



## CASE STUDY

# Zen-Nisshoku Chain Eliminates Database Bottlenecks and Achieves Eight-Fold Performance Improvements

SanDisk® ION Accelerator™ and Fusion ioMemory™ application accelerators provide foundational support for the Zen-Nisshoku Chain's Second Phase IT Infrastructure

### Solution Focus

- Food and beverage retail
- Oracle database

### Solution Benefits

- 32% cost reduction
- 8X improvement in processing capacity
- High speed processing of enormous volume of data
- Easy migration
- No required changes to applications

### Products

- SanDisk ION Accelerator
- Fusion ioMemory™ PCIe application accelerators

*"There was an expectation for continuity and flexibility with the SanDisk ION Accelerator that would allow for expansion of performance and capacity with general purpose server and flash storage."*

Akira Onda, GM Information System Headquarters, Senior Executive Officer, Zen Nihon Shokuhin Co., Ltd.

### Summary

Zen-Nisshoku Chain (zChain) is an alternative chain of grocery stores consisting of nearly 1,800 stores nationwide. By pooling purchasing of general foodstuffs and fresh foods, as well as alcoholic beverages and sundries, zChain provides merchandise at prices that are competitive with major supermarkets. In addition, the Company supplies IT devices for stores in the network, such as Point of Sale and ordering equipment that provide an overall support for store operations. At the chain's headquarters, shared storage that emphasizes "Ultra-High Speed" using the SanDisk ION Accelerator and Fusion ioMemory PCIe application accelerators has been implemented. The new infrastructure was put into operation in January 2015, improving processing capacity by approximately eight times and realizing a 32 percent cost reduction, compared with the previous system.

### Double performance of the IT infrastructure, while cutting costs by half

Zen-Nisshoku Chain (zChain), which was formed in 1962, is Japan's largest voluntary retail chain. Never wavering from the teaching that "Whatever is to be accomplished, it is better to do in harmony," the members and the headquarters teams have together expanded to become a national chain serving the entire country of Japan—from Hokkaido to Okinawa. In particular, in order to compete with major distribution companies, ZChain has emphasized aggressive investment in IT equipment and infrastructure, or what they refer to as "arming with IT." With respect to the background of this action, Akira Onda, GM Information System Headquarters and Senior Executive Officer of Zen Nihon Shokuhin Company Ltd. told us, "Our greatest source of strength is the achievement of one-to-one marketing utilizing IT to its maximum. Purchasing histories of customers who visit the stores are captured in the headquarters database via POS in a format that does not lead to identification of personal information. Based on this information, sales promotions and sales campaigns are tailored to each individual based on their purchasing history."

At stores that belong to the Zen-Nisshoku Chain, customers are provided at no charge with a Zen-Nisshoku Member's Card to participate in the Zen-Nisshoku Frequent Shoppers Program (ZFSP), which runs in 550 stores nationwide and covers 1.5 million customers. By tying the card to purchasing history, the program rewards specific customers in the form of points for merchandise with high frequency of purchase.

### The Challenge

However, the IT architecture, which had been implemented in 2007, began to experience capacity shortages, and, in some devices maintenance became unavailable. As a result, in 2013, the Phase 2 IT Infrastructure Project was initiated. The mandate handed down from upper management was to "double the performance while reducing the expenses by half," explained Mr. Onda, recalling the background to the system renewal.

*“In concrete verifications, the job execution times were improved eight-fold, and screen display of Web applications with Java was also accelerated to roughly four-fold. In term of task times, processes that had taken 11 seconds for screen access display were shortened by between two percent and 0.2 percent. This translated to an average of 400,000 accesses per day and improving the efficiency of 22 hours of tasks. In addition, cost was not quite cut in half, but were reduced by roughly 32 percent, earning high praise from management.”*

Akira Onda, GM Information System Headquarters, Senior Executive Officer, Zen Nihon Shokuhin Co., Ltd.

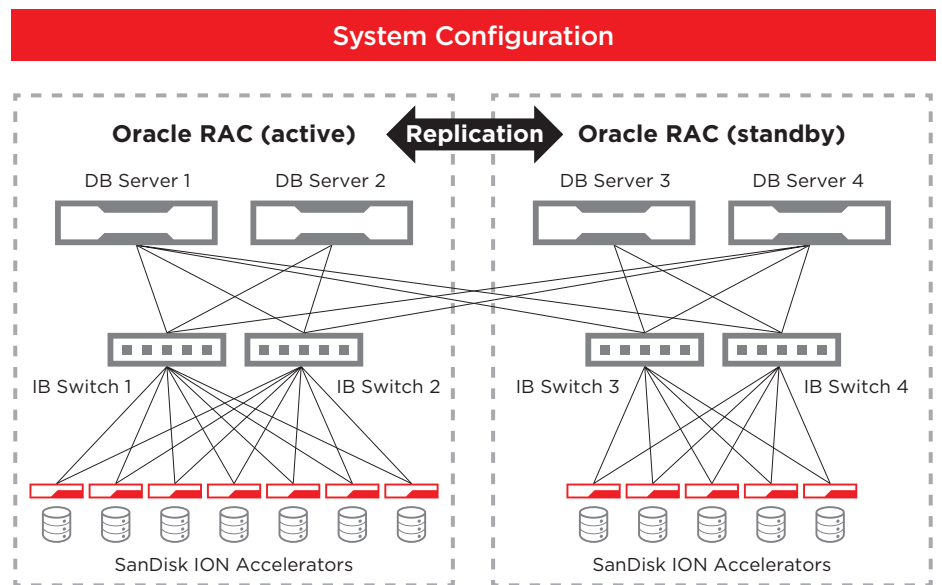
The previous architecture, which the System Headquarters team refers to as the Phase 1 IT Infrastructure, was a system utilizing Oracle Database. With respect to the storage-related devices that stored the data, it was originally thought that 6TB would be adequate capacity; however, as a greater quantity of data was stored, this capacity reached its limit. Due to circumstances at the vendor, the supply of parts needed to expand the storage ceased, and expansion of the storage capacity became no longer possible. In addition, deficiencies in the performance of the storage-related database became a material issue, and delays began to emerge in overnight batch processing and in issuing and receiving orders. To resolve these issues, the Information System Headquarters began a selection process for the Phase 2 IT Infrastructure, which centered on leading-edge storage equipment.

### Building shared “Ultra-High Speed” storage with SanDisk ION Accelerator and Fusion ioMemory application accelerators

“Products that had the possibility of building the ‘Ultra-High Speed’ storage system sought by the Company were limited to those of three companies, including SanDisk ION Accelerator. At that point, it was decided to perform a performance comparison of the three companies using actual data,” said Mr. Onda, upon discussing the process of the examination.

### The Solution

At the Information System Headquarters, where product examinations and evaluation testing had been conducted since October 2012, the three products were comparatively evaluated over a period of approximately six months. The system—which included SanDisk ION Accelerator and Fusion ioMemory—was selected in August 2013. “The key criterion in the selection was the superiority in terms of performance observed through evaluation testing. In addition, connection with InfiniBand was possible, and thus focus was also placed on being able to achieve our ‘Ultra-High Speed’ at excellent cost performance.”



“Further, the functions relating to required investment and ease-of-use of the screen design were also given favorable consideration. In addition, there was an expectation for continuity and flexibility with the SanDisk ION Accelerator that would allow for expansion of performance and capacity with general purpose server and flash storage,” Mr. Onda commented regarding the reasons behind the selection.

Once performance, manageability, and expandability potential were comprehensively evaluated, the Phase 2 IT Infrastructure was built using SanDisk ION Accelerator storage infrastructure as the core. The software that had been operating on the old environment was migrated to the Phase 2 IT Infrastructure.

*“Up until now, processing of the POS data that had been tallied was time consuming; thus, when inquiries were received from stores, we were not able to report on the previous day’s data. However, with the conversion to the new system, tallying is completed overnight, and we are now able to quickly respond to inquiries the next morning.”*

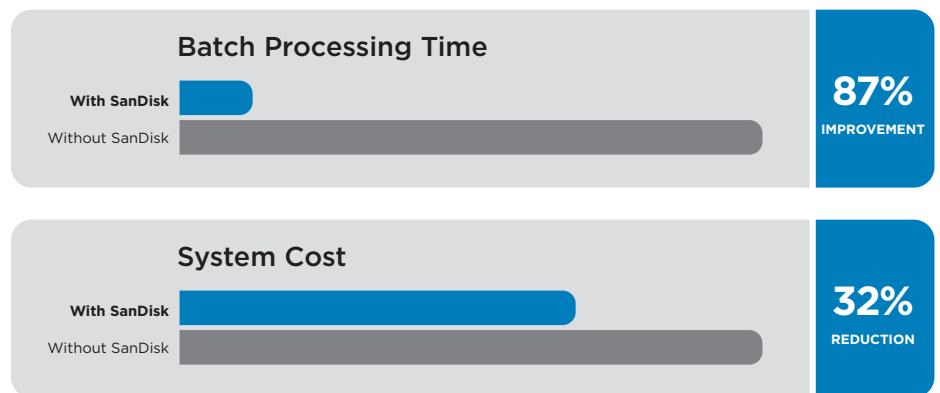
**Daimu Takagi, Information System HQ,  
Zen Nihon Shokuhin Co., Ltd.**

Increasing processing performance eight-fold while reducing costs by 32 percent

“This time, there was absolutely no revision or updating of the software component, and the infrastructure system and operational system were transferred to SanDisk ION Accelerator as is. Even so, the effect of conversion to ‘Ultra-High Speed’ by SanDisk ION Accelerator was sufficiently obtained,” explained Mr. Onda, touching on the results of the introduction.

### The Result

Up to this point, the storage processing by the Oracle database had been the bottleneck for many processes. By converting the storage processing to “Ultra-High Speed,” the Information System Headquarters team was able to obtain performance that exceeded their initial expectations. “In concrete verifications, the job execution times were improved eight-fold, and screen display of Web applications with Java was also accelerated to roughly four-fold. In terms of task times, processes that had taken 11 seconds for screen access display were shortened by between two percent and 0.2 percent. This translated to an average of 400,000 accesses per day and improving the efficiency of 22 hours of tasks. In addition, cost was not quite cut in half, but were reduced by roughly 32 percent, earning high praise from management,” added Mr. Onda, regarding the concrete effects.



#### Contact information

fusion-sales@sandisk.com

#### Western Digital Technologies, Inc.

951 SanDisk Drive  
Milpitas, CA 95035-7933, USA  
T: 1-800-578-6007

Western Digital Technologies, Inc. is the seller of record and licensee in the Americas of SanDisk® products.

#### SanDisk Europe, Middle East, Africa

Unit 100, Airside Business Park  
Swords, County Dublin, Ireland  
T: 1-800-578-6007

#### SanDisk Asia Pacific

Suite C, D, E, 23/F, No. 918 Middle  
Huahai Road, Jiu Shi Renaissance Building  
Shanghai, 20031, P.R. China  
T: 1-800-578-6007

For more information, please visit:

[www.sandisk.com/enterprise](http://www.sandisk.com/enterprise)

**SanDisk®**  
a Western Digital brand

At SanDisk, we’re expanding the possibilities of data storage. For more than 25 years, SanDisk’s ideas have helped transform the industry, delivering next generation storage solutions for consumers and businesses around the globe.

Daimu Takagi of the Information System HQ also made the following evaluation of the improved operation site with SanDisk ION Accelerator. “Up until now, processing of the POS data that had been tallied was time-consuming; thus, when inquiries were received from stores, we were not able to report on the previous day’s data. However, with the conversion to the new system, tallying is completed overnight, and we are now able to quickly respond to inquiries the next morning.”

### Maximizing the utilization of the “Ultra-High Speed” infrastructure and targeting further growth

Zen-Nisshoku Chain has adopted “VISION 2025,” a management vision looking ten years into the future. In realizing this vision, the expectations for, and the role of the information system will be important, and actions toward the maximum utilization of the current “Ultra-High Speed” infrastructure have already been started. “Under the theme of VISION 2025, the project of thinking about the Zen-Nisshoku Chain ten years hence has been established. In this, the role of the information system is large, and going forward, a variety of management measures will be implemented utilizing IT to its maximum. Commenting on the Company’s plans and outlook for the future, Mr Onda said, “Under the current plan, we have scheduled a boot up of a new retail system including POS next year. In addition, further enhancements of One-to-One marketing represented by ZFSP and building of CRM, as well as realizing net strategies in line with the omni-channel era are also planned. All of these plans are being rolled out on the Phase 2 IT Infrastructure. Because of this, the current structure—which is scalable and able to respond in a mission-critical manner with SanDisk ION Accelerator—is what is supporting the company management.”

The performance results and cost savings discussed herein are based on internal testing and use of SanDisk ION Accelerator and Fusion ioMemory products. Results and performance may vary according to configurations and systems, including drive capacity, system architecture and applications.

©2016 Western Digital Corporation or its affiliates. All rights reserved. SanDisk is a trademark of Western Digital Corporation or its affiliates, registered in the United States and other countries. SanDisk ION Accelerator, Fusion ioMemory, ioDrive, and others are trademarks of Western Digital Corporation or its affiliates. Other brand names mentioned herein are for identification purposes only and may be the trademarks of their holder(s). zChain\_CS\_SanDisk\_v4 06/03/16 5036EN