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Look Inside.™

Large platform memory capacity enhances in-memory database capability

Altibase makes in-memory high-speed processing of large and complex data possible through the Intel® Xeon® processor E7 v2 family, which can accommodate up to 6TB of memory in a four-socket system

intel inside™ XEON®

"Intel® Xeon® processor E7 v2 family can accommodate 1.5TB per socket, which adds up to 6TB of data processing in a four-socket system. This makes processing large in-memory data set possible on a single server. It eliminates unnecessary steps such as data transmission and a synchronization procedure across multiple servers, allowing larger amounts of data to be processed more quickly and efficiently."

– Joshua Choi, Director, Development Headquarters Altibase

Company

Altibase. Altibase is a global leader in in-memory database solutions, providing solutions for clients' business issues through rapid analysis and processing of large data. Focused on in-memory technology development for the last 16 years, Altibase has its technologies applied in over 2,700 businesses around the world. Altibase provides reliable solutions for optimum performance at affordable costs through its hybrid DBMS, which combines in-memory and on-disk functions. Altibase has been added in Gartner's "Who's Who for In-Memory DBMS 2012" business report as Asia's representative vendor. Also, the company has been added in Gartner Magic Quadrant for Operational DBMS in 2013 and 2014.

Altibase HDB* The world's first universal enterprise database integrating in-memory database and on-disk database, it stores and manages frequently accessed data requiring fast processing in memory and allocates large data with low access frequency—such as historical data-on-disk—to provide efficient data processing. Since data is stored in memory, not only acts as a cache when executing read tasks, but also enhances the data manipulation language (DML) performance. Since Altibase HDB provides flexibility and data integrity between in-memory and on-disk, it is a cost-effective database, eliminating the need for additional cache solutions.

Challenge

Performance and synchronization for large databases. The size of an in-memory database is limited by the maximum memory capacity at the server platform level. In the past, large databases (over 2TB) were required to be distributed on multiple servers for processing, which led to performance and data synchronization challenges.

Solution

Server platform based on Intel® Xeon® processor E7 v2 family. Servers based on the Intel Xeon processor E7 v2 family can accommodate up to 1.5TB of memory per socket. A four-socket server can provide a maximum memory capacity of 6TB, significantly increasing the capacity to support even the largest databases in-memory.

Impact

Increase database capacity. The maximum capacity of Altibase's in-memory database is now doubled, reducing the need for data synchronization and allowing customers to more effectively and efficiently analyze large data sets using the fast performance enabled by in-memory database technology. The Intel Xeon processor E7 v2 family provides the specifications required for large data analysis and offers adequate features for in-memory database and real-time business analytics.

Increased performance. Comparing servers based on Intel Xeon processor E7 v2 family with servers based on the previous generation processor family, Altibase found a two times increase in database performance using the new server platform. Data processing rate is increased and I/O delay is reduced through the use of an integrated I/O, which provides additional storage space as well as storage and networking flexibility.

Results : Performance Scaling
Predictable throughput on 5.5TB memory[1]

Throughput (Transactions Per Second)

Data size
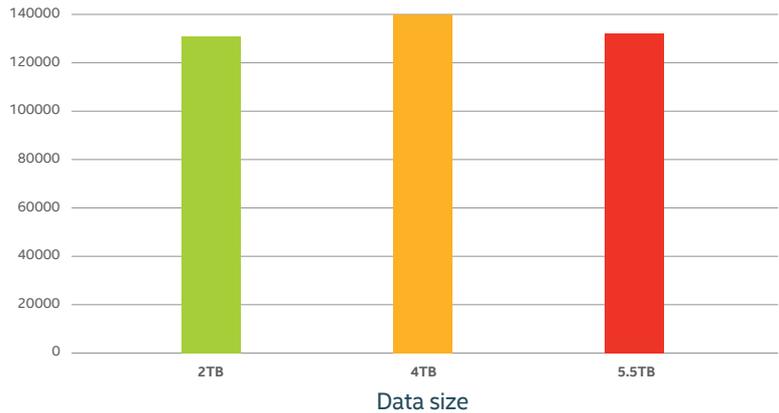
Figure 1. Intel® Xeon® processor E7 v2 family generates a consistent throughput as the size of data increases.

Results : HDB Max Throughput
Maximum throughput of 240 client threads

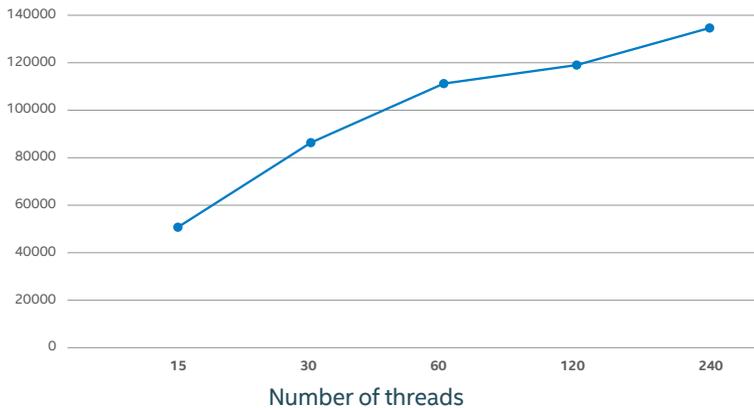Throughput (Transactions Per Second)

Number of threads

Figure 2. Intel® Xeon® processor E7 v2 family provides predictable throughput as the number of threads increases.

Competitive advantage. With large platform memory capacity, Altibase was able to help its customers reduce database system maintenance fees, license fees, management expenses, and labor expenses. The reduced costs lower the total cost of ownership (TCO) for customers and create a competitive advantage for the in-memory solutions from Altibase.

The company continues to propose new paradigms through consistent innovation and development. Altibase is planning to make greater efforts for a more effective application of Altibase products through the integration of the Intel Xeon processor E7 v2 family.

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All performance tests were performed and are being reported by Altibase. Intel does not control or audit third-party benchmark data or the web sites referenced in this document. Please contact Altibase for more information on any performance test reported here.