

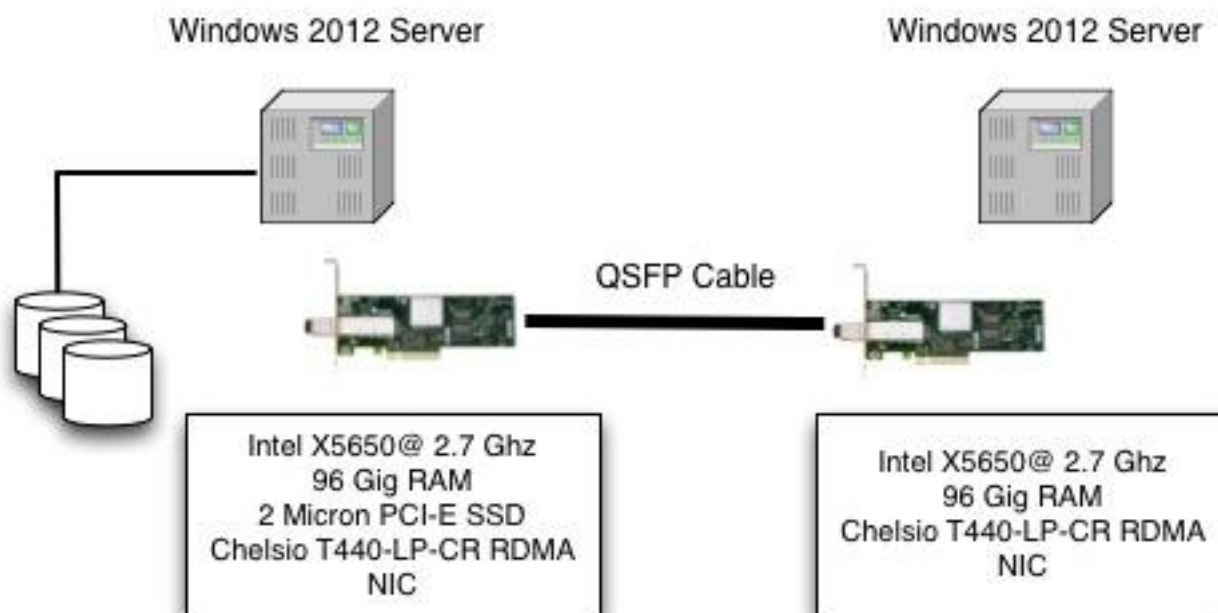


## Delivering superior performance with SMB Direct over Ethernet on Windows Server 2012

### Chelsio T4 Unified Wire Network Adapters

Using Chelsio T4 Unified Wire Network Adapters with industry leading RDMA over Ethernet (iWARP), Chelsio enables Microsoft Windows Server 2012 to deliver superior performance in the areas of high bandwidth and low CPU utilization rivaling that of competing technologies.

#### The Topology



**Network configuration:** Two Microsoft Windows Server 2012 machines connected back to back using a pair of Chelsio T440-LP-CR 4-port adapters and a single QSFP cable. All 4 available ports are utilized.

**Software configuration:** Each server is running a copy of Microsoft Windows Server 2012 Build 8400. The benchmarking tool in use is sqlio from Microsoft. This tool is available from [go.microsoft.com](http://go.microsoft.com). The Chelsio network driver version used is 4.0.0.8.

**I/O benchmarking configuration:** Sqlio is used to determine the I/O capacity of a configuration. For this demonstration, we use two sample block sizes, 8K bytes and 512 Kbytes. Tests are run with two block sizes, 8K bytes and 512K bytes. Buffering is set to none, and the I/O access pattern is sequential.

**Storage configuration:** Two Micron PCIe SSDs are formatted as one partition and each are assigned to a share. In addition two 3 Gbyte RAM Disks are used.

Block Size	I/O Pattern	I/Os per second	Transfer Rate
8K Bytes	100% Read Sequential	250254	2 GBytes/sec
8K Bytes	100% Write Sequential	201914	2 GBytes/sec
512K Bytes	100% Read Sequential	4418	2 GBytes/sec
512K Bytes	100% Write Sequential	5240	3 GBytes/sec

## About Chelsio Communications

Chelsio is a leading technology company focused on providing high performance networking and storage solutions for virtualized enterprise data centers, cloud service installations, and cluster computing environments. Now shipping its fourth generation protocol acceleration technology, Chelsio is delivering hardware and software solutions including Unified Wire Ethernet network adapter cards, Unified Storage Server software, high performance storage gateways, unified management software, bypass cards, and other solutions focused on specialized