ORACLE
DATABASE APPLIANCE

Oracle Database Appliance
X6-2S / X6-2M

ORACLE ENGINEERED SYSTEMS NOW WITHIN REACH FOR EVERY ORGANIZATION

ORACLE

Introduction

The Oracle Database Appliance, introduced in 2011, is an Oracle Engineered System that is simple, optimized, and affordable. Through four generations of the Oracle Database Appliance, it has been enormously popular for customers deploying Oracle Database Enterprise Edition in a variety of production scenarios, especially where high availability using Oracle Real Application Clusters was required.

In June of 2016, Oracle announced an expansion of the Oracle Database Appliance family to include several new models, the **Oracle Database Appliance X6-2S** and the **Oracle Database Appliance X6-2M**. With an entry list price starting at a fourth of the cost of the prior generation Oracle Database Appliance hardware and flexible Oracle Database software licensing, these new models bring **Oracle Engineered Systems to within reach of every organization.**

The Oracle Database Appliance X6-2S and the Oracle Database Appliance X6-2M expand the reach of the database appliance family to support various workloads, deployment scenarios, and database editions. They are especially designed for customers requiring only single instance databases, but who desire the simplicity, optimization, and affordability of the Oracle Database Appliance. These new models are ideal for customers who seek to avoid the complexity, tuning requirements, and higher costs of “build-your-own” database solutions. Customers can now take advantage of Oracle Engineered Systems that meet their budget and deployment requirements while realizing the benefits of an optimized database solution with built-in Oracle best practices and single vendor support.

Oracle Database Appliance – A History of Proven Success

Organizations of all sizes and types find it difficult, time consuming, and risky to deploy robust database environments. Oracle has addressed this by developing the Oracle Database Appliance, a simple, optimized, and affordable converged system with integrated compute, storage, networking, and software. The Oracle Database Appliance allows customers to quickly install and patch an Oracle Database environment. Since its launch in the fall of 2011, the Oracle Database Appliance has been popular for a variety of use cases, including deployment as a centralized or branch office database server, as test and development environments, and as all-in-one ISV solutions containing both the application and database.

Over the years, each successive generation of the database appliance has become more powerful, offering more memory, higher core counts, and greater storage capacity. These increases in power and capacity have now opened up the opportunity for lower cost database appliances.

Introducing Oracle Database Appliance X6-2S and X6-2M – Oracle Engineered Systems now within Reach for Every Organization

The Oracle Database Appliance X6-2S and X6-2M are fifth generation Oracle Database Appliance systems consisting of hardware and software that save customers time and money by simplifying deployment, maintenance, and support. Now, the Oracle Database Appliance is also optimized for single instance Oracle Database deployments. Built using the world's most popular database, Oracle Database, it offers customers a fully integrated system of software, servers, storage and networking that delivers optimized database services for a wide range of custom and packaged OLTP, small Data Warehousing, and In-Memory Database workloads. To further reduce the entry price of engineered systems, these new appliances also support Oracle Database Standard Edition 2. With the introduction of multiple models and support for Oracle Database Standard Edition 2, engineered systems are now in reach for every organization.

Simple to Implement, Manage, and Support

Simple to Implement

The hallmarks of the Oracle Database Appliances X6-2S and X6-2M are their simplicity. Each is a complete system consisting of compute, storage, networking, and software — all engineered to work together. To deploy and use the Oracle Database Appliance X6-2S or X6-2M, simply unpack it, plug in the power cords, plug in the network cables, and run the Oracle Appliance Manager installation to provision a highly optimized database system. The Oracle Database Appliance accelerates time-to-value - a single database administrator (DBA) can deploy a highly optimized Oracle database with the Oracle Database Appliance X6-2S or X6-2M in about an hour.

Simple to Manage and Support

Maintaining systems and keeping all the associated software elements current with the latest patches is often one of the most time consuming and error-prone tasks confronting administrators. The Oracle Database Appliance X6-2S and X6-2M and their specially engineered software streamlines patching for all the elements of the software stack - firmware, operating system, storage management, and database software through appliance patch bundles, a unique feature of the Oracle Database Appliance. It also eliminates the guesswork of mixing and matching patches for various elements of the stack. This reduces human error and ultimately results in less planned downtime and higher system reliability due to the fully tested patch bundles that can be quickly and safely applied.

The appliance simplifies storage management by automatically detecting performance and availability issues and performing corrective actions. In addition, the Auto Service Request (phone home) feature will generate support requests for replacement hardware components such as power supplies, fans, etc. if they fail.

When a problem occurs with a "build-your-own" system, DBAs spend a lot of time initially trying to discern the source of the problem to determine which vendor to call first. With the Oracle Database Appliance X6-2S and X6-2M, troubleshooting is much faster and simpler because all the elements, software and hardware, are supported by Oracle. Rather than requiring a DBA or System Administrator to manually search for and compile all the logs and system history when issuing a support request, the Appliance Manager automatically collects and compiles the relevant logs and history, allowing issues to be processed, analyzed, and fixed much more quickly.

An Optimized, Engineered Database Solution

The Oracle Database Appliance is engineered together at both the hardware and software levels to work in a holistic fashion as a platform optimized to run the Oracle Database. The Oracle Database Appliance X6-2S and X6-2M incorporate NVM Express (NVMe) flash storage to increase database performance and system reliability. The number of processor cores, amount of main memory, and NVM Express (NVMe) storage capacity in each fully integrated system is balanced to provide optimal database performance for a wide range of enterprise application workloads. The Oracle Database is also configured according to Oracle best practices and database-sizing templates ensure that the system resources are optimized for the database.

TABLE 1. ORACLE DATABASE APPLIANCE X6-2S AND X6-2M HARDWARE SUMMARY

	Oracle Database Appliance X6-2S	Oracle Database Appliance X6-2M
Size	One rack unit server	One rack unit server
Processor	One 10-core Intel Xeon E5-2630 v4	Two 10-core Intel Xeon E5-2630 v4
Memory	128 GB expandable to 384 GB	256 GB expandable up to 768 GB
Networking	2x 10GbE SFP+ (fiber) and 2x 10GBase-T (copper) ports	2x 10GbE SFP+ (fiber) and 4x 10GBase-T (copper) ports
Storage	6.4 TB high performance NVMe flash storage (up to 2.8 TB usable – double mirrored)	6.4 TB high performance NVMe flash storage (up to 2.8 TB usable – double mirrored
Storage Management	Oracle Auto Storage Management (ASM)	Oracle Auto Storage Management (ASM)
Database	SE2 or EE	SE2 or EE

Server

As shown in Table 1 – Oracle Database Appliance X6-2S and X6-2M Hardware Summary, the Oracle Database Appliance X6-2S is a one rack unit (RU) server that contains one 10-core Intel Xeon E5-2630 v4 processor, providing up to 10 enabled-on-demand processor cores and 128 GB of memory (expandable to 384 GB) per appliance. The Oracle Database Appliance X6-2M is also a one rack unit (RU) server that contains two 10-core Intel Xeon E5-2630 v4 processors, providing up to 20 enabled-on-demand processor cores and 256 GB of memory (expandable up to 768 GB) per appliance.

Networking

The Oracle Database Appliance X6-2S and X6-2M provide both 10GbE SFP+ (fiber) or 10GBase-T (copper) external networking connectivity, ensuring the appliance will be compatible with any data center.

Storage

The Oracle Database Appliance X6-2S and X6-2M base configuration includes 6.4 TB of high performance NVMe flash storage that is double-mirrored offering 2.8 TB of resilient, usable database storage.

Each appliance also supports optional storage expansion that doubles the storage capacity of the system. With the additional storage, the appliance contains 12.8 TB of raw storage, or 5.6 TB of resilient, mirrored, usable database storage. To expand storage outside of the appliance, external NFS storage is supported for online backups, data staging, or extra database files.

The Appliance Manager in conjunction with Oracle Auto Storage Management (ASM) automatically configures, manages, and monitors storage performance and availability.

Software

As shown in Table 2, the Oracle Database Appliance X6-2S and X6-2M support the following database and operating system software:

TABLE 2. DATABASE AND OS SOFTWARE FOR ORACLE DATABASE APPLIANCE X6-2S AND X6-2M

Oracle Operating System and Appliance Manager Software
• Oracle Linux – Pre-installed • Oracle Appliance Manager – Pre-installed • Oracle Auto Service Request (ASR)
Database Software (installed using the Appliance Manager)

• Choice of Oracle Database Software (single instance only):
  ○ Oracle Database 12c Standard Edition 2
  ○ Oracle Database 12c Enterprise Edition
  ○ Oracle Database 11g Enterprise Edition Release 2
• Oracle Auto Storage Management (ASM)
• Oracle ASM Cluster File System (ACFS)

The Oracle Appliance Manager User Interface

One of the big changes occurring with the Oracle Database Appliance X6-2S and X6-2M models is the introduction of a new user interface for the Appliance Manager software. This tool now offers both a command line interface and a graphical user interface for managing the Oracle Database Appliance. The graphical user interface is web-based, and easily accessible from any browser. The management toolset offers a complete management solution for the appliance, integrated with Enterprise Manager, and able to link to the cloud with a single-click.

Affordable – The Oracle Database Appliance Cost Advantage

The fifth generation of Oracle Database Appliances offers customers a low entry cost engineered system. Right-sized affordable hardware combined with Oracle Database software licensing flexibility provides capital expenditure savings. The appliance continues to offer low operational costs throughout the life of the machine, through a dramatic reduction in time spent on hardware and software maintenance, a direct result of the efficiencies and increased automation provided by the Oracle Appliance Manager.

Flexible Oracle Database Software Licensing

The Oracle Database Appliance X6-2S and X6-2M support both Oracle Database Enterprise Edition and Standard Edition 2. Enterprise deployments that require the enhanced feature set of Oracle Database Enterprise Edition can take advantage of a unique capacity-on-demand database software licensing model to quickly scale utilized processor cores without any hardware upgrades. Customers can deploy the system and license as few as 2 processor cores in the appliance, and incrementally scale up to the maximum physical processor cores in each system. This enables customers to deliver the performance and reliability that enterprise business users demand, and align software spending with business growth.

Small enterprises, line-of-business departments, and branch office deployments that don't require enterprise class features can license Oracle Database Standard Edition 2, allowing them to realize the benefits of the Oracle Database Appliance to reduce costs and improve productivity.

Capital and Operating Expenditure Savings

In addition to offering right-sized affordable hardware and flexible Oracle Database software licensing, the Oracle Database Appliance X6-2S and X6-2M have much lower cost of ownership than a "build-your-own" system. Customers, save time they would ordinarily spend researching compatible components, creating and processing multiple orders across multiple vendors, waiting for all the various elements to arrive, and then assembling and validating the "build-your-own" system. More importantly, a "build-your-own" system will not have the Oracle Appliance Manager. The Appliance Manager is a comprehensive, easy-to-use utility that makes deployment, patching, and support of the Oracle Database Appliance easy, quick, and intuitive. It provides intelligent storage management features that monitor the health of the storage and quickly resolve any issues that may affect performance and availability.

Savings can be realized in all three stages of the system's lifecycle: from initial deployment, on-going maintenance, and resolving support issues. Table 3 highlights the difference in tasks required for a "build-your-own" system versus the tasks required for the Oracle Database Appliance X6-2S and X6-2M.

TABLE 3. COMPARATIVE SAVINGS WITH ORACLE DATABASE APPLIANCE X6-2S AND X6-2M

Lifecycle stage	"Build-your-own"	Oracle Database Appliance X6-2S and X6-2M
Initial Deployment	• Sizing • Create orders with multiple vendors with different business terms • Research best practices • Assemble • Install, patch, and configure • Test unique configuration Resolve issues	• Order Oracle Database Appliance • Unpack, plug-in • Run Oracle Appliance Manager
Maintenance	• Research patch dependencies • Download individual patches for firmware, operating system, database • Test unique configuration	• Download Patch Bundle for Oracle Database Appliance • Run Oracle Appliance Manager

Support	• Troubleshoot configuration with support • Locate log files • File SRs with one or more system component vendors • Wait	• Run Oracle Appliance Manager • Configure Auto Service Request (ASR)

Common Use Cases

The Oracle Database Appliance X6-2S and X6-2M both support a variety of common use cases including:

» Simple, Optimized, Affordable Database System
» Database Platform for Growing Deployments
» Consolidation Platform for Database
» Remote Branch Office Deployments
» Rapid Provisioning of Test and Development Environments

Simple, Optimized, Affordable Database System

The Oracle Database Appliance X6-2S and X6-2M will appeal to customers looking for an affordable, optimized database system that is easy to implement and maintain. Deploying highly optimized database systems can be challenging and time consuming, often requiring experienced systems, database, and storage administration skills.

With the Oracle Database Appliance X6-2S and X6-2M, a single DBA can deploy a highly optimized database system in about one hour. Small and midsize organizations can now quickly and easily deploy Oracle Engineered Systems.

> "Oracle Database Appliances are amazing. You reduce your complexity, you have an entire environment that's set up in the appliance and you're done in a very short amount of time. Traditional storage capabilities just don't allow for that."
> **Jacqueline Hufford-Jensen Sr. Manager, Database Administration, Lifelock**

Database Platform for Growing Environments

New projects about to be put into production can take several years to ramp up to the expected workload levels. Often times, the "expected workload levels" are just a guess – the real workload ramp up can vary considerably from the initial forecast or plan. Hence, IT organizations are leery of purchasing and deploying excess capacity up front prior to the point at which it is actually needed. With the affordability of the Oracle Database Appliance X6-2S and X6-2M hardware, customers can now deploy the fully provisioned system and grow into the software capacity they need over time by activating only the cores they need when they need them. And, optional memory and storage expansion allows customers the flexibility to add that additional capacity as needed.

Consolidation Platform for Database

Many IT shops are pursuing database consolidation by taking the databases running on standalone systems and co-locating them on an optimized database system. The Oracle Database Appliance is a great low-cost solution suited for consolidation efforts. By hosting multiple databases on a single appliance, significant operational efficiencies in terms of backups, system patching, and upgrades can be achieved. Administrators save time and money by managing a single solution, rather than a multitude of separate servers, operating systems and databases.

Remote Branch Office Deployments

Many organizations have a need to deploy solutions for remote branch office locations where IT environments may reside in little more than closets. The Oracle Database Appliance X6-2S and X6-2M with Oracle Database Standard Edition 2 and their associated applications can host a complete solution in a single appliance. Customers can configure the entire solution and quickly deploy it in a remote location, reducing or possibly eliminating the cost of on-site administrators. Similarly, maintenance and support can be easily performed remotely using the Appliance Manager and the Integrated Lights Out Manager (ILOM) tools built into every Oracle Database Appliance X6-2S and X6-2M.

Rapid Provisioning of Test and Development Environments

Developers require access to database environments for development and testing. Given that the Oracle Database Appliance X6-2S and X6-2M can be quickly procured and provisioned, administrators can quickly and reliably provide developers with complete Oracle database test and development environments that improve productivity and efficiency.

Integrated with the Oracle Public Cloud

As with all Oracle Database Appliance offerings, there is strong integration with the Oracle Public Cloud, especially with the Oracle Database Cloud Service, the Oracle Backup Cloud Service and the Oracle Archive Cloud Service.

For example, customers running the Oracle Multitenant database option on the Oracle Database Appliance can easily and seamlessly migrate a database from their on-premise appliance to the Oracle Database Cloud Service by simply unplugging the Pluggable Database (PDB) and then plugging it into a Container Database running in the Oracle Cloud.

Also, customers can easily backup their on-premise Oracle Database Appliance databases to the Oracle Backup Cloud Service without having to change any applications, acquire any special training or expertise, or create any detailed backup job scripts.

With the Oracle Archive Cloud Service, the Oracle Database Appliance's integration with the Oracle Public Cloud provides off-site data protection without the need to set up or manage a separate facility to achieve this level of protection.

Most importantly, the Oracle Database Appliance and the Oracle Public Cloud run the same software, use the same tools, and require the same skills, making it easy for customers to migrate from on-premises to the cloud and even back again if necessary.

Conclusion

For customers seeking a simple, optimized, and affordable database solution, the Oracle Database Appliance X6-2S and X6-2M are the ideal choice. The Oracle Database Appliance X6-2S and X6-2M now offer the benefits customers have come to value from the Oracle Database Appliance in new models that make them suitable for a variety of deployment scenarios, use cases, and price points within reach of every organization.

To learn more about the Oracle Database Appliance X6-2S and X6-2M, visit:

www.oracle.com/goto/databaseappliance

Oracle Corporation, World Headquarters
500 Oracle Parkway
Redwood Shores, CA 94065, USA

Worldwide Inquiries
Phone: +1.650.506.7000
Fax: +1.650.506.7200

CONNECT WITH US

blogs.oracle.com/oracle
facebook.com/oracle
twitter.com/oracle
oracle.com

Hardware and Software, Engineered to Work Together

Oracle Database Appliance X6-2S / Oracle Database Appliance X6-2M
June 2016