



U ■
S T

UST IMPLEMENTS SUPERMICRO SERVERS TO MAKE VISION CHECKOUT A REALITY

Faster and More Accurate Store Checkout Reduces Inventory Loss and Increases Customer Satisfaction



Introduction

INDUSTRY

Digital Transformation Services and Consulting

CHALLENGES

- Reduce Time Customer Spends at Checkout
- Increase Accuracy of Items at Checkout
- Enable a Wider Range of Items (including weight)

While self-checkout at many customers' grocery and convenience stores is implemented worldwide, there are faster and more accurate technologies that can enhance the customer experience. There are many thousands of establishments where the current self-checkout systems can be improved, reducing time for customers and increasing product identification which results in a smoother and more customer-friendly environment. Using Artificial Intelligence (AI) to identify the item being purchased, an accurate list of these items can be determined for billing purposes. Scanning an entire basket or cart of items can easily lead to intended or unintended mistakes and a slow checkout line, as each item must be scanned individually.

Challenges

While self-checkout has been in use for a few years, new technologies are becoming available that enhance the ability of customers to get through the process quicker than ever before. The UST Vision Checkout system was designed from the ground up to accelerate the customer experience while reducing mistakes and time consuming tasks. In some environments, the item is not packaged but plated, for example, in a cafeteria style setting. In this case, the system needs to identify the food and quantity before determining the price to charge. In a grocery store, touchless checking of produce (irregular shape), for example, will be much more accurate than a consumer typing in a product code.

The UST Vision Checkout system needed powerful servers that live at the "edge" of the network. These systems needed to be compact and contain the necessary CPUs and

GPUs to create a checkout system where the computer was not a bottleneck. Besides the basic hardware, the UST Vision Checkout System needed to be expandable so that the same server could be used in different scenarios, depending on the customer traffic. Keeping the same basic server system but increasing the number of GPUs reduces costs, as the same system is used for different scenarios.

UST needed to use a server with a fast processor that could also house multiple GPUs and communicate with other systems seamlessly. While the customer experiences the "inferencing" during checkout, UST needed a server for the training system. For simplicity, UST wanted the same servers to be able to be "trained" and then used for the actual checkout experience.

Solution

Experience the future of shopping with UST Vision Checkout! Say goodbye to long queues and tedious checkout processes. With Supermicro, Intel, and UST cutting-edge technology, you can breeze through the checkout in seconds. UST Technologies determined that the Supermicro E403 SuperServer would be ideal for this application. The Supermicro SYS-E403-12P-FN2T is a powerful server with an Intel® Xeon Gold 4310 and 64GB of memory. In addition, each E403 server can accommodate up to 3 Intel GPU Flex Series 170 for environments where the checkout traffic requires the level of performance.

SOLUTION

Supermicro Edge Server

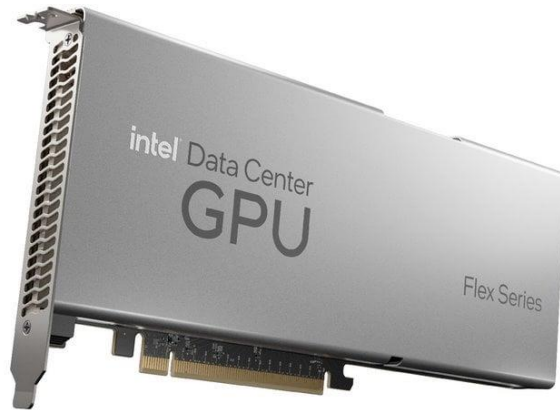
SYS-E403-12P-FN2T

- Intel® Xeon® Gold 4310 processor
- 64GB of Memory
- 3x Intel Data Center GPU Flex 170



Supermicro E403 Server

In addition, this system can house up to three Intel® Data Center GPU Flex 170 cards, giving the Supermicro E403 tremendous AI performance. Each Intel® Data Center GPU Flex 170 contains 16GB of GDDR6 memory and 32 Xe cores.



Intel Data Center Flex Series 170 GPU

During the training phase, an item is placed in a product-training box, and a 360-degree scan of the product is performed. Within 5 minutes, the scans from the image and other identifying information such as the UPC code, current pricing, and additional identifying information are saved.



UST Product Box for AI Training

Benefits

BENEFITS

Faster Checkout Times for Customers

More Accurate Recognition of Items

Closely Tied into IT Infrastructure

UST was able to quickly design, implement, and test a kiosk that used the Supermicro E403 containing one, two, or three Intel Data GPU Flex 170 series cards. One of this system's most critical aspects was measuring the accuracy and speed of the solution. During a pilot phase, where strict requirements were set, the checkout solution identified all products in five seconds or less, with 95 percent accuracy. The rapid, accurate response was supported by a unique product-training box (shown above), where venue managers scan each stock-keeping unit (SKU) from all sides on a rotating platform surrounded by cameras. The 360-degree scans form a complete reference image and are stored for on-demand transmission to the UST Vision Checkout kiosk, along with unit pricing, a UPC, and other identifying information for each SKU. The comprehensive product data can also be integrated with inventory management and planning solutions at the store or chain level.

The goal of determining the item that is placed on the table for checkout to be recognized in less than 1 second was achieved, which is significantly faster than manual scanning, where the shopper must first locate the UPC, align it to the scanner and then place the item on another platform for weighing and verification purposes.

Summary

The UST Vision Checkout solution using Supermicro E403 servers enables a more efficient shopping experience. Join the revolution in retail with Vision Checkout. Experience the freedom of a checkout-free shopping experience, where end-user purchases are seamlessly processed using advanced computer vision. Shopping has never been this effortless.

"Supermicro has been a critical partner for UST in working with us to determine the best-fit server for our applications. The compactness and performance of the Supermicro E403 server enable us to offer a low-cost and highly interactive solution for contactless checkout at various establishments."

- Ramgopal Reddy, UST Head of Vision AI Products Management

SUPERMICRO

Supermicro is a global leader in high performance, green computing server technology and innovation. We provide our global customers with application-optimized servers and workstations customized with blade, storage, and GPU solutions. Our products offer proven reliability, superior design, and one of the industry's broadest array of product configurations, to fit all computational need.

For more information, visit www.supermicro.com

UST

UST delivers unique market offering enabling us to use software, automation and AI to address client problems. Build the business of tomorrow with assured speed - We deliver swift, sustainable solutions, so you can empower your people, improve your processes and transform your technology in a safe, secure environment. Using a nimble, creative approach, we work together from start to finish to realize our client's vision for tomorrow. We deploy the right talent and tools to craft disruptive solutions and provide the resources and expertise to bring them to life.

For more information, visit <https://www.ust.com>