Micron 5210 QLC SSDs vs. Legacy HDDs

<table>
<thead>
<tr>
<th>Everyday Workload*</th>
<th>HDD</th>
<th>5210</th>
<th>Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>B: Read mostly</td>
<td>2K ops/sec</td>
<td>16K ops/sec</td>
<td>8X</td>
</tr>
<tr>
<td>C: Read only</td>
<td>2K ops/sec</td>
<td>16K ops/sec</td>
<td>8X</td>
</tr>
<tr>
<td>D: Read latest</td>
<td>4K ops/sec</td>
<td>43K ops/sec</td>
<td>10X</td>
</tr>
<tr>
<td>F: Read, modify, write</td>
<td>4K ops/sec</td>
<td>15K ops/sec</td>
<td>3X</td>
</tr>
</tbody>
</table>

Standard YCSB benchmark, 3TB dataset, 40KB avg block size, 4 drives per node, 4 node cluster, 10K HDD

>3X Operations per Second

How much is your time worth?

Typical NoSQL Workload

Storage access pattern: random reads & writes
Storage IO size: 128K
Read/write ratio: 90% read / 10% write
How the workload works:
- Typical NoSQL databases: Cassandra, MongoDB, Redis, MariaDB
- Typical uses: user/metadata, tagging, user profiles, status updates
- Workloads B-D and F: good fit for QLC SSDs. Workload A good fit for high-endurance TLC SSDs (like the Micron 5300 MAX)

Ready to learn more? Read Micron's in-depth research

NoSQL Databases
To scale and serve petabytes of data, businesses are moving NoSQL databases from legacy HDDs to SATA QLC SSDs, which are priced similarly yet provide more performance. The Micron® 5210 delivers.