Competitive Comparison

Intel® I/O Acceleration Technology vs. TCP Offload Engine

Rely on Intel® I/O Acceleration Technology® (Intel® I/OAT) to boost server I/O throughput with fast, scalable, and reliable network acceleration in your Quad-Core and Dual-Core Intel® Xeon® processor 5000Δ sequence-based servers. Intel I/OAT is the new acceleration technology that outperforms the TCP offload engine (TOE) approach and delivers leading network and I/O performance.

Intel I/OAT:

• Reduces CPU overhead by improving data flow in the network, chipset, and host operating system (OS), leaving more application processing overhead.

• Is a safe and flexible I/O acceleration choice with broad industry support, including Microsoft Windows® Server 2003 and leading Linux® distributions.

• Uses native protocol stacks to avoid support risks of third-party network stacks.

• Preserves existing network capabilities, like teaming, failover, and virtual LANs (VLANs).

• Significantly outperforms TOE throughput and CPU utilization in network, teaming, and application tests.
A Platform Solution

System I/O throughput challenges are not isolated to the network connection. They’re present throughout the platform. TOE focuses on only the network connection by offloading TCP/IP processing to silicon on the network interface card (NIC). Intel I/OAT uses a platform-wide approach, integrating processor, chipset, and OS enhancements, significantly improving data movement through the platform.
Safer Choice—Supported by More OS Vendors

Leading OS vendors support Intel I/OAT with native protocol stacks instead of relying on third-party stacks, making it a safer choice when it comes to maintenance and support. Plus, Intel I/OAT supports multiport teaming for redundancy, increased network throughput, and fewer NICs in a server.

Leading Performance

**Intel I/OAT vs. TOE**

- Significantly outperforms TOE in server configurations that support a large number of users and which require long-lived connections (e.g., backups/restores, streaming media serving, large file transfers).
- Significantly outperforms TOE on short-lived connections (database, mail, and file serving).
- Significantly outperforms TOE in teamed interfaces.
- Provides a much better solution in iSCSI-based environments.

### Operating System

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Intel® I/OAT</th>
<th>TOE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Windows* Server 2003 Scalable Network Pack</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>SuSE SLES10*</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Red Hat RHEL5*</td>
<td>Yes</td>
<td>No</td>
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</tbody>
</table>

### Front-End Server Throughput

![Front-End Server Throughput Graph]

### Veritas Network Backup Performance

![Veritas Network Backup Performance Graph]

Higher Throughput + 18%

Intel® Xeon® processor, Intel® E7520 chipset

Dual-Core Intel® Xeon® processor 5160, Intel® 5000 series chipset

Dual-Core Intel® Xeon® processor 5160, Intel® 5000 series chipset with Intel® I/OAT

### iSCSI Network Storage

![iSCSI Network Storage Graph]

Intel Internal Measurements, date of the data
Better CPU Utilization in Teamed Environment

Provides lower CPU utilization than TOE in teamed interfaces.

For more information on Intel I/O Acceleration Technology and how it delivers fast, scalable, and reliable network acceleration, visit www.intel.com/go/ioat.