

# Improve Database Performance with Intel® Xeon® Processors and Intel® Solid-State Drives

Altibase improves in-memory and on-disk database performance significantly with the Intel® Xeon® processor E7 v2 family and Intel® Solid-State Drives



“The maximum capacity of the DBMS increased after the application of the Intel® Xeon® processor E7 v2 family, and it enabled the company to propose a large-capacity DBMS that was not possible before. Altibase HDB\*, which was used only in specific areas, is now applicable in all areas with the help of the Intel Xeon processor E7 v2 family, and we anticipate that it will contribute to increasing sales for our company.”

JoonHo Park, Director,  
Altibase

## Company

Altibase evolved out of a project that applies RAM to a relational database, which was conducted in 1991 by the Electronics and Telecommunications Research Institute (ETRI). The company was officially established in 1999 through an MOU agreement with ETRI, and it has continued to pioneer in the field of in-memory databases.

## Challenge

Altibase Hybrid Database\* (HDB) supports both on-disk and in-memory databases. The in-memory technology of Altibase HDB supports high speeds and large volumes, translating into advantages in terms of processing in-memory and on-disk reads/writes.

In order to enable the broad use of HDB, Altibase needed a processor capable of addressing large amounts of memory and easing the constraints of an in-memory database management system (DBMS).

## Solution

Altibase chose the Intel® Xeon® processor E7 v2 family to take advantage of large memory capacity for in-memory processing and the Intel® Solid-State Drive (Intel® SSD) for high-performance, on-disk database access.

## Benefits

Altibase conducted a test of HDB with the Intel Xeon processor E7 v2 family. The results showed that the in-memory data performance improved in comparison to the previous-generation Intel Xeon processor E7 family, and the on-disk data processing performance improved through the use of an Intel® SATA SSD.

The size of a commercial large-capacity in-memory database was usually limited to a few terabytes. The maximum Altibase in-memory capacity increased up to 12 TB with an 8-socket Intel Xeon processor E7 v2 family-based platform, and the in-memory data processing performance of Altibase HDB running on the platform improved by 1.94 times compared to the previous-generation Intel Xeon processor E7 family-based platform.

Furthermore, Intel SSD improved Altibase's on-disk performance. Compared with hard drive-based storage, on-disk data processing improved by 3.27 times using Intel SSD.

The Intel Xeon processor E7 v2 family expands the application of Altibase HDB to new areas and industries, and contributes to additional sales opportunities for Altibase. As a result, Altibase also plans to use the Intel Xeon processor E7 v2 family in other applications that utilize in-memory computing, particularly in the area of ultrahigh-speed data stream analysis.

INFORMATION IN THIS DOCUMENT IS PROVIDED IN CONNECTION WITH INTEL® PRODUCTS. NO LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, TO ANY INTELLECTUAL PROPERTY RIGHTS IS GRANTED BY THIS DOCUMENT. EXCEPT AS PROVIDED IN INTEL'S TERMS AND CONDITIONS OF SALE FOR SUCH PRODUCTS, INTEL ASSUMES NO LIABILITY WHATSOEVER, AND INTEL DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY, RELATING TO SALE AND/OR USE OF INTEL PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. UNLESS OTHERWISE AGREED IN WRITING BY INTEL, THE INTEL PRODUCTS ARE NOT DESIGNED NOR INTENDED FOR ANY APPLICATION IN WHICH THE FAILURE OF THE INTEL PRODUCT COULD CREATE A SITUATION WHERE PERSONAL INJURY OR DEATH MAY OCCUR.

Intel may make changes to specifications and product descriptions at any time, without notice. Designers must not rely on the absence or characteristics of any features or instructions marked "re-served" or "undefined." Intel reserves these for future definition and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to them. The information here is subject to change without notice. Do not finalize a design with this information.

The products described in this document may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request. Contact your local Intel sales office or your distributor to obtain the latest specifications and before placing your product order. Copies of documents which have an order number and are referenced in this document, or other Intel literature, may be obtained by calling 1-800-548-4725, or by visiting Intel's Web site at [www.intel.com](http://www.intel.com).

Copyright © 2014 Intel Corporation. All rights reserved. Intel, the Intel logo, Intel Inside, the Intel Inside logo, Look Inside, the Look Inside logo, and Xeon are trademarks of Intel Corporation in the U.S. and other countries.

\* Other names and brands may be claimed as the property of others.

0714/PEH/PMG/NO/PDF

330881-001EN