0/9.1</td>
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<tr>
<td>• R630</td>
<td>• SC4020</td>
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<td>Dell EMC Data Domain</td>
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<td>• R730</td>
<td>• SC7020</td>
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<td>Boost for Databases and</td>
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<td>• R730xd</td>
<td>• SC8000</td>
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<td>Applications 1.0/3.5</td>
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<tr>
<td>• R930</td>
<td>• SC9000</td>
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<td>• FC630</td>
<td>Dell EMC VPLEX:</td>
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<td>• T630</td>
<td>• Local</td>
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<td>• M630</td>
<td>• Metro</td>
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<tr>
<td>• Cisco® UCS B260 M4, B460 M4, C880 M4, Bull® bullion S4/S8/S16</td>
<td>Dell EMC Unity Storage Arrays:</td>
<td></td>
<td></td>
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<tr>
<td>• Bull® bullion S4/S8/S16</td>
<td>• 300/300F</td>
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<tr>
<td>View the complete list of SAP Certified Dell EMC servers and specs</td>
<td>• 400/400F</td>
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<td>• 500/500F</td>
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<td>Dell EMC VMAX Storage Systems:</td>
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<td>• All Flash 450</td>
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<td>• All Flash 850</td>
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<td></td>
<td>Dell EMC XtremIO All-flash Storage Arrays</td>
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Why Dell EMC?

The combination of Dell and EMC brings together two industry-leading companies with strong reputations for value and innovation. Dell EMC holds leadership positions in some of the biggest and largest growth categories in the IT infrastructure business, and that means you can confidently source all your IT needs from one provider — Dell EMC.

- #1 converged infrastructure
- #1 in traditional and all-flash storage
- #1 virtualized data center infrastructure
- #1 cloud IT infrastructure
- #1 server virtualization and cloud systems management software (VMware)
- #1 in data protection
- #1 in software-defined storage
Services and financing

Dell EMC Professional Services
Solutions customized for your needs
Dell EMC offers SAP HANA services to assist with implementation:

- **SAP HANA Workshop:** Helps to develop the use case and business justification for an SAP HANA solution, and helps you determine whether SAP HANA is a fit for your environment.
- **SAP Data Migration Assessment and Implementation:** Migration Services for SAP applications that feature cloud computing, real-time analytics and mobile applications. These enabling technologies can provide flexible computing infrastructure, competitive knowledge through improved analytics and secure mobile computing frameworks.
- **SAP HANA Accelerator:** Accelerates the integration, adoption and utilization of Dell EMC SAP HANA solutions.
- **SAP HANA Proof of Concept:** Using Dell EMC methodology and the “IMPROVE” jumpstart process, you can quickly see the value that SAP HANA brings to decision-making.
- **SAP HANA Data Health Check:** A systems health check of the SAP HANA implementation.

Support is always on for you
Dell EMC Ready Nodes and Ready Bundle for SAP HANA come with three years of award-winning Dell EMC ProSupport services and a three-year extended hardware warranty. You’ll get 24x7 phone support, escalation management and collaborative software support leveraging Dell EMC’s global ProSupport infrastructure of over 30,000 technicians supporting more than 100 countries in 55 languages. Dell EMC’s ProSupport Mission Critical services accelerate rapid resolution by providing quick delivery of on-site parts and/or labor and providing access to Dell EMC’s proven and reliable Critical Situation Process.

Deployment assistance when you need it
You can trust Dell EMC to deploy the racked configuration in your data center, including network cabling, operating system, firmware and hypervisor with Dell EMC Deployment Services.

Dell EMC Financial Services
- Full-service leasing and financing solutions are located throughout the US, Canada and Europe.
- Dell EMC Financial Services can finance the total technology solution.
- Efficient electronic quoting and online contracts offer the best customer experience.

Learn more about Dell EMC Financial Services.

Your SAP HANA future starts now
Don’t wait to experience the blazing performance of SAP HANA on Dell EMC. Contact your Dell EMC or authorized channel partner sales representative to find out more.
Solution overview

Notes

1) Up to 1.3X average performance across key industry benchmarks (SPEC/jbb 2015 Multi-JVM Critical and Max jOPS, SPECint_rate_base2006, SAP SD 2-tier, SPECint_sc 2013 and TPC-E) comparing best 4-socket OEM server publications on SPEC.org, SAP.com/benchmarks and TPC.org. See www.intel.com/E7v4Record for more information.

2) Up to one-third fewer servers deployed with operational expenses reduction claim based on assumptions and estimates from the Server Refresh Savings Estimator — comparing 4-socket servers with 4x GbE ports per server, $1399 software support cost per server per year, $1000 software validation cost per server, $0.10/kWh with 10% average utilization, 50% lower labor costs, $2399 maintenance server per year per year and $15/5 network maintenance per server per year:

- 10x Intel® Xeon® Processor E7-4890 v4 (30M Cache, 2.40 GHz, formerly codenamed, “Westmere-EX”), estimated SPECint_rate_base2006 score 1100 with Intel Compiler 12.1, estimated power 330W idle/692W active
- to 33x E7-8890 v4 (60M Cache, 2.20 GHz, code-named “Broadwell-EX”), estimated SPECint_rate_base2006 score 3380 with Intel Compiler 14, estimated power 250W idle/1200W active


5) SAP News Center, “Announcing the Winners of the 10th Annual SAP HANA Innovation Award,” May 2016.


10) IDC WW Quarterly IT Infrastructure Tracker, Q1 June 2016, Vendor Revenue — EMC FY 2015.


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