

- / Corporate & Industrial
- / Transportation & Public Info

Digital Signage Solutions

11 Successful Cases of AI-Powered Interactive Displays in Smart Cities

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Transforming Cities, One Smart Sign at a Time

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Versatile Mounting Kit for Digital Signage Applications









Rack Mount







Slim Design Saves Space



Quick Installation Minimal Tools



Versatile Mounting Mount Anywhere

Digital Signage in Retail and Smart City

Powering AI-Driven Solutions for a Connected Future





Discover how AI-powered digital signage is transforming cities across Hospitality, Retail, Corporate, and Transportation sectors. This eBook highlights 11 real-world cases where smart

signage enhances engagement, boosts operational efficiency, and delivers dynamic, real-time content.

Our Digital Signage Product Management Team plays a key role in driving these innovations, delivering tailored solutions that meet diverse industry needs and power smarter, more connected cities.





Enhancing the Lottery Experience

The DS-410 enhances the lottery experience by delivering dynamic, real-time content through digital signage. It displays winning numbers, game instructions, promotions, and interactive features, engaging customers with up-to-date jackpot information and special offers. Commonly used in retail or public spaces, this technology boosts customer engagement, promotes lottery products, and increases sales by providing visually appealing and informative content in an interactive format. The DS-410's compact design and advanced features make it ideal for diverse digital signage applications.

Background

Lottery signage serves a dual purpose: information delivery and customer engagement.

VESA Mount

Key Roles of Lottery Signage:

Wall Mount

- 1. Promotes Lottery Products
 - Displays jackpot prizes, game instructions, and lucky draw details.
- 2. Attracts Customers
 - Utilizes high-definition visuals and animations to grab attention.
- 3. Improves Information Clarity
 - Simplifies complex messages for broader audience understanding.

Positioned in physical stores, public spaces, or integrated into digital campaigns, lottery signage ensures brand visibility and provides an immersive experience, helping businesses increase participation and sales.

DIN Rail

System Requirements

The DS-410 platform ensures lottery signage meets critical performance and operational needs.

Hardware Specifications:

Component	Requirement
Processor	Intel® Atom® Celeron® J6412 (Elkhart Lake)
RAM	4GB or 8GB onboard memory
Storage	256GB SSD for scalability
Connectivity	Wi-Fi/Ethernet for updates; USB for devices

Software Requirements:

Feature	Purpose
Operating System	Windows, Linux, or Chrome Flex
DeviceOn Platform	IoT-based centralized device management
Content Management System (CMS)	Remote scheduling and updates

System Implementation

Key Features of DS-410:

- 1. Compact and Versatile Design
 - Fits into limited spaces in retail locations.
 - Ideal for signage of varying sizes and orientations.
- 2. Superior Performance
 - Powered by the Intel® Celeron® J6412, offering 4K resolution for visually stunning displays.
- Smooth performance for dynamic content, reducing latency.
- 3. Seamless Management
 - The DeviceOn IoT Management Platform provides remote monitoring and control.
 - Streamlined content updates via CMS integration.

System Architecture



DS-410DS-450Compact, high-performance solutionAdvanced platform for larger digital displays.

Slim Signage Player for Gaming Tables

The DS-082 Slim Signage Player is designed to enhance the tabletop gaming experience with high-quality visuals and seamless interactivity. Powered by AMD R1000/V1000 processors and supporting up to 4 x 2K HDMI outputs, it delivers vibrant graphics and smooth gameplay. Its slim 22mm profile makes it ideal for space-constrained environments, such as under tables. With robust connectivity options and powerful processing, the DS-082 is perfect for professional gaming venues and home entertainment setups, providing an immersive and efficient gaming solution.

Background

The Slim Signage Player, designed for gaming equipment manufacturers and AMD display enthusiasts, is a game-changer for tabletop gaming environments. Leveraging powerful AMD processing, ultra-HD output, and a sleek form factor, it transforms the traditional gaming experience.

VESA Mount

Key Roles of the Slim Signage Player:

- 1. Enhanced Gaming Display
 - Supports ultra-HD visuals with up to 4 x 2K HDMI outputs.
 - Provides vivid graphics and smooth animations, creating a more engaging player experience.
- 2. Compact and Space-Efficient Design
 - With a slim 22mm height, it fits under gaming tables or into limited spaces.
 - Reduces deployment and maintenance costs with a modular, easy-to-install design.

Wall Mount

- 3. Comprehensive Connectivity
 - Dual Gb LAN ports for secure Internet and Intranet communication.
 - HDMI, USB 3.2, and RS232 ports for peripheral connectivity and screen adjustments.

Whether in commercial gaming venues or home entertainment, the Slim Signage Player stands out as a key enabler of interactive, visually stunning, and seamless tabletop gaming experiences.

System Requirements

Hardware Specifications:

Component	Specification
Processor	AMD R1000/V1000 with Radeon Vega Gfx
RAM	8GB + 8GB (for 3D/Gaming display)
Storage	64 GB SSD
HDMI Ports	2 to 4 ports
Connectivity	Dual Gb LAN Ethernet for CMS network

Software Requirements:

Software	Purpose
Radeon Gfx Tool	Enables vertical/horizontal screen setup
Operating System	Windows (typically)

System Implementation

The DS-082 Slim Signage Player, powered by AMD R1606 processors, is specifically designed to optimize control room and gaming environments. It supports 3 to 4 x 2K HDMI outputs, delivering high-quality visuals tailored to enhance the tabletop gaming experience.

Key Features of DS-082

- 1. Slim and Compact Design
 - 22mm Height: Fits tight spaces, reducing costs.
 - · Space Efficient: Small footprint, strong performance.
- 2. Powerful Processing & Graphics
 - AMD R1606: Handles HD video, animations, and gaming.
 - Multi-Screen Support: 4 x 2K HDMI outputs.
- 3. Comprehensive Connectivity
 - Dual Gb LAN, RS232 & USB 3.2 Ports: Enable fast, secure data and peripheral integration.
- 4. Robust Security & Control
 - IP CAN Integration: Ensures secure table monitoring and data flow.
- 5. Versatile Application
 - For gaming venues, home setups, and entertainment; supports peripherals via HDMI, USB, and RS232.

System Architecture



AMD Windows Trellix Acronis

Related Products:



DS-082 Core product supporting table gaming environments.

Interactive and Entertainment Solutions for Casinos

Digital signage in casinos enhances the quest experience by providing dynamic, engaging, and personalized content. It offers real-time updates, interactive features, and targeted promotions that improve customer service and operational efficiency. Digital signage creates a vibrant atmosphere while streamlining marketing efforts and enhancing entertainment. It helps casinos engage guests with tailored experiences, improve operational workflows, and stay current with the latest trends. With advanced technology and flexible displays, digital signage is essential in transforming the casino environment into a more interactive and efficient space.

Background

Casinos transitioned from static signs to digital solutions in the early 2000s. Today, advanced signage systems incorporate AI and analytics, delivering targeted content and immersive visuals. Digital signage fosters operational efficiency while amplifying entertainment value, becoming integral to modern casino environments.

ESA Mount

Key Roles of Table Gaming Slim Signage:

- 1. High-Quality Visuals
 - Supports 3-4 x 2K HDMI outputs with AMD Radeon Vega graphics for immersive gaming visuals.

Wall Mount

- 2. Slim, Compact Design
 - Ultra-slim 22mm height for installation in tight spaces, reducing costs.
- 3. Powerful Performance
 - AMD R1606 processors ensure smooth gaming and data processing.
- 4. Robust Connectivity
 - Dual Gb LAN for secure Internet/Intranet and IP CAN monitoring.
 - HDMI, USB 3.2, and RS232 for easy device integration.
- 5. Optimized for Table Gaming
 - · Designed for multiple displays, vibrant effects, and seamless performance.
- 6. Versatile Applications
 - · Perfect for gaming venues, control rooms, and digital signage setups.

System Requirements

The Advantech DS-082, designed for casino applications, features:

Component	Requirement
Processor	AMD Ryzen V/R series
RAM	8GB DDR4
Storage:	64GB SSD
Display	Up to 4 HDMI outputs for 4K visuals
Connectivity	Multiple USB, RS-232 ports, and dual LAN
Design	Fanless, compact for diverse environments

System Implementation

For effective deployment:

- 1. Use durable, HD/4K displays for vibrant visuals.
- 2. Implement CMS for centralized content control.
- 3. Enable interactive features like touchscreens or sensors for user engagement.
- 4. Leverage analytics to refine marketing efforts and enhance content relevance.
- 5. Ensure compliance with regulatory standards and robust data security.

The DS-082 meets these requirements, making it ideal for the entertainment industry.

System Architecture



AMD Windows Trellix Acronis



Empowering Self-Service Kiosk Solutions

Self-service kiosks are transforming industries like food service, retail, and hospitality by enhancing profitability, efficiency, and customer satisfaction. Advantech's DS-230, featuring SDM modularity, addresses challenges such as integration, scalability, and maintenance with its innovative design. Equipped with 12th Gen Intel® Core[™] processors and 4K UHD output, the DS-230 ensures high performance and flexibility. Its modular architecture simplifies hardware upgrades and minimizes downtime, making it a sustainable, cost-effective solution for businesses adopting self-service kiosks at scale.

Background

Digital kiosks are revolutionizing customer interactions in sectors like retail, QSR, and hospitality. However, scaling them presents challenges, such as system integration, Al-driven personalization, and long-term maintenance. Advantech's DS-230 addresses these issues with its SDM modularity. Its flexible architecture enables efficient scaling, streamlines workflows, and minimizes downtime. The modular design simplifies upgrades and boosts operational efficiency, helping businesses stay competitive and meet evolving demands.

SDM-L Modular

Key Roles of Digital Signage in Self-Service Kiosks:

- 1. Automates Tasks
- Handles repetitive processes like order-taking, payments, and ticket generation.
- 2. Enhances Customer Experience
 - Provides intuitive touchscreens and supports NFC, RFID, and mobile payments.
- 3. Supports Scalable Design
 - SDM modularity enables quick upgrades and future-proofing of kiosks.
- 4. Delivers High Performance
 - Powered by 12th Gen Intel Core processors for reliable, high-speed performance.
- 5. Reduces Costs
 - Modular components allow cost-efficient on-site maintenance and replacements.
- 6. Ensures Secure Transactions
 - · Includes NFC, RFID, and optional facial recognition for secure payments.

System Requirements

Essential Hardware: Component

Requirement

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Touchscreen Monitor	Multi-touch, durable screen (15–22 inches recommended)
Processor (SDM Module)	Intel® i3 minimum, i5 or above for optimal responsiveness
RAM	4GB minimum; 8GB+ for multitasking
Storage	SSD, 128GB+ for faster load times and stability
Printer	Thermal receipt or ticket printer for transaction proof
Payment Terminal	Credit card / NFC support for seamless payments
Barcode/QR Scanner	For loyalty cards or ticket scanning (optional)
Camera	Optional, for facial recognition or user identification
NFC/RFID Reader	For loyalty programs or staff access control
UPS	Uninterruptible Power Supply to prevent disruptions
Speakers/Microphone	For audio prompts or support communication

Operating Systems

• Windows 10 or 11 • Linux (for specific application needs)

System Implementation

The Advantech DS-230 SDM modular kiosk combines scalability and performance with:

- 1. High Performance: Powered by 12th Gen Intel® Core™ processors, it handles complex tasks and multitasking efficiently.
- 2. 4K UHD Display: Delivers sharp, engaging visuals for customer interaction.
- 3. Modular Flexibility: Swappable components reduce downtime; scalable design ensures future readiness.
- 4. Peripheral Integration: Two USB 2.0 ports support barcode/QR scanners, cameras, and secure payment terminals.
- 5. Compact Design: Ultra-slim build fits seamlessly into tight kiosk spaces.

System Architecture







DS-202 Compact, high-performance digital signage platform.



DS-230 Ideal for self-service kiosks with SDM modular design.

Streamlining Flight Self-Check-In Systems

The DS-450 is an ideal solution for flight self-check-in systems, offering high-performance in a compact design. Powered by an Intel® Atom® J6412 processor, it supports 4GB or 8GB DDR4 memory and provides excellent graphics for clear, detailed displays. With dual HDMI outputs supporting 4K resolution and a wide range of connectivity options, including USB, LAN, and COM ports, it connects seamlessly to check-in peripherals such as printers, scanners, and cameras. Running on Windows 11 IoT Enterprise LTSC, the DS-450 ensures reliable, secure performance for airport kiosks, enhancing the passenger check-in experience.

Background

Flight self-check-in systems let passengers check in, select seats, and print boarding passes independently, streamlining operations with user authentication, flight scheduling, and real-time updates, including payments. Advantech's DS-450, with Intel® Atom® J6412 processors, ensures compact, robust performance, seamless peripheral integration, and dual HDMI 4K display support for a superior airport experience.

Wall Mount

Key Role of Digital Signage in Flight Self-Check-In :

- 1. Clear 4K visuals via dual HDMI for flight info, check-in, and real-time updates.
- 2. Seamless integration with printers, scanners, cameras, and robust connectivity (USB, COM, LAN).
- 3. Intel Atom® J6412 with DDR4 memory for reliable performance.
- 4. Windows 11 IoT for secure, stable operation in airports.

System Requirements

Kiosk Hardware Essentials:

Component

Specifications

Touchscreen & Interaction Devices	Multi-touch display for user interaction, with barcode scanner for booking or boarding pass scanning
Identity Verification Systems	Passport/ID scanner and facial recognition cameras ensure secure identity verification
Payment & Receipt Systems	Credit card reader supports secure payment, while the receipt printer prints payment receipts
Boarding Pass Printer	Prints boarding passes with QR/barcodes for quick scanning
Kiosk System & Performance Monitoring	Windows 11 IoT Enterprise LTSC for stable operation, with environmental sensors monitoring system health to prevent hardware issues

The DS-450 is a compact, high-performance unit tailored for the demanding environment of airport check-in kiosks.

Key Features of DS-450:

- 1. Compact and Durable Design
 - · Sleek aluminum die-cast body, ideal for high-traffic airport environments.
- 2. Enhanced Processing and Graphics
 - Powered by the Intel® Atom® J6412 processor, offering reliable performance.
 - Equipped with 4GB/8GB DDR4 memory optimized for clear, high-quality graphics.
- 3. Advanced Display Capabilities
- Dual HDMI outputs supporting up to 4K resolution for crisp visuals on large or multiple screens.
- 4. Comprehensive Connectivity
 - 6 USB ports for peripherals like printers and scanners.
 - 2 Gigabit LAN ports and 2 COM ports for versatile connections.
 - Phoenix DB9 connector for seamless integration with additional devices.
- 5. Optimized for Stability and Scalability
 - Compatible with Windows 11 IoT Enterprise LTSC, ensuring a secure and efficient platform.

System Architecture



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DS-410 Ideal for complementary airport applications.



DS-450 Optimized for flight self-check-in systems.

AI-Driven Retail Transformation

The DS-086 is a powerful solution for Al-driven retail applications. designed to enhance customer engagement and optimize operations. With its advanced Intel® Core™ Ultra processor, 10 TOPs NPU, and 8K resolution support, the DS-086 delivers dynamic, personalized content in real time. It integrates AI algorithms to analyze customer behavior and demographics, ensuring highly relevant and impactful displays. This enables retailers to improve customer experiences, streamline in-store operations, and adapt quickly to changing business needs, keeping them competitive in an evolving retail landscape.

Background

Advantech's DS-086 enhances Al-driven digital signage by enabling smarter, interactive, and personalized displays.

Key Role of Al-Driven Signage:

1. Real-Time Adaptability: Uses advanced algorithms to analyze data like demographics, time, and location to deliver relevant content.

Wall Mount

- 2. Dynamic Content Scheduling: Optimizes ad placement based on foot traffic and sales trends for maximum impact.
- 3. Customer Insights: Captures and processes behavior data to refine engagement strategies.

The result is smarter signage that fluidly adapts to audience behavior, elevating both the shopping experience and operational efficiency.

System Requirements

To build a Retail AI Digital Signage System, the following components are essential:

Key Components:

Hardware/Software	Functionality
Digital Signage Displays	Dynamic or interactive screens showing personalized content
Cameras	Captures customer behavior for AI analysis (foot traffic, demographics, etc.)
Edge Computing Devices	Processes real-time data for low-latency AI model operations
AI/ML Models	Analyzes data for customer behavior and preferences using deep learning
Content Management System	Schedules and updates content based on time, audience, and interaction data
Data Storage	Stores real-time analytics data for privacy and efficiency
Retail Analytics Engine	Generates actionable insights from customer interactions and sales trends
Remote Management	Monitors systems remotely for updates and troubleshooting

The DS-086 is a high-performance digital signage player equipped with industry-leading hardware and software capabilities.

Key Features of the DS-086:

The DS-086 is a compact digital signage player that excels in performance, visuals, connectivity, AI adaptability, and reliability.

- 1. High Performance: Equipped with an an Intel®Core ™ Ultra i5 (Meteor Lake) CPU for multitasking and an Intel® Arc® GPU with a 10-TOPs NPU, it handles advanced AI processing with ease.
- 2. Exceptional Visuals: Features 4 HDMI 2.1 ports supporting 8K and 4K resolutions along with dynamic HDR, providing vibrant and immersive displays.
- 3. Advanced Connectivity: Offers dual-channel DDR5 memory, USB 3.0, RS232, dual 2.5Gb LAN ports, and Phoenix DB9 connectors, ensuring seamless integration with peripherals like cameras and sensors.
- 4. Real-Time AI Adaptability: The 10 TOPs NPU processes large data volumes for dynamic content updates, while AI frameworks enable personalized analytics-driven experiences.
- 5. Reliable Design: Smart fan cooling ensures stable operation in demanding environments, and its compact form factor is ideal for spaceconstrained retail settings.

System Architecture



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DS-082 Ideal for entry-level AI-driven signage.



DS-085 Compact solution for smaller-scale AI needs.



DS-086 For dynamic retail AI applications.

Empowering Interactive Smart Meeting Rooms

Background

The Smart Display Module (SDM) transforms traditional workspaces into dynamic, interactive environments. Designed for versatility, SDMs support:

SDM-L Modular

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The Smart Display Module (SDM) transforms workspaces with advanced touch-screen technology, seamless connectivity, and smart features. It enhances collaboration, streamlines workflows, and boosts productivity across diverse settings, from offices to conference rooms. By improving

communication, enabling efficient media sharing, and optimizing workspace management, the SDM empowers teams to work smarter and more effectively. Its ability to support remote collaboration and resource coordination makes it an essential tool for creating dynamic, connected environments and driving overall workplace efficiency in modern

Key Role of Smart Display Module:

- 1. Collaboration: Enables real-time communication and content sharing.
- 2. Workspace Management: Helps manage office resources efficiently.
- 3. Information Display: Showcases critical updates, schedules, or presentations.
- 4. Remote Communication: Facilitates video conferencing and virtual meetings.

The flexibility of the DS-202 SDM module integrates seamlessly into various business environments, making it ideal for improving collaboration, enhancing productivity, and creating a more dynamic work culture.

System Requirements

To implement an SDM system for a modern workspace, the following components are needed:

Component	Specification
Processor	Intel® Elkhart Lake or equivalent
RAM	Minimum 2GB (8GB recommended for optimal performance)
Storage	64GB SSD for fast data access
Connectivity	Wi-Fi or Ethernet for software updates; USB ports for peripherals
Operating System	Windows, Linux, or Chrome Flex
Content Management System	For remote management and scheduling of content

These requirements ensure smooth, interactive performance and seamless integration with existing workspace technologies.

The DS-202 Smart Display Module is designed to deliver exceptional performance in workspace environments, providing reliable 4K UHD content streaming and enhanced interactivity.

Key Features

- 1. Powerful Performance
 - Intel® Elkhart Lake processors for efficient processing and multitasking.
 - · Supports 4K UHD output for crisp, clear visuals in meetings and presentations.
- 2. Slot-In Integration
 - · Reduces space requirements by integrating easily with existing display setups.
 - Simplifies deployment and lowers field maintenance costs through modular design.
- 3. Comprehensive Connectivity
 - Built-in I/O Ports: HDMI, mini DP, USB 3.0, and a single LAN (RJ-45).
 - Ensures compatibility with peripherals like cameras, microphones, and external displays.
- 4. Efficient Media Playback and Display
 - · Ideal for applications that require seamless media playback, such as digital signage or interactive displays.
 - Supports smooth content delivery in compact, all-in-one setups.

The DS-202 enables fast and flexible deployment for various workspace needs, improving meeting efficiency and collaboration.

System Architecture







DS-202 Smart display for seamless collaboration.



DS-230 Enhanced digital signage for versatile displays.

Smart Control Room TV Wall Solutions

As smart city operations and management become increasingly automated, AI-powered smart control room video walls have become essential for real-time monitoring and decision-making. These advanced systems enhance urban management by improving safety, efficiency, and responsiveness. The DS-086 signage player, with its powerful AI capabilities, plays a key role in these environments. By providing high-quality 4K visuals, advanced analytics, and predictive alerts, the DS-086 ensures smoother coordination in critical areas like traffic control and public safety, ultimately supporting more informed decisions and efficient city operations.

Background

In the era of smart cities, control room personnel face demands to monitor and address urban challenges. Video walls show real-time surveillance feeds, enabling swift responses. Al integration enhances these systems by analyzing data, identifying patterns, and generating alerts for anomalies like crowding or traffic disruptions.

Wall Mount

Key Role of Al-Powered Control Rooms:

- 1. Predictive Analytics: Anticipates issues like traffic congestion or safety threats before escalation.
- 2. Proactive Alerting: Prioritizes alerts by severity for faster responses.
- 3. Informed Decisions: Provides real-time updates for guick action in critical scenarios.
- 4. Enhanced Collaboration: Centralizes data to improve inter-department communication.
- The intuitive interface reduces training needs, while long-term data aids urban planning and public safety improvements.

System Requirements

For a smart control room video wall powered by AI, the system should meet the following requirements:

Component	Specification
Processor	Intel® Core™ Ultra Series 1 (Meteor Lake) or equivalent
RAM	At least 8GB (preferably 8GB + 8GB for real-time display)
Storage	128GB SSD for fast data access
NPU	10 TOPS for AI framework support
Connectivity	2.5Gb Ethernet for IP camera video input; USB ports for peripherals
Signage CMS	Content management system for organizing video wall layout
Operating System	Windows, Linux for stability and flexibility
Operating System	Windows, Linux for stability and flexibility

The DS-086, powered by Intel® Core™ Ultra Series 1 (Meteor Lake) processors, is designed to enhance control room operations with advanced features and powerful AI capabilities.

Key Features of DS-086:

- 1. 4K Video Wall Support
 - Supports 4 x 4K HDMI outputs, enabling high-quality visuals across multiple screens.
 - Smooth content streaming with dual 2.5Gb LAN for fast data transfer.
- 2. Compact Design
 - With a height of just 22mm, the DS-086 is ideal for IT/OT setups in space-constrained environments.
 - Reduces the need for bulky systems, lowering deployment and maintenance costs.
- 3. AI-Powered Features
 - Equipped with a 10-TOPS NPU, enabling real-time AI analysis for face recognition, human behavior analysis, and object detection.
 - Al assistance enhances decision-making by providing alerts on potential security breaches or anomalies.
- 4. Easy Connectivity
 - Built-in I/O options including HDMI, USB 3.2, and RS232, facilitate flexible connectivity for external devices and easy screen adjustments.

The DS-086 is an ideal solution for modern control rooms, providing high-quality visuals, advanced AI capabilities, and compact design for efficient space management.

System Architecture







Digital Signage Solutions for Modern Workspaces

Digital signage revolutionizes workplace communication with dynamic, interactive displays that enhance engagement, productivity, and collaboration. Offering realtime updates, announcements, and meeting details, it fosters connected, agile environments. The DS-450, featuring the Intel® J6412, up to 16GB RAM, and 512GB SSD, delivers robust performance and remote management. Its compact, durable design supports seamless integration and scalability for evolving business needs. Ideal for corporate spaces, the DS-450 simplifies content delivery, streamlines operations, and promotes a connected, efficient workplace atmosphere.

Background

Initially an aesthetic addition, digital signage has grown to be a vital tool in corporate environments. It simplifies communication, supports employee interaction, and fosters a productive atmosphere by delivering real-time updates, event information, and company announcements. The shift from static to digital displays aligns with the evolving needs of agile workplaces, making content management seamless and promoting a connected corporate culture.

Wall Mount

Key Role of Digital Signage:

- 1. Enhances communication with real-time, dynamic content.
- 2. Displays announcements, company updates, and performance metrics.
- 3. Facilitates wayfinding and meeting room bookings.
- 4. Improves employee engagement and collaboration.
- 5. Streamlines workflows and boosts productivity.
- 6. Elevates visitor and employee experiences with on-demand information.

System Requirements

The DS-450 solution is optimized for digital signage with the following specifications:

Component	Specification
Processor	Intel® J6412 (Elkhart Lake)
RAM	Up to 16GB DDR4
Storage	512GB SSD for quick data access
Connectivity	Gigabit Ethernet, optional Wi-Fi, USB 3.0, RS-232 ports
Operating Systems	Windows 10 IoT Enterprise, Linux
Design	Compact (160mm x 115mm x 43mm) with built-in cooling for longevity

To integrate digital signage into a workplace:

- 1. Install durable, high-resolution displays for dynamic visuals.
- 2. Utilize a robust content management system for real-time updates and remote control.
- 3. Ensure seamless network connectivity to deliver content reliably.
- 4. Employ analytics for content optimization while maintaining data privacy and security.
- 5. Incorporate scalable systems to adapt to evolving business needs and integrate accessibility features.

The DS-450 delivers tailored solutions for corporate spaces, retail, and public environments.

System Architecture





DS-410 Compact, versatile digital signage solution.



DS-450 High-performance signage with flexible connectivity.

Passenger Information System (PIS) Solution

Background

A Passenger Information System (PIS) is a technology solution that provides accurate, timely information to public transport passengers. Its main goal is to enhance the passenger experience by offering real-time updates on schedules, routes, delays, and other essential details. PIS is widely used across various transport networks, including trains, buses, metros, trams, and ferries.

SDM-L Modular

Key Role of Digital Signage in PIS:

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- 1. Real-time Updates: Display dynamic information on schedules, delays, and route changes.
- 2. Enhanced Passenger Experience: Provide clear, visual guidance for convenience.
- 3. Centralized Management: Enable remote and efficient screen updates.
- 4. Revenue Generation: Use eye-catching displays for advertising.
- 5. Operational Efficiency: Improve navigation and reduce terminal congestion.

System Requirements

To ensure efficient performance and seamless integration into existing public transport infrastructure, the DS-230 SDM is equipped with the following features:

Component	Specification
Processor	Intel Pentium or Core i5-1235U processors
RAM	Up to 32GB DDR4
Storage	Expandable with M.2 2242 M-Key storage
Resolution	Supports real 4K resolution for crisp, clear displays
Connectivity	Gigabit Ethernet ports and multiple USB 3.2 ports for peripheral devices
Form Factor	Slim and compact design for easy integration with existing displays

The Smart Display Module (SDM) in a Passenger Information System (PIS) enhances the passenger experience by providing real-time, dynamic, and visually engaging updates. Commonly used in public transportation hubs such as metro stations, buses, and trains, the SDM delivers essential information like station details, schedules, delays, and route changes. These systems improve operational efficiency, ensuring passengers have timely, accessible travel updates, and enabling operators to manage traffic and guide passengers effectively. The integration of high-resolution displays and real-time data makes PIS an essential tool in modern public transport.

The DS-230 is a cost-effective solution for passenger information boards, powered by 12th Gen Intel® Core™ i5/Pentium® processors and compliant with Intel's Smart Display Module (SDM) standards.

- 1. Real-Time Information Display:
 - 4K resolution for clear visuals of schedules, updates, and route changes.
 - Supports up to three independent 4K displays.
- 2. Seamless Integration:
 - Easy installation via SDM slot and modular design for long-term adaptability.
- 3. Dynamic Passenger Guidance:
 - Displays announcements, service changes, and interactive routes.
 - Ultra HD screens enhance communication and support advertising.
- 4. Efficient Traffic Management:
 - · Centralized control of multiple screens for real-time updates and smooth terminal operations.
 - · CMS integration for easy content updates.

System Architecture







DS-202 Compact, efficient modular.



DS-230 High-performance, modular.

Digital Menu Board Solution

Digital menu boards revolutionize hospitality and retail by enhancing customer experiences and boosting operational efficiency. Advantech's DS-085 digital signage player supports up to four 4K displays, reducing installation costs and total cost of ownership (TCO). Powered by Intel® Core™ processors and Intel® Iris® Xe graphics, it delivers smooth, vibrant content playback. Its compact, energy-efficient design includes robust connectivity options for seamless updates and remote management. The DS-085 ensures fast, flexible, and high-quality menu board deployments, improving satisfaction while saving time and resources.

Background

Digital menu boards offer clear, up-to-date information, enhance customer experience, and reduce perceived wait times. Relevant content during waits shortens time perception, while interactive, visually appealing menus accelerate decision-making for quicker orders and shorter wait times.

Key Role of Digital Signage for Menu Boards:

- 1. Boosts customer engagement with dynamic content.
- 2. Reduces wait times with relevant, real-time updates.
- 3. Improves decision-making with clear, interactive displays.
- 4. Increases operational efficiency and supports multi-screen setups.

Wall Mount

5. Delivers energy-efficient, high-quality visuals.

System Requirements

A digital menu board system typically includes the following components:

Component	Specification
Display Screen	HD or 4K LED/LCD screen
Media Player	Device to manage and control content playback
Processor	Intel® Core™ i3/i5 or equivalent
RAM	At least 4GB (8GB recommended)
Storage	32GB SSD or larger for media storage
Connectivity	Wi-Fi or Ethernet for remote updates; USB ports for peripherals
Software	Content Management System (CMS), operating system (Windows/Linux/Android), content creation software, player software
Other	Power supply, mounting hardware, security options (e.g., password protection)

The DS-085 digital signage player offers robust performance and flexible integration, ideal for digital menu boards in retail and hospitality settings. It is powered by Intel® Core™ i3/i5/i7 or Celeron® 6305E processors, offering powerful and efficient processing capabilities. The device also supports up to 32GB of DDR4 memory, ensuring smooth content handling, even for complex media. Storage can be expanded via an M.2 2242 M-Kev slot.

Key Features of DS-085:

- 1. 4K Display Support
 - With Intel® Iris® Xe graphics, the DS-085 supports 4K resolution across four HDMI outputs, enabling high-quality visuals for multiscreen digital menu boards.
- 2. Flexible Connectivity
 - The device offers dual Gigabit Ethernet ports and multiple USB 2.0 ports for easy peripheral connections and content updates.
 - It also features audio-out/mic-in ports, ideal for applications requiring sound integration, such as in interactive displays.
- 3. Energy Efficiency
 - The 19V DC input power supply is certified for energy efficiency, reducing the operating costs of the system.
- 4. Remote Management
 - The DS-085 supports remote management for BIOS updates and OS restoration, making system maintenance easier and more efficient.
- 5. Adaptability
 - The compact, slim design of the DS-085 allows for various mounting options, including VESA, wall-mount, or DIN-rail, making it highly adaptable to different installation environments.

System Architecture







DS-085 Powerful, 4K digital signage player.



DS-086 High-performance player for dynamic displays.

Product Selection Guide

		Ultra Slim Digital Signage Solutions							
			S	Sten Hp	8	S			
Model Name		DS-082	DS-084	DS-085	DS-086	DS-011			
Cooling Type		Fan / Fanless	Fanless	Fanless	Fan/ Fanless	Fanless			
	Processor	AMD Ryzen™ V1000/R2000 Series	AMD Ryzen™ R2000 Series (R2314)	Intel® Tiger Lake, Celeron/i3/i5	Intel® Meteor Lake Ultra5 (U/H) (10 TOPS NPU)	Qualcomm octa-cores QCA6490 (12 TOPS NPU)			
System Prov System Gran Mer JUO Interface USE JUO Interface USE Serie Aud IR F Fun Oth Storage Interface 2.5" Storage Interface 2.5" Aud Part of the fun Oth Aud IR F Fun Oth Power Supply DC Power Supply DC	Graphics	AMD Radeon HD graphics	AMD Radeon HD graphics	Intel® Iris® Xe Graphics	Intel® Arc™ graphics (125/135H) Intel® Graphics (125/135U)	Qualcomm® Adreno™ 643L			
	Memory	2 x SO-DIMM, DDR4 2600MHz, Max. 32GB	2 x SO-DIMM, DDR4 2600MHz, Max. 32GB	2 x SO-DIMM, DDR4 3200MHz, Max. 32GB	2 x SO-DIMM, DDR5 5600MHz, Max. 48GB	On Board LPDDR5 8533MHz, Max. 8GB			
	Display Port	3/4 x HDMI 2.0	"3 x HDMI 2.1 TMDS 1 x HDMI 1.4b"	4 x HDMI 2.0	1 x HDMI 2.1 FRL/TMDS 3 x HDMI 2.1 TMDS	2 x HDMI 2.1 TMDS			
Model Name Cooling Type System Pro System Gra Image: System Dis Main Dis Image: System Main Image: System Dis Image: System Main Image: System Main <td>Max. Resolution</td> <td>3840 x 2160 @ 60Hz</td> <td>3840 x 2160 @ 60Hz (TMDS)</td> <td>3840 x 2160 @ 60Hz</td> <td>7680 × 4320 @ 60Hz (FRL) 3840 × 2160 @ 60Hz (TMDS)</td> <td colspan="2">3840 x 2160 @ 30Hz</td>	Max. Resolution	3840 x 2160 @ 60Hz	3840 x 2160 @ 60Hz (TMDS)	3840 x 2160 @ 60Hz	7680 × 4320 @ 60Hz (FRL) 3840 × 2160 @ 60Hz (TMDS)	3840 x 2160 @ 30Hz			
	Ethernet	1 x Realtek RTL8111H (1GbE)	1 x Realtek RTL8111K 1 x Intel I210	2 x Realtek RTL8119I (1GbE)	2 x Intel i226V (2.5GbE) option vPro Intel i226LM	Realtek RTL8211 (1GbE)			
	USB 3.2	2 x USB 3.2 Gen 1 (5Gbps)	2 x USB 3.2 Gen 1 (5Gbps)	2 x USB 3.2 Gen 1 (5Gbps)	2 x USB 3.2 Gen 1 (5Gbps)	2 x USB 3.2 Gen 1 (5Gbps)			
	USB 2.0	2 x USB 2.0	2 x USB 2.0	2 x USB 2.0	2 x USB 2.0	-			
I/O Interface	USB C	-	-	-	-	1 x (Download-Mode)			
	Serial Port	1x COM: RS-232 (TX/RX)	1 x COM: RS-232 (TX/RX/CTS/RTS) option: 1 x COM RS-232 (TX/RX)	1x COM: RS-232 (TX/RX)	1x COM: RS-232 (TX/RX)	1 x COM: RS-232 (TX/RX/CTS/RTS) 1 x COM: Debug Console (TX/RX)			
	Audio	Select one from SPDIF/Mic-in/ Line out	Select one from SPDIF/Mic-in/ Line out	Select one from SPDIF/Mic-in/ Line out	Select one from SPDIF/Mic-in/ Line out	Headset Jack: Combo Jack Type			
	IR Phone Jack	-	1	1	1	-			
	Function Button	-	BOM option with EDID RSTBTN	Reserve for OEM	BOM option with EDID RSTBTN	-			
	Others	-	-	-	-	2 x GMSL Conn: (Option)			
Storage Interface	M.2 (M/B Key)	1 (SATA)	1 (SATA/NVME, Auto)	1 (SATA)	1 (NVMe)	1 (NVMe), 1 (LTE)			
	2.5" SSD	-	-	-	-	-			
Expension Slot	M.2	1 x M.2 M key 2242 (SATA) 1 x M.2 E Key 2230 for WiFi/BT	1 x M.2 M key 2242 (SATA/NVME auto)	1 x M.2 M key 2242 (SATA)	1 x M.2 M key 2242 (NVME)	1 x M.2 B key 3042 (4G/LTE) 1 x M.2 E Key 2230 for (WiFi/BT) 1 x M.2 M Key 2280 for (NVME)			
	Others	-	-	-	-	-			
	HW EDID	-	DS-084GB-U2A1E	-	DS-086GB-U2A1E	DS-011QF-U2A1E			
Advanced Features	HDMI CEC	HW reserved for OEM	HW reserved for OEM	HW reserved for OEM	HW reserved for OEM	-			
	Others	-	Out-of-Band Management	Function BTN: Reserve for OEM	Fuction BTN: EDID Reset or EC GPIO	2 x GMSL Option			
Power Supply	DC Input	19V DC-IN (ATX/AT mode)	12- 24V DC-IN	19V DC-IN (ATX/AT mode)	19V DC-IN (ATX/AT mode)	12- 24V DC-IN			
	Operating Temperature	$0 \sim 40~^\circ\text{C}$ (with 0.7m/s air flow)	$0\sim40~^\circ\text{C}$ (with 0.7m/s air flow)	$0 \sim 40^\circ C$ (with 0.7m/s air flow)	$0\sim40^\circ C$ (with 0.7m/s air flow)	$0 \sim 40^{\circ}$ C (with 0.7m/s air flow)			
Environmental	Cartification	CE/FCC Class B, BSMI, UKCA	CE/FCC Class B, BSMI, UKCA	CE/FCC Class B, BSMI, UKCA	CE/FCC Class B, BSMI, UKCA	CE/FCC Class B, BSMI, UKCA			
	Certification	UL, CB, BSMI, CCC	UL, CB, BSMI, CCC	UL, CB, BSMI, CCC	UL, CB, BSMI, CCC	UL, CB, BSMI, CCC			
Operating System		Win10 IoT LTSC / Win 11 IoT LTSC	Win 11 IoT LTSC	Win10 IoT LTSC / Win 11 IoT LTSC	Win10 IoT LTSC / Win 11 IoT LTSC	Linux Yocto			
Case	Dimensions (L x W x H)	180 x 190 x 19 mm	180 x 190 x 19 mm	180 x 190 x 19 mm	180 x 190 x 22 mm	180 x 190 x 23 mm			
Optional	Mounting Kit	Wall Mount / VESA	Wall Mount	Wall Mount / VESA	Wall Mount	Wall Mount			
	Others	-	Top cover protection kit	- Top cover protection kit		Top cover protection kit			

Compact DS Solutions		Modular Digital S	Signage Solutions	Multi-Display Digital Signage Solutions	Digital Out-of-Home (DOOH)	
8		8 	 8			
DS-410	DS-450	DS-202	DS-230	DS-651	DS-330	
Fanless	Fan / Fanless	Fanless	Fan	Fanless	Fanless	
Intel® Elkhart Lake, 4 Cores J6412, 2.0 Ghz	Intel® Elkhart Lake, 4 Cores J6412, 2.0 Ghz	Intel® Elkhart Lake, Atom® x6413E 1.5GHz	Intel® Pentium 8505, i5 1235U (vPro essential) Intel® Raptor Lake 13 Gen.	AMD Ryzen R2514	Intel® Amston Lake, Atom® X7433RE	
Intel UHD graphics	Intel UHD graphics	Intel UHD graphics	Intel® Iris® Xe	AMD Radeon HD graphics	Intel UHD graphics	
On Board LPDDR4 3733MHz, Max. 8GB	On Board LPDDR4 3733MHz, Max. 8GB	2 x SO-DIMM, DDR4 2666MHz, Max. 32GB	2 x SO-DIMM, DDR4 2666MHz, Max. 32GB	2 x SO-DIMM, DDR4 2666MHz, Max. 32GB	1 x SO-DIMM, DDR5 4800MHz, Max. 16GB	
1 x HDMI 2.0 1 x VGA	1 x HDMI 2.0 1 x HDMI 1.4	HDMI 2.0 & DP1.2 from golden finger, mini-DP from I/O	HDMI 2.0 & DP1.4a from golden finger, DP1.4a from I/O	1 x HDMI 2.0 1 x HDMI 1.4	2 x HDMI 2.0 1 x USB-C	
3840 x 2160 @ 60Hz	3840 x 2160 @ 60Hz	3840 x 2160 @ 60Hz	3840 x 2160 @ 60Hz	3840 x 2160 @ 60Hz	3840 x 2160 @ 60Hz	
2 x Realtek RTL8119I (1GbE)	2 x Realtek RTL8119I (1GbE)	1 x Realtek RTL8119I (1GbE)	1 x Intel i226V (2.5GbE) option vPro Intel i226LM	2 x X550-AT2 (10GbE) 1 x RTL8111FP (1GbE)	2 x Intel i226IT (2.5G)	
2 x USB 3.2 Gen 1 (5Gbps)	2 x USB 3.2 Gen 1 (5Gbps)	2 x USB 3.2 Gen 1 (5Gbps)	2 x USB 3.2 Gen 1 (5Gbps)	2 x USB 3.2 Gen 2 (10Gbps)	4 x USB 3.2 Gen 1 (5Gbps)	
	4 x USB 2.0	-	-	4 x USB 2.0	-	
-	-	-	-	-	1 x USB-C, Support DP 1.4a + USB 3.2 Gen 1 (5Gbps)	
2x COM: RS-232 (TX/RX)	2x COM: RS-232 (TX/RX)			-	2 x COM: RS-232 (Powered)	
via HDMI	via HDMI	Mic in or Line out	-	Mic in or Line out	Mic in or Line out	
	-	-	-	-	-	
					-	
-	-	-	-	-	1 x RJ12 (Cash Drawer)	
1 (SATA)	1 (SATA)	1 (SATA)	1 (SATA/PClex2)	1 (SATA)	1 (SATA/PClex2)	
	-	-	-	-	-	
1 x M.2 M key 2242 (SATA) for Storage 1 x M.2 E Key 2230 for WiFi/BT	1 x M.2 M key 2242 (SATA) for Storage 1 x M.2 E Key 2230 for WiFi/BT	1 x M.2 M Key 2242 (SATA) for Storage 1 x M.2 E Key 2230 x 1 for WiFi/BT	1 x 2242 M Key (SATA/PClex2) for Storage 1 x M.2 E Key 2230 x 1 for WiFi/BT	1 x M.2 M Key 2242 (SATA) for Storage 1 x M.2 E Key 2230 x 1 for WiFi/BT	1 x 2242 M Key (SATA/PClex2) for Storage 1 x M.2 E Key 2230 x 1 for WiFi/BT	
	-	-	-	2 x EDSFF module (Xillinx AI module)	-	
	-	-	-	-	DS-3300F-U0A1E	
HW reserved	HW reserved	-	-	HW reserved	DS-3300F-U0A1E (SW CEC)	
-	-	-	Intel vPro Certification	DASH	Out-of-Band Management	
19V DC-IN (ATX/AT mode)	19V DC-IN (ATX/AT mode)	12V DC-IN (± 5%, Via Golden Finger)	12V DC-IN (± 5%, Via Golden Finger)	19V DC-IN	12-24V DC-IN	
0~40°C (with 0.7m/s air flow) 0~35°C (without air flow)	$0 \sim 45~^\circ\text{C}$ (with 0.7m/s air flow)	0 ~ 55 °C @ Natural Convection Chamber	$0\sim55~^\circ\text{C}$ (with 0.7m/s air flow)	$0 \sim 45~^\circ\text{C}$ (with 0.7m/s air flow)	-20~60°C (with 0.7m/s air flow)	
CE/FCC Class B, BSMI, UKCA, CE-RED	CE/FCC Class B, BSMI, UKCA	CE, FCC Class B	CE, FCC Class B,	CE/FCC Class B, BSMI, UKCA	CE/FCC Class B, BSMI, UKCA, CE-RED	
UL, CB, BSMI	UL, CB, BSMI	CB, UL VCCI	CB, UKCA, RCM, VCCI	UL, CB, BSMI	UL, CB, BSMI	
Win10 IoT LTSC / Win 11 IoT LTSC / Linux	Win10 IoT LTSC / Win 11 IoT LTSC / Linux	Win10 IoT LTSC / Win 11 IoT LTSC / Linux	Win10 IoT LTSC / Win 11 IoT LTSC / Linux / Chrome OS Flex	Win10 IoT LTSC / Linux	Win10 IoT LTSC / Win 11 IoT LTSC / Linux	
124 x 116 x 26 mm	160 x 115 x 44 mm	175 x 100 x 20 mm	175 x 100 x 20 mm	312.0 x 208.4 x 50.6 mm	180 x 150 x 35 mm	
Wall Mount / VESA / DIN Rail	Wall Mount	-	-	Wall Mount	Wall Mount	
Mesh cover protection kit	-	SDM Docking	SDM Docking	-	-	

Regional Service and Customization Centers

China Kunshan 86-512-577	77-5666 Taiwan	Taipei 886-2-2792-7818	Netherlands	Eindhoven 31-40-267-70	00	Poland	Warsaw 00800-242	26-8080	USA	Milpitas, CA 1-408-519-3898
Worldwid	le Offices									
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Taipei & IoT Ca	ampus 886-2-2792-7818	Tokyo	81-3-6802-1021	Breda	31-76-523-	3100		Ioli Free	1-	888-576-9668
Taichung	886-4-2372-5058	Osaka	81-6-6267-1887	Dieua	51-70-525-	5100		Boston	1-	949-420-2531
Kaohsiung	886-7-392-3600	Nagoya	81-0800-500-1055	Gormany				Chicago	1-	888-370-9008 E12 742 880E
		Nogata	81-949-22-2890	Toll Eroo	00000 242	0000/01	_	Uncinnati	1-	040 420 2500
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Toll Free	800-810-0345	Korea		Düsseldorf	49-09-1208	9-0 7 855 0		Ottowa	1	815 433 5100
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Turkey	90-212-222-0422	Daligkok	00-02-2400300-9	Span	04.04.000	00.70				
Turkey-Bursa	90-224-413-3134	Vietnam		Madrid	34-91-668-	86-76				
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				Galway	353-	91-792444				



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