This document provides general information about the contents of the download file package within which this document has been included.

The originating source of this download file package is the Storage Networking Industry Association (SNIA) IOTTA Repository (http://iotta.snia.org/). The contents of this package were collected as part of the SNIA Solid State Storage Initiative (SSSI) "Workload I/O Capture Program (WIOCP)". Additional information can be found at the following URLs:

- SSSI: http://www.snia.org/forums/sssi
- SSSI WIOCP: http://www.snia.org/forums/sssi/wiocp

The "hIOmon™ Disk I/O Ranger" software tool (from hyperI/O LLC) was used to capture, collect, and export the I/O operation performance metrics. No I/O operation trace data nor file names were captured; only automatically-summarized I/O operation performance metrics were collected and periodically written (upon a 10-minute basis) to the standard Comma-Separated-Values (CSV) export files contained within this download file package.

Additional information about the "hIOmon Disk I/O Ranger" and how it was used as part of the SSSI WIOCP can be found here:

http://www.hyperIO.com/hIOmon/hIOmonSSSIworkloadIOcaptureprogram.htm

Download File Package Details:

Package Name: SNIA-SSSI-WIOCP-04-PC-4805343

Basic System Information: Personal computer; 64-bit; Microsoft Windows 8.1; SSD (**OCZ-VERTEX4 ATA Device**); Hard Disk Drive (**WDC WD7500AARS-00Y5B1 ATA Device**)

System Usage/Workloads: Normal office-type usage (Microsoft Word/Excel, Adobe Reader, Skype, Steam, Chrome, Opera, etc.)

Collection Time Span: June 7, 2014 – June 12, 2014

Brief descriptions of the files contained within this download file package:

1) hIOmonSystemReport.txt: A plain text file generated by the hIOmon software that includes a variety of information about the system upon which the I/O operation metrics were collected. This information includes basic details about the hIOmon software used, operating system information, basic information about the computer system such as the number/type of processors, amount of memory, basic information about the attached storage devices, etc.).

2) SSSIioProfileSummaryDevices.csv: Contains the summary I/O operation performance metrics for each logical disk, associated OS physical volume, and associated OS physical disk whose I/O operations were monitored – 5096 records

3) SSSIioProfileSummaryDevices_Daily.csv: Contains the summary I/O operation performance metrics from the "SSSIioProfileSummaryDevices.csv" file that have been coalesced/aggregated upon a daily basis – 36 records

4) SSSIioProfileSummaryDevices_Totals.csv: Contains the summary I/O operation performance metrics from the "SSSIioProfileSummaryDevices.csv" file that have been coalesced/aggregated in toto (i.e., a single row for each device) – 6 records

5) SSSIioProfileSummaryDevices_Totals_MetricsByRow.csv: Contains the summary I/O operation performance metrics from the "SSSIioProfileSummaryDevices_Totals.csv" file that have been transposed (reformatted) with each row representing a different summary I/O operation performance metric and the columns reflecting a different device.

6) SSSIioProfileSummaryProcesses.csv: Contains the summary I/O operation performance metrics for each process/application whose I/O operations were monitored – 20739 records

7) SSSIioProfileSummaryProcesses_Daily.csv: Contains the summary I/O operation performance metrics from the "SSSIioProfileSummaryProcesses.csv" file that have been coalesced/aggregated upon a daily basis – 4616 records

8) SSSIioProfileSummaryProcesses_Totals.csv: Contains the summary I/O operation performance metrics from the "SSSIioProfileSummaryProcesses.csv" file that have been coalesced/aggregated in toto, i.e., a single row for each process, further qualified by the associated Process ID (PID) – 3613 records

9) SSSIioProfileSummaryProcesses_Totals_PIDless.csv: Contains the summary I/O operation performance metrics from the "SSSIioProfileSummaryProcesses_Totals.csv" file that have been coalesced/aggregated upon an unique process name regardless of associated Process ID (PID) – 136 records

10) SSSIioProfileSummaryProcesses_TopTens.csv: Contains the "Top Ten" processes (based upon the "SSSIioProfileSummaryProcesses_Totals_PIDless.csv" file) for a selected subset of the summary I/O operation performance metrics (i.e., I/O operation

count, maximum IOPS, maximum MB/s, maximum and average response times, and the data transferred amount for read and write I/O operations separately) – 120 records

11) SSSIioProfileSummaryDTSdevices.csv: Contains "data transfer size (DTS)" summary metrics for each OS physical device monitored; a separate row (representing a successive 10-minute period) is written for an individual data transfer size associated with a monitored OS physical device. Please note that the WIOCP software is configured to collect DTS summary metrics for a default, limited set of data transfer sizes (specifically, 512 bytes, 1 KiB, 2 KiB, 4 KiB, 8 KiB and so on up to and including 8 MiB); this set also includes all data transfer sizes specified within the SNIA SSSI Performance Test Specification (PTS), more specifically, the "Enterprise Composite Workload (ECS)" test – 27173 records

12) SSSIioProfileSummaryDTSdevices_Totals.csv: Contains the summary I/O operation performance metrics from the "SSSIioProfileSummaryDTSdevices.csv" file that have been coalesced/aggregated in toto (i.e., a single row for each monitored data transfer size for each monitored device) – 46 records

The following URL provides additional information about the various types of automatically-summarized I/O operation performance metrics that were collected by the SSSI WIOCP and included within the CSV export files noted above:

http://www.hyperIO.com/hIOmon/WIOCP/SSSI/hIOmonSSSI-WIOCP-CollectedMetricsDefinition.htm

Also note that the "_Daily" and "_Totals" summary CSV export files above additionally include the following calculated metrics:

1) "DataTransferred/Time Index (DTXI)" metrics separately for read, write, and combined read and write I/O operations. Additional information about this metric can be found here: http://www.hyperIO.com/hIOmon/hIOmonDataTransferredTimeIndexMetric.htm

2) "xxx Fast IOP %", which is the percentage of the respective I/O operation type that completed within less than one millisecond; e.g., "Read Fast IOP %" is "ReadFastIOPcount" divided by "Read IOP Count"

3) "SysCache xxx IOP Count %", which is the percentage of the respective I/O operation type that explicitly requested the use of the system file cache; e.g., "SysCache Read IOP Count %" is "ReadSystemCacheIOPcount" divided by "Read IOP Count"

4) ”Overall xxx Avg Response Time (ms)”, which is the overall average response (in milliseconds) for the respective I/O operation type; e.g., “Overall Read Avg Response Time (ms)” is “Read Time Total“ divided by “Read IOP Count”

5) ”xxx Ran IOP %”, which is the percentage of the respective I/O operation type that was considered to be a random access I/O operation; e.g., “Read Ran IOP %” is “Read Random Access IOP Count“ divided by (“Read Random Access IOP Count” plus “Read Seq Access IOP Count”)

6) “xxx Ran Xfer %”, which is the percentage of the total amount of data transferred by the respective I/O operation and access type; e.g., “Read Ran Xfer %” is “ReadRandomAccessDataXfer“ divided by (“ReadRandomAccessDataXfer” plus “ReadSeqAccessDataXfer”)

7) “Total Read Write Time”, which is the combined total of the read I/O operation and write I/O operation responses times

8) “Total Read Write Data Xfer”, which is the combined total amount of data transferred by the read and the write I/O operations