GVP HSG Pages

Performance Comparison between SAS HDDs and SSD

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These tests compare performance between SAS HDDs and SSD for recording, using 6 VMs from the same hardware spec, and these four different HDD and SSD combinations:

- **1 HDD:** all 6 VMs on one 15 krpm SAS HDD drive.
- **2 HDD:** split 6 VMs on two 15 krpm SAS HDD drives, 3 VMs per drive.
- **3 HDD:** split 6 VMs on three 15 krpm SAS HDD drives, 2 VMs per drive.
- **SSD:** all 6 VMs on one 15 krpm SAS HDD while a separate SSD drive used as cache folder only.

The testing was executed with Profile 1, MP3 only. Below is the overall system CPU usage:

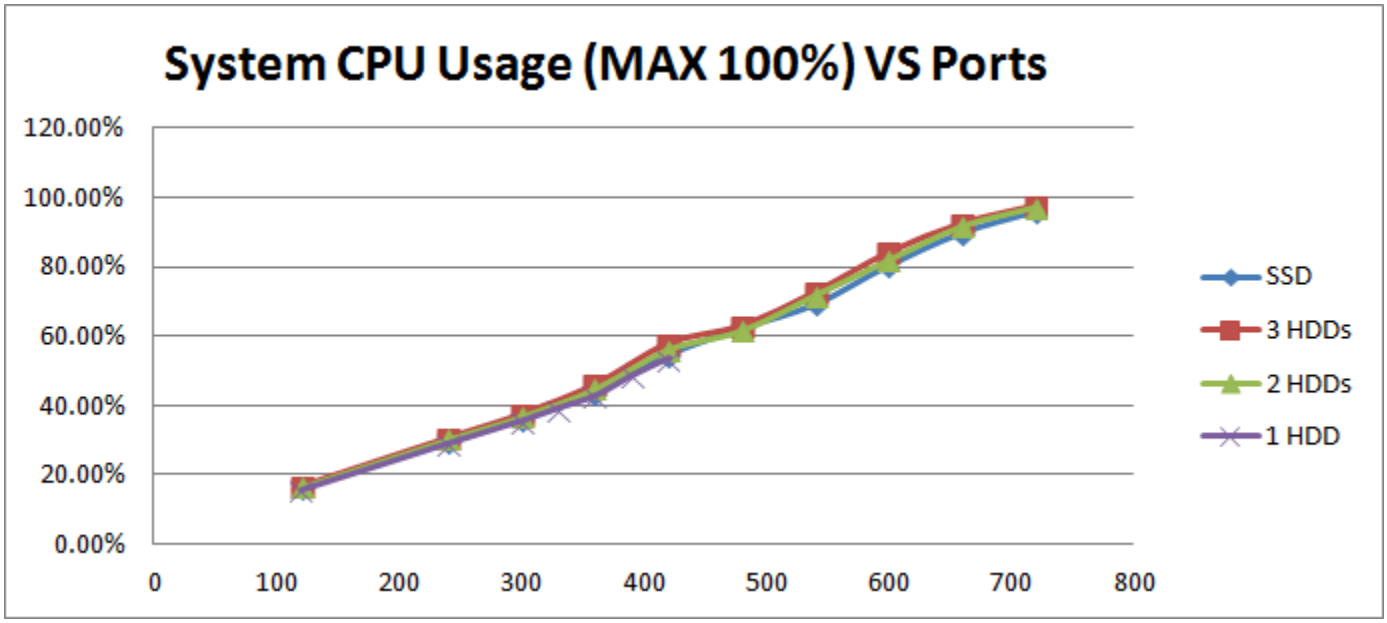

Figure: Comparison of System Usage among different HDD/SSD drive combinations

The overall system CPU usage exhibits no significant different between HDD and SDD.

IOPS is almost the same for these 4 combinations, so these tests use the numbers in Table: Disk IOPS of sum of all 6 VMs of dual hex cores, MP3 only.

The graphs below compare max jitter and max delta for HDD/SSD drive combinations:

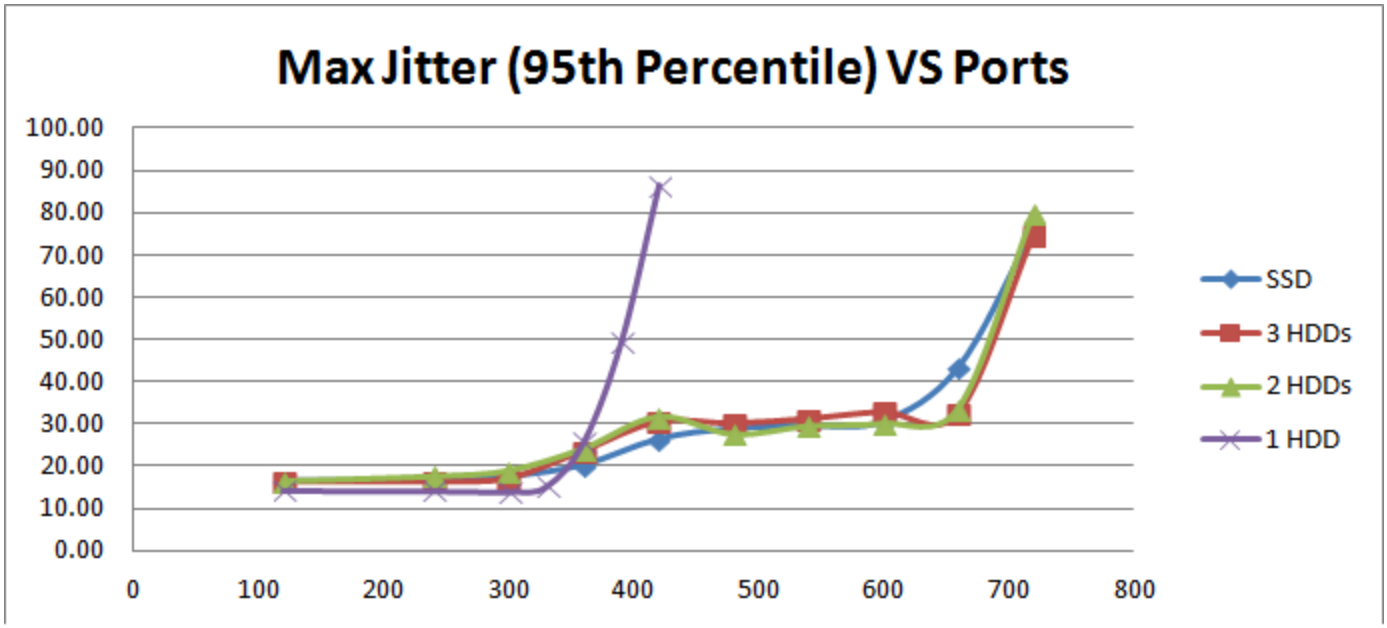

Figure 32: Comparison of Max Jitter among different HDD/SSD drive combinations

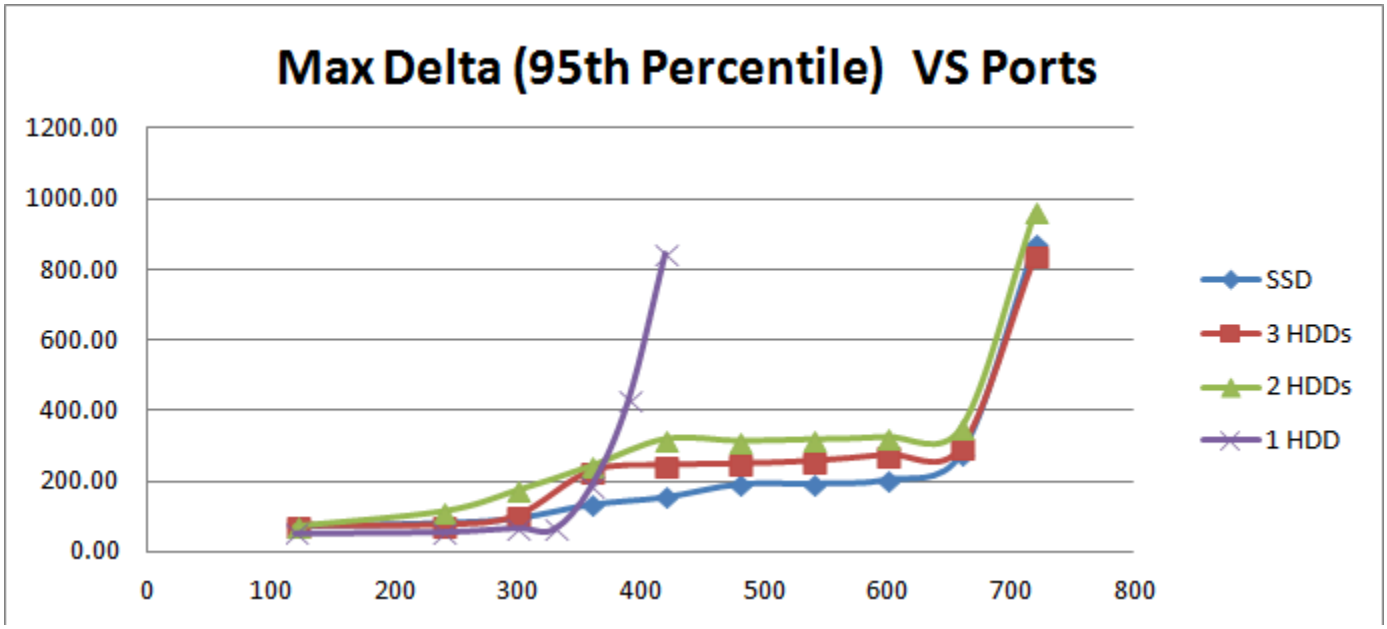

Figure 33: Comparison of Max Delta among different HDD/SSD drive combinations

This graph illustrates the average disk write queue for one drive:

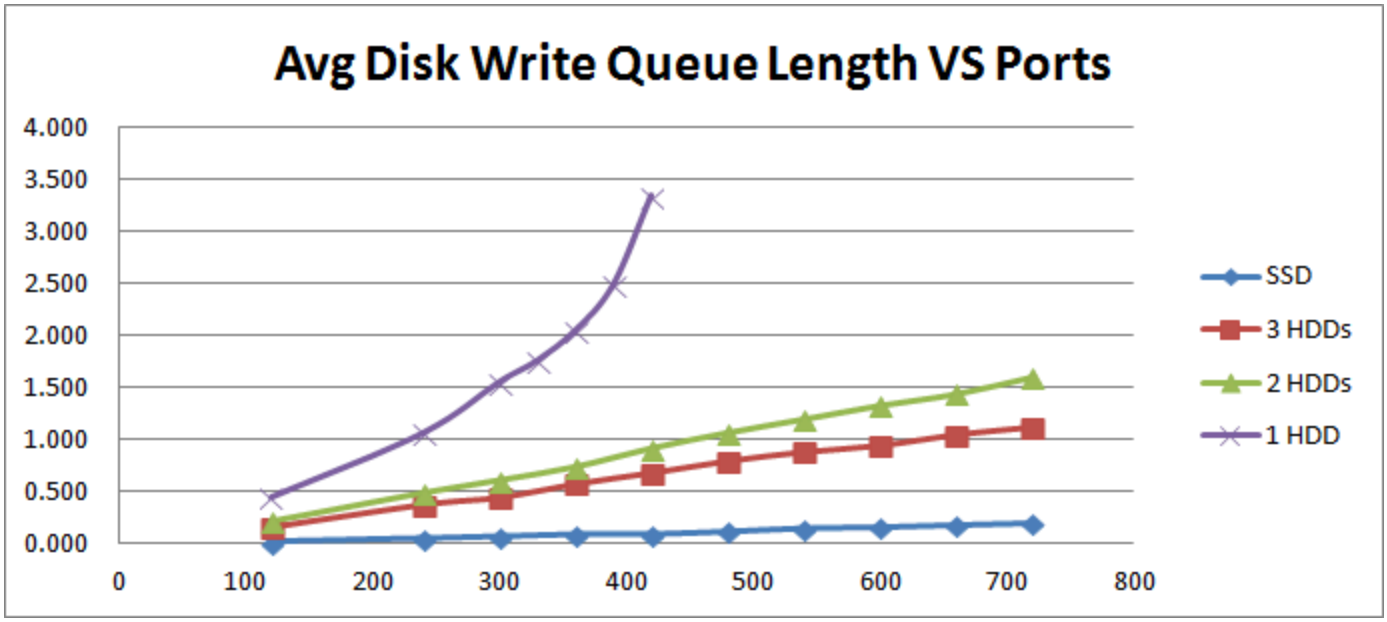

Figure 34: Comparison of Avg Disk Write Queue among different HDD/SSD drive combinations

- The queue starts to increase non linearly around 360 ports, which makes that number close to maximum port capacity of the hard drive.
- In the three graphs above: with only one HDD drive, both max jitter and max delta started to increase dramatically from 330 ports and higher. Thus: Preferable/Recommended = 330 ports; Peak Port Capacity = 360 ports. In Table: Disk IOPS of sum of all 6 VMs of dual hex cores, MP3 only, IOPS is 51 for 330 ports; while IOPS is around 60 for 360 ports. Thus: Preferable/Recommended IOPS = 51; maximum IOPS for one 15 krpm SAS HDD = 60.
- With multiple HDDs (2 or 3) to split the load, peak port capacity is nearly the same as SSD—660 ports since the load per drive would be 330 (for 2 HDD drives) and 220 (for 3 HDD drives). Max jitter does not exhibit big differences for these three configurations. But max delta shows a higher delay for 3 HDDs compared to SSD, and 2 HDDs compared to 3 HDDs. Thus: with strict audio quality required in these scenarios, fast media such as SSD will help improve latency and minimize any potential audio quality issues.