



Case Study: AI-Powered Digital Signage Player

*(DSP Series with Intel® OpenVINO™
Toolkit)*

Digital Signage Powered by AI

Digital signage is more prevalent and diversified than ever before. It can be seen not only in public areas but also in private sectors including restaurants, retail stores and many more. With the rise of artificial intelligence (AI), visual data analytics and non-stop operation solutions are among the most requested capabilities by retail business owners. AI allows retailers to understand buying behavior through image processing and analysis, helping them improve products or services to ensure that their offerings are in line with what customers anticipate. AI also enables retailers to formulate their omni-channel marketing strategies faster and with higher accuracy, making it easier for them to create a seamless and personalized shopping experience. In a constantly changing retail landscape, what matters most is to remain competitive and profitable. Now businesses can boost sales and enhance long-term brand loyalty through better use of consumer data, which can be unlocked directly from real-time images and videos by using intelligent digital signage players with deep learning and computer vision capabilities.

Challenges

Our customer owns one of the largest multinational retail chains. It is in search of a digital signage player that can be used for deploying visual intelligence with low power consumption in stores and restaurants. The digital signage player should be able to use facial recognition technology to identify visitors' gender and age based on the results of imaging/video analytics, allowing managers to evaluate the efficiency of their marketing strategies and determine their commercial target audience. The signage player must have rich I/O interfaces in order to integrate cameras and provide multiple display outputs. Meanwhile, the support of the Intel® Vision Accelerator Design solution combining the Intel® Movidius™ Myriad™ X Vision Processing Unit (VPU) and the Intel® Distribution of OpenVINO™ toolkit is required for developing edge AI inference capabilities and camera vision applications.

Main requirements

- High-performance Intel® Core™ and Atom® processors
- Supports the Intel® Movidius™ Myriad™ X VPU
- Supports the Intel® Distribution of OpenVINO™ toolkit
- Sufficient storage and graphics capabilities
- Fanless design

Axiomtek's solution

Axiomtek's intelligent retail solutions are designed to support retailers to be best in class. Its DSP series of products covers full-scale digital signage players – from entry-level, low power and cost-efficient products to high-end, performance driven models – to fulfill diversifying operation needs. The super slim form factor makes the DSP easy to install in space-limited locations such as behind the display, while the fanless design allows it to execute noise-free operation and deliver remarkable performance despite working in harsh environments, making it an ideal solution for intelligent digital signage applications in the retail market.

Application – Real-Time Camera Vision Analytics

Axiomtek's DSP series enables rapid implementation of intelligent digital signage with deep learning inference capability. Utilizing the Intel® Movidius™ Myriad™ X VPU's graphics computing power, plus the Intel® OpenVINO™ software toolkit providing essential tools for deploying pretrained models, the DSP series delivers extraordinary speed and power-efficient performance to accelerate computer vision and inferencing workloads at the edge. When integrated with cameras, the DSP can perform facial recognition, shopping route tracking, purchasing behavior analytics and other real-time vision tasks to extract rich customer information. Based on the collected data, it is able to display personalized advertising to target particular audiences, while at the same time sending valuable insights via cloud for further use by retail managers to optimize marketing planning or business development. These scalable DSPs also feature sufficient HDMI ports to enable multi-displays of advertising broadcasting and sales promotion programs.



System Configurations

DSP300-318



- Fanless operation with low power consumption
- 2 DDR3L-1600 SO-DIMM for up to 8GB of memory
- 1 HDMI 1.4 and 1 DisplayPort ++
- 4 USB, 2 GbE LAN
- 1 M.2 Key E 2230 slot for Wi-Fi/BT
- 1 M.2 Key B 3042 slot for 4G LTE
- 1 M.2 Key M 2280 for storage

DSP500-523



- 8/9th gen Intel® Core™ i7/i5/i3 & Pentium® processor (Coffee Lake/ Coffee Lake Refresh)
- 2 DDR4-2400 SO-DIMM for up to 32GB of memory
- 3 HDMI 2.0
- 4 USB 3.1 and 1 GbE LAN
- 1 M.2 Key E 2230 for Wi-Fi/BT
- 1 M.2 Key B 3042 for 4G LTE
- 1 M.2 Key M 2280 for storage

DSP501-527



- 8th gen Intel® Core™ i3/i5 & Celeron® processor
- 2 DDR4-2400 SO-DIMM for up to 32GB of memory
- 1 DisplayPort++, HDMI 2.0
- 5 USB and 1 GbE LAN
- 1 M.2 Key E 2230 for Wi-Fi/BT
- 1 M.2 Key B 3042 slot for 4G LTE
- 1 M.2 Key M 2280 for storage

*For detailed specifications, visit www.axiomtek.com and go to: [Products > Systems & Platforms > Digital Signage Players > Digital Signage Player](#).

About Axiomtek Co., Ltd.

Axiomtek has experienced extraordinary growth in the past 30 years because of our people, our years of learning which resulted in our tremendous industry experience, and our desire to deliver well-rounded, easy-to-integrate solutions to our customers. These factors have influenced us to invest in a growing team of engineers including software, hardware, firmware and application engineers. For the next few decades, our success will be determined by our ability to lead with unique technologies for AIoT and serve our key markets with innovatively-designed solution packages of hardware and software – coupled with unmatched engineering and value-added services that will help lessen the challenges faced by our systems integrator, OEM and ODM customers and prospects alike. We will continue to enlist more technology partners and increase collaborations with our growing ecosystem who are leaders in their fields. With such alliances, we will create synergy and better deliver solutions, value and the expertise our customers need.

Axiomtek is a Member of the Intel IoT® Solutions Alliance. A global ecosystem of more than 800 industry leaders, the Alliance offers its Members unique access to Intel technology, expertise, and go-to-market support—accelerating deployment of best-in-class solutions.