

STAC-M3 Benchmarks Record-Setting Performance



***eXtremeDB*[®] HPC, the low latency database management system for capital markets.**

In capital markets IT, the Securities Technology Analysis Center (STAC) plays the critical role of neutral third party, with audited benchmarks that enable apples-to-apples comparisons between solutions. McObject recently subjected its *eXtremeDB* Financial Edition database management system (DBMS) to multiple rounds of testing using the STAC-M3 Antuco 3TB benchmark and Kanaga 30+ TB suites, the gold standards for assessing tick data management performance.

McObject/E8 STAC-M3: *eXtremeDB* 8.0 on E8-X24 NVMe (Intel Optane[™]) storage

All the queries were programmed using Python and SQL, running on six Supermicro SYS-2028TP-HTTR (Intel[®] Xeon[®] E5-2600 processor) dual socket servers, connected to an E8 Storage E8-X24 high-performance shared NVMe (Intel Optane[™]) storage appliance.

The outstanding results include:

- Completed the entire 17 M3 tests in 18.4 seconds, compared to best previous of 48.1 seconds
- Faster mean response times than all previously published best results for 5 of the 17 operations
- More consistent response times (lower standard deviation) than all previous best results for 7 of the 17 operations
- 17.0x the performance of the previously published best result for the write benchmark (1T.WRITE.TIME) using a non-McObject database
- 9.1x the performance of the previously published best result for the NBBO benchmark (1T.NBBO.TIME) using a non-McObject database

McObject/IBM STAC-M3 Kanaga: *eXtremeDB* 7.0 on POWER8

McObject worked closely with IBM on three STAC-M3 implementations on POWER8 processor architecture, with the latest utilizing a 2-socket IBM Power System S824L server (12 cores per socket, 24 POWER8 cores total) running Redhat Linux, *eXtremeDB* version 7.0 and 57TB IBM FlashSystem 900. Results included new speed and jitter records for all 21 of the benchmark queries that were more than

- 21,139% and 19,875% faster than the best previously published result for the 10 thread Years 3 & 4 Market Snapshots, respectively (10T.YR3.MKTSNAP and 10T.YR4.MKTSNAP)
- 2,742% faster for the 10 thread Year 1 Market Snapshot (10T.YR1.MKTSNAP)
- 887% and 936% faster for the 100 thread Years 1 & 3 Volume Weighted Bid over 12 days, respectively (100T.YR1VWAB-12D-HO and 100T.YR3VWAB-12D-HO)
- More than 500% faster than the best previously recorded time to complete all 21 benchmark tests

McObject/Lucera Financial Infrastructures: First Cloud-based STAC-M3 Antuco

McObject partnered with Lucera Financial Infrastructures on a first-ever cloud-based STAC-M3 implementation. *eXtremeDB* 6.0, deployed across four SmartOS instances (64 cores) on the Intel-based Lucera Compute[™] on-demand computing platform, beat records in 5 of the 17 benchmark tests. Compared to previous STAC-M3 benchmarks using a different DBMS, the McObject-Lucera pairing delivered performance that was more than

- 250% faster than the best previously published result for the Multi-User Intervalized Statistics – 50 Threads benchmark (50T.STATS-UI)
- 150% faster for the Multi-User Intervalized Statistics – 100 Threads benchmark (100T.STATS-UI)
- 150% faster for the National Best Bid and Offer benchmark (1T.NBBO)

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