

Qlik® Scalability Center Recommended Servers

Introduction

The Qlik Scalability Center performs and collates benchmarking tests that compare different hardware configurations, Qlik product versions and uses of the Qlik products. The test results are used to determine which combinations perform well and which do not. In this context, “perform well” means a server that delivers good throughput and short response times in relation to other servers of similar size within the tested environment.

While the Scalability Center cannot make specific recommendations, or endorse particular server solutions, we can provide processor, memory, and architecture information that makes the choice of hardware easier.

Considerations when selecting server hardware

One of the most common questions posed to the Scalability Center is “Which server(s) should I buy?” This is a difficult question to answer as it depends on many variables in the data processing environment.

Processors

In general, Intel processors and their corresponding chipsets provide the best performance for the Qlik products.

To compare processors, it is recommended to use the theoretical calculation capacity: the number of cores multiplied with the base clock speed. This gives the theoretical amount of calculations that a processor can do every second. Processors with higher theoretical calculation capacity generally perform better than processors with lower theoretical calculation capacity.

It is also important to find a good balance between the core count and the clock speed:

- Even though the Qlik Associative Engine is very good at multi-threading and uses all cores available to it, some procedures are still single-threaded and run faster when the base clock speed of the CPU is higher.
- While a four-socket server may have twice the theoretical calculation capacity of a two-socket server, the architecture of a four-socket server slows down the operation as only one fourth of the RAM is directly attached to the CPU performing the calculation.
- At the point where a two-socket server becomes saturated, a four-socket server starts to outperform it.

Top performing processors

The following table contains a list of top performing processors that have been tested on specific servers with a set of predefined benchmarking tests for QlikView® and Qlik Sense®.

The list can be used as a preliminary guide for Qlik pre-sales and consulting services personnel, **but actual server selection for any given customer must be based on recommendations provided by trained Qlik professionals. The list is for informational purposes only and should not be considered as a recommendation or endorsement of any particular hardware or system, or otherwise be solely relied upon for the selection of any server or processor to use with the Qlik products.**

Family	Processors	CPU sockets	Servers used for validation Note: Similarly configured servers from other leading manufacturers are expected to provide the same level of performance.	Recommendations
Intel Xeon Scalable Processors (*)	<ul style="list-style-type: none"> Silver Gold 51xx Gold 61xx Platinum 	2	<ul style="list-style-type: none"> Dell PowerEdge R640 (2 x Silver 4116) Dell PowerEdge R640 (2 x Gold 6126) Dell PowerEdge R640 (2 x Gold 6140) Dell PowerEdge R640 (2 x Gold 6146) HPE ProLiant DL580 Gen10 Beta (2 x Platinum 8170) 	The Silver, Gold 51xx and Gold 61xx series can all be used in two-socket configurations. Platinum 8160 and above can be used in two-socket configurations.
Intel Xeon E7 v4	<ul style="list-style-type: none"> E7-8867 v4 E7-8890 v4 E7-8891 v4 	4	<ul style="list-style-type: none"> Dell PowerEdge R930 (4 x E7-8867v4) Dell PowerEdge R930 (4 x E7-8890v4) Dell PowerEdge R930 (4 x E7-8891v4) 	
Intel Xeon E5 v4	<ul style="list-style-type: none"> E5-2640 v4 E5-2687W v4 E5-2697A v4 E5-2699 v4 	2	<ul style="list-style-type: none"> Dell PowerEdge R430 (2 x E5-2640 v4) Dell PowerEdge R630 (2 x E5-2687W v4) Dell PowerEdge R630 (2 x E5-2697A v4) Dell PowerEdge R630 (2 x E5-2699 v4) 	
Intel Xeon E7 v3	<ul style="list-style-type: none"> E7-8880 v3 E7-8891 v3 	4	<ul style="list-style-type: none"> Dell PowerEdge R930 (4 x E7-8880v3) Dell PowerEdge R930 (4 x E7-8891v3) 	
Intel Xeon E5 v3	<ul style="list-style-type: none"> E5-2690 v3 E5-2697 v3 E5-2699 v3 E5-2687W v3 	2	<ul style="list-style-type: none"> Huawei RH2288HV3 (2 x E5-2690 v3) HP ProLiant DL380 Gen9 (2 x E5-2697 v3) Dell PowerEdge R630 (2 x E5-2699 v3) Dell PowerEdge R630 (2 x E5-2687W v3) 	

(*) The CPUs are referred to by a 4-digit product number together with an optional suffix. The suffix of interest from a Qlik products perspective is "M", which designates processors where the memory capacity per socket is 1.5TB instead of the standard 768GB.

Note that the list does not address the question whether a specific configuration is sufficient for a certain deployment. Which or how many servers are needed for a certain deployment involves many dependencies (for example, number of users, usage pattern, application design and performance expectations) that are not covered by the general benchmarking tests, but choosing a processor from the list is a good starting point when it comes to determining which server will best suit your needs.

Memory

Larger amounts of RAM allow for more cached result sets and typically better performance.

The supported memory configurations for best performance (including which RAM configurations can be deployed whilst keeping the bus speed as high as possible) should be confirmed with the manufacturer.

The Qlik Associative Engine allocates memory uniformly over all available RAM, which means that it is important to always have the amount of memory per CPU socket evenly distributed.

Architecture

Since the Qlik products are good at using memory as well as processing capacity from all CPUs, it is important that the chipset architecture allows for fast communication between the CPU sockets:

- Chipset architectures that allow for direct connections between all available CPU sockets via QPI/UPI links are preferred.
- Neither current eight-socket solutions nor Intel processors with only two QPI/UPI links in four-socket configurations are optimal.

Settings

Server BIOS and Windows settings can have a significant impact on the performance. See community.qlik.com/docs/DOC-2362 for more information on the recommended settings.

About the benchmarking tests

The benchmarking tests consist of a set of predefined applications and virtual user simulation scripts.

- QlikView 11: The Hardware Benchmarking Package, see community.qlik.com/docs/DOC-2942
- QlikView 12: The Hardware Benchmarking Package, see community.qlik.com/docs/DOC-19081
- Qlik Sense: The Scalability Tools, see community.qlik.com/docs/DOC-8878

The benchmarking tests are publicly available and partners and customers are encouraged to test their servers and send the results to the Scalability Center for review. If the test results are satisfactory, the tested server configuration is added to the list of tested servers.