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Why Buy Compaq Memory?

***Abstract:** Why buy Compaq memory? The answer is that Compaq is best able to certify the quality and compatibility of memory. This white paper outlines the reasons to buy memory through Compaq rather than other resellers, and gives an example of the risks that can be involved when not using Compaq memory. This paper is intended for customers, vendors, VARs, and Compaq Field Systems Engineers.*

Because data protection and high availability have become increasingly important, customers are demanding the most reliable servers to deliver solid, uninterrupted performance. Continuous development and enhancement of high performance software applications and operating systems is driving the need for additional memory.

But before customers decide to invest in upgrading memory, they should ask these questions to their memory provider to avoid risks that can cause memory failure:

- What kind of certification does the supplier's memory offer?
- What impact would the memory have on the system warranty?
- What are the price and the value of the memory?
- Who supplies the memory?

Compaq memory customers can be assured that all of their memory needs will be met, the above issues will be addressed, and they will have memory manufactured to the highest quality standards and subjected to the most rigorous testing procedures. **Simply put, only Compaq has the facilities and the procedures to test, verify, and certify memory to Compaq standards.**

Notice

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The limited warranties for Compaq products are exclusively set forth in the documentation accompanying such products. Nothing herein should be construed as constituting a further or additional warranty.

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Why Customers Should Not Risk Using Memory Other Than Compaq

When a major corporation was performing a memory upgrade on their Compaq ProLiant servers, they directed their reseller to purchase the least expensive memory kits in order to support their upgrade requirements.¹ They ended up with 2000 DIMMS that included counterfeit kits and refurbished products that didn't work in their systems. The result? They experienced DIMM failures in the system resulting in company downtime and costing hundreds of thousands of dollars in business revenues.

Memory chip failures can cause server system crashes that can result in the permanent loss of business data. In 1998, the Standish Group published that the average cost of a minute of downtime for a mission-critical application was \$10,000.² With memory failure contributing to costly downtime, customers are demanding higher levels of fault tolerance. Compaq emphasizes the importance of using high quality memory and using ONLY Compaq memory for Compaq products.

How Memory Is Produced and Sold

The memory industry is divided into 3 main groups: DRAM manufacturers, Memory Module (DIMM) Manufacturers, and Resellers.

1. **DRAM Manufacturers** – There are only a handful of companies in this industry due to the billions of dollars invested in state-of-the-art fabrication facilities.
2. **Memory Module (DIMM) Manufacturers** – There are many memory module manufacturers that take DRAM and turn it into DIMMs or memory modules. This group includes the DRAM manufacturer's own DIMM manufacturing facilities.
3. **Resellers** – This business consists of two groups: OEMs like Compaq that buy modules from qualified suppliers to be tested and then sold as OEM-branded memory both in servers and in option kits, and distributors whose business it is to simply collect and re-sell memory modules.

Essentially, DRAM manufacturers sell DRAM to their own module manufacturing facilities and to other module manufacturers. These module manufacturers then sell the modules to OEMs for use in servers and option kits or to distributors who re-sell them. Often the modules sold to distributors are re-sold several times before finally making it to a customer.

¹ This example is based on a composite of actual events

² TCO in the Trenches, Softwaremag.com, Dec. 1999

What Key Features Customers Should Consider Before Buying Memory

No matter what supplier customers choose, they should consider the following features before buying memory:

- **Qualification of Memory Module Supplier**
- **Testing of Memory**
- **Impact of Memory on System Warranty**
- **Price and Value of Memory**
- **Single Supplier Convenience**

1. Compaq Qualification Procedures – Prior to purchasing memory modules from a DIMM manufacturer, Compaq qualifies that supplier's module design and manufacturing processes. This qualification procedure involves three key parts:

- Testing modules provided by that supplier on every model of Compaq server currently shipping (not just each chipset as other resellers do to save money).
- Ensuring that a sophisticated, rigorous suite of tests has been instituted by the supplier in the manufacturing process to insure continuous quality of the modules. (Due to the cost of conducting these tests, they are usually conducted only on those modules being sold to Compaq, not on all modules produced by that supplier).
- Re-qualifying every module manufacturer each time Compaq offers a new processor speed or a new platform.

The result is a continuous process of module manufacturer qualification and re-qualification with the suite of production quality tests being continuously improved.

2. Compaq Testing Procedures – In addition to the rigorous testing that manufacturers are required to conduct by Compaq's qualification procedures, Compaq performs further testing of memory modules:

- Every single module that is placed in a server for shipment goes through run-in testing. That module is tested in a Compaq server of the model in which it will be installed.
- A Product Integrity Audit (PIA) is conducted on all memory modules going into option kits. This PIA consists of testing a statistically accurate sampling of modules in all Compaq systems using both standard and maximum memory configurations on those systems.

Thus, Compaq ensures that every module branded a Compaq memory module has passed an extensive series of tests to ensure its quality and reliability to work with all Compaq servers. No other re-seller has the resources to conduct such extensive testing on Compaq equipment.

3. Impact of Memory on System Warranty – Compaq's superior testing and certification procedures allow Compaq to offer a three-year pre-failure warranty on Compaq memory, drives, and processors.³ Compaq's warranty does not cover service or parts damage resulting

³ Certain conditions exist. Compaq Insight Manager must be used for Pre-Failure Warranty. Call 1-800-OK COMPAQ for more information.

- from the use of non-Compaq brand memory. Only Compaq-brand memory has been extensively tested and certified for use in Compaq servers.
4. **Price and Value** – Although Compaq memory is thought of as being more expensive than other memory modules, price is relative to the value of the product. Avoiding system downtime or data loss caused by memory failure and the financial impact such situations cause far outweighs the momentary benefit of paying less for the initial purchase of memory.
 5. **Single Supplier Convenience** – Compaq offers everything customers need for Compaq systems and verifies that all of these components work together, ensuring the quality of all of its products from beginning to end.

Summary

So why buy Compaq memory?

So that you know you have the highest quality memory made, the reassurance that your memory is qualified and rigorously tested to work on your servers, the peace of mind a Compaq warranty can give you, and so you can avoid situations such as the one the corporation mentioned earlier experienced. In fact, the company that chose to use memory other than Compaq-branded memory quickly re-directed their reseller to purchase Compaq memory and downtime was cut short. This corporation now has the assurance that they have the highest quality memory for their Compaq servers.

Only Compaq has the facilities and the procedures to test, verify, and certify memory to Compaq standards. **And that's why you should buy Compaq memory.**

Appendix A

Compaq vs. Other Resellers Chart

	Compaq Memory	Other Memory Resellers
Qualification Procedures	<p>Compaq Qualification Procedures – Prior to purchasing memory modules from a DIMM manufacturer, Compaq qualifies that manufacturer’s module design and manufacturing processes. This qualification procedure involves three key parts:</p> <ul style="list-style-type: none"> • Testing modules provided by that supplier on every model of Compaq server currently shipping. • Ensuring that a sophisticated, rigorous suite of tests has been instituted by the supplier in the manufacturing process to insure continuous quality of the modules. (Due to the cost of conducting these tests, they are usually conducted only on those modules being sold to Compaq, not on all modules produced by that supplier). • Re-qualifying every module manufacturer each time a Compaq server offers a new processor speed or a new platform. <p>The result is a continuous process of module manufacturer qualification and re-qualification with the suite of production quality tests being continuously improved.</p>	<p>Other resellers only test each chipset - not every model – for qualification. They do not have the resources to test on every model.</p>
Testing Procedures	<p>In addition to the rigorous testing that manufacturers are required to conduct by Compaq’s qualification procedures, Compaq performs additional testing of memory modules:</p> <ul style="list-style-type: none"> • Every single module that is placed in a server for shipment goes through run-in testing. That module is tested in a Compaq server of the model in which it will be installed. • A Product Integrity Audit (PIA) is conducted on all memory modules going into option kits. This PIA consists of testing a statistically accurate sampling of modules in all Compaq systems using both standard and maximum memory configurations on those systems. <p>Thus, Compaq ensures that every module branded a Compaq memory module has passed an extensive series of tests to ensure its quality and reliability to work with all Compaq servers. No third-party supplier has the resources to conduct such extensive testing on Compaq equipment.</p>	<p>Other resellers do not have the test equipment or the capability to acquire sufficient combinations of Compaq systems to adequately verify and certify SDRAM memory for Compaq products.</p> <p>Some manufacturers and resellers have component-only testing. This is inadequate to identify randomly occurring memory problems.</p>
Impact of Memory on System Warranty⁴	<p>Compaq’s superior testing and certification procedures allow Compaq to offer a three-year pre-failure warranty on Compaq memory, drives, and processors. Compaq’s warranty does not cover service or parts damage resulting from the use of non-Compaq brand memory. Only Compaq-brand memory has been extensively tested and certified for use in Compaq servers.</p>	<p>Other resellers do not offer a pre-failure warranty on memory. No other company offers such comprehensive warranty coverage as Compaq’s.</p>
Price and Value	<p>Although Compaq memory is thought of as being more expensive than other memory modules, price is relative to the value of the product. Avoiding system downtime or data loss caused by memory failure and the financial impact such situations cause far outweighs the momentary benefit of paying less for the initial purchase of memory.</p>	<p>Paying less money at purchase can cost more in the long run from downtime caused by memory failure.</p>
Single Supplier Convenience	<p>Compaq offers everything customers need for Compaq systems and verifies that all of these components work together, ensuring the quality of all of its products from beginning to end.</p>	<p>Other resellers do not have the resources or expertise to ensure that their memory is compatible with all configurations of servers.</p>

⁴ Certain conditions exist. Compaq Insight Manager must be used for Pre-Failure Warranty. Call 1-800-OK COMPAQ for more information.

