

White Paper

Drive Smarter Retail Operations with Business Intelligence



Business intelligence (BI) is increasingly adopted by more savvy retailers in the highly-competitive environment. With the advance of hardware devices and analytic software, retail analytics help retailers comprehensively collect and accurately analyze buying patterns and store operation data, turning raw data into actionable business insights.

This article will examine how retailers can exploit microservers to benchmark buyer engagement, visit-to-purchase conversion rate, and operational efficiency. We start with how NEXCOM's new NDIS B535 employs the 6th gen Intel® Core™ processor to help reshape the retail landscape. We look into how faster image processing and computing help the server deliver real-time buying behavior analysis. We also look at how reliable NDIS B535 simplifies maintenance errands and repairs while leveraging the suite of Intel® Platform Protection technologies in order to safeguard customer privacy and business intellectual property.

Applying Business Intelligence to the Needs of Retailers

Retailers' success comes from thoroughly understanding their customers, such as their

demographic, behavioral attributes, tastes, preferences, patterns, and timely actions to optimize customer-specific offerings, promotions, product assortments, layout design, and staffing.

Retailers used to rely on traditional marketing research for customer insights. However, the older survey process involves human observation which takes longer time and interrupts the continuity of shopping experience, not to mention prone-to-error results. With technology advances, BI automates the process of long-term observation and analysis and delivers a 360-degree picture of buying behavior without shopping interruptions.

Boost Sales and Revenues

To gain higher ground under heated competition, more and more savvy retailers are embracing BI to increase sales with better understanding of shopping behaviors. With the availability of more powerful tools such as demographic analysis, people counting (Figure 1), and heat maps, Wi-Fi, and mobile applications,



Figure 1. People counting data can be visualized into heat maps, allowing retailers to understand shopper movement in their stores

retailers can get multi-dimensional view of customers. Retailers can further use customer insights to develop relevant, targeted shopper marketing messaging and promotions, recommendations, service offerings and incentives to boost revenues.

Optimize Operational Efficiency

Combining these tools with inventory systems, staffing systems, point-of-sale (POS), and customer relationship management (CRM), retailers can get a full spectrum of not just customer insights and buying patterns but also marketing effectiveness and operational efficiency. This insight of customer and operation information helps businesses proactively service and interact with shoppers with optimized staffing, stocking, and assortment in a timely manner, enhancing customer satisfaction and loyalty.

Build Customer Trust and Credibility

With data breaches increasing in number and scale, the result could be costly in terms of notification, remediation, lawsuits and fines, let alone the loss of confidential business information. Therefore, a reliable, secure microserver that provides real-time data and information consistency is critical for retailers to retain customer trust and loyalty while improving operational performance with competitive advantages.

Establish Reliable Business Intelligence Generator

For retailers, a reliable and simple-to-maintain system becomes crucial. Since retailers often lack the expertise and rely on system integrators for technical support, convenient and remote maintenance features can reduce unnecessary on-site visits and related cost.

How Business Intelligence Works

Turning Data into Intelligence

Today's HD cameras provide a clear, substantiated picture of what's happening in a store while analytics provide automated ways to convert movement into traffic data. Still, offering real-time analysis including customer demographics, people counting, zone traffic patterns, dwell

times rely heavily on computing efficiency.

Incorporating 14nm Intel® Core™ i7-6700TE or i5-6500TE processors, NEXCOM's NDiS B535 boosts analytics performance to detect, identify, and track customers and buying patterns with accelerated computing capabilities. The integrated Intel® Advanced Vector Extensions 2 (Intel® AVX2) instruction set allows the processor double the number of floating-point operations per second (FLOPS) per clock cycle, providing more accurate and efficient implementation of video content analysis.

For instance, with the assistance of people counting technology, retailers can measure the number of shoppers passing by and into their stores for peak periods. These feeds can then be cross checked with extra impact assessment such as weather or holidays so that retailers can create related promotions to increase sales.

Retailers can also assess advertising effectiveness through a better understanding of customer characteristics such as demographic data, impressions, and loiter times (Figure 2). The

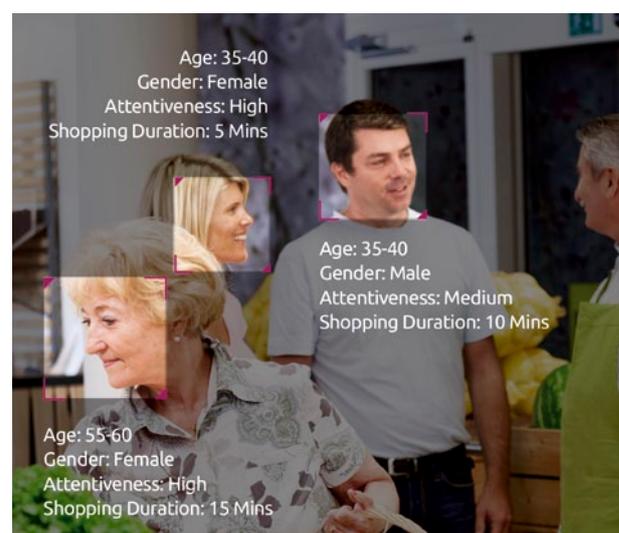


Figure 2. Retailers can also assess advertising effectiveness through a better understanding of customer characteristics such as demographic data, impressions, and loiter times.



Figure 3. Service and wait times can be translated into immediate dispatch actions from real-time video analytics. More efficient staffing can be enabled for improved customer satisfaction.

behavior analysis offers retailers deeper insights with quantitative data to identify which type of promotion appeals to specific groups.

If retailers are considering upgrading current surveillance systems with 4K solutions to measure traffic at more granular levels down to aisles and products, the microserver is capable of the upgrade with the latest high efficiency video coding (HEVC) support.

Interweaving Data for Actions

Faster turnaround for real-time video analytics can assist retailers in understanding customer preferences and responding with real-time actions. The Intel® Hyper-Threading Technology allows multiple threads to run on each core so that more work can be done in parallel, completing tasks sooner. Video analysis can then be efficiently integrated with data from other sources including sensors, inventory systems, workforce information, POS, CRM, and loyalty programs.

For instance, with the integration with mobile applications and CRM systems, retailers can build loyalty programs to stimulate customer engagement by creating rewarding events or actions to trigger loyalty rewards and exclusive promotions.

Also, through the combination of workforce management (Figure 3) and inventory systems, store resource demands such as staffing and stocking can be anticipated in advance. Guaranteed availability of products and faster checkout speed can be ensured, thus leading to higher customer satisfaction.

Pacifying Concerns with Layered Defense

Customer trust is another significant factor for repeat business. To help retailers manage security risk and protect customer privacy from cyber attacks, trustworthy microservers featuring hardware-assisted security not only ensure the data integrity from being tampered with, but also safeguard customer data in storage and the connection between edge devices and the cloud.

Taking advantage of the suite of Intel® Platform Protection technologies (Figure 4) built inside Intel Core processors, the NDiS B535 helps protect

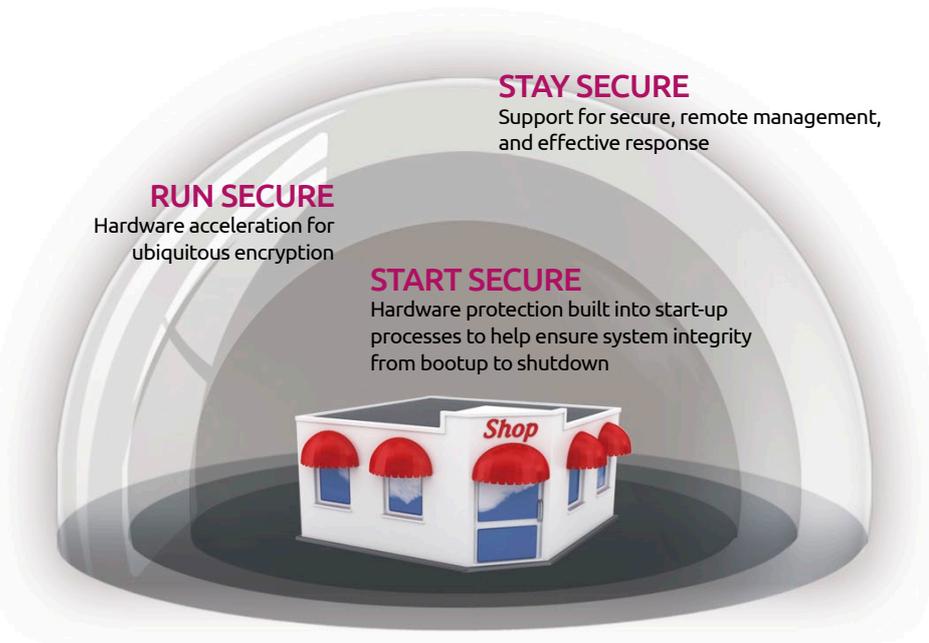


Figure 4. Intel® Platform Protection implements multi-layered security for retail operations



Figure 5. Offering real-time analysis including customer demographics, people counting, zone traffic patterns, dwell times demands more advanced technologies.

organizations' business intelligence, intellectual property, and customer data with boot integrity, BIOS protection, and platform resiliency for a high level of trust in retail operations.

Intel® Boot Guard helps detect unauthorized code from malware infection or purposeful jailbreaking while BIOS guard helps protect against BIOS attacks. These security measures help minimize the risk of tampering or other criminal activities against the microserver itself.

Protection of customer data processed, stored, and transmitted is equally critical. To ensure the enterprise data integrity during local storage and transmission, Intel® Advanced Encryption Standard New Instructions (Intel® AES-NI) offers a fast, secure AES engine for a variety of encryption applications. Intel® Secure Key generates high-quality keys for cryptographic protocols, making the encrypted data even harder to crack.

Keeping Operation Reliable and Simple

Considering businesses may frequently analyze video data

for BI applications, the reliability of microservers become important. By supporting M.2 NGFF SSD storage, the NDIS B535 offers faster data seek times while providing an energy-efficient and durable operation.

The NDIS B535 provides both wired and wireless Internet access along with rich I/O interfaces for easy installation with sensors, POS, CRM, and more. Furthermore, the NDIS B535 (Figure 5) supports remote diagnostic and repair through Intel® vPro™ technology. When a hardware component fails, technicians can be notified with alerts and can diagnose and try to fix it remotely.

Conclusion

By reducing the time spent digging through piles of data and implementation, the NDIS B535 offers retailers more time to think strategically, take action, and run the business. NEXCOM's retail solution combines optimized performance, robustness, manageability, and security, making it an effective tool for shaping the retail future.



The Intelligent Systems

Founded in 1992, NEXCOM integrates its capabilities and operates six global businesses, which are Multi-Media Solutions, Mobile Computing Solutions, IoT Automation Solutions, Network and Communication Solutions, Intelligent Digital Security, and Healthcare and Medical Informatics. NEXCOM serves its customers worldwide through its subsidiaries in five major industrial countries. Under the IoT megatrend, NEXCOM expands its offerings with solutions in emerging applications including IoT, robot, connected cars, Industry 4.0, and industrial security.

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