Ultra 3 SCSI
performance and comparisons

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Outline

- Philosophy of Models
- Workload Parameters
- Year 2000 Model parameters
- Ultra 2 and 3 Comparisons
Philosophy

Ideal Hosts assumed (CPU utilization, MP locks, PCI bandwidth ignored and software latency ignored)

Workloads based on trace data where available or expert opinion where not.

Spread sheet uses closed queuing model for bus / loop contention

Disk drive parameters use extrapolations from measured and published data

Assumes LUN Bridges for greater than 15 devices
## Workload Parameters

*Average Request sizes, Write Fraction, Sequential Fraction and Array Cache Hit Ratio*

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<th>Read Size</th>
<th>Write Size</th>
<th>Write Fraction</th>
<th>Seq. Fraction</th>
<th>Hit Ratio</th>
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<td>6 KB</td>
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Year 2000 Parameters

*Drives extrapolated by 3 years*

- 36 MB/s Sustained Sequential
- 2.00 ms rotation, 3.4 & 4.4 ms seek

*U-3 SCSI set at 3x ideal (with and without enhancements)*

- 160 MB/s burst rate
- 9 - 29 µs basic overhead per command
- 6 - 20 µs for seek disconnect
- 6 - 22 µs for data disconnect
Workload A

Throughput (MB/s) vs. Number of Drives

- PP2+QAS, U3 SCSI
- Plain U3 SCSI
- U2 SCSI
Workload B

Throughput (MB/s) vs Number of Drives

- PP2+QAS, U3 SCSI
- Plain U3 SCSI
- U2 SCSI
Workload C

Number of Drives

Throughput (MB/s)

- PP2+QAS, U3 SCSI
- Plain U3 SCSI
- U2 SCSI
Workload D

Throughput (MB/s) vs. Number of Drives

- PP2+QAS, U3 SCSI
- Plain U3 SCSI
- U2 SCSI
Workload F

![Graph showing throughput (MB/s) vs. number of drives for different drive configurations: PP2+QAS, U3 SCSI, Plain U3 SCSI, U2 SCSI. The graph indicates that the number of drives affects throughput, with more drives leading to higher throughput for all configurations.](image-url)