



Case Study

Self-Service Check-in Kiosks in Hospitals

Enhancing Patient Experience

In recent years, healthcare facilities have increasingly embraced technology to enhance patient experiences and streamline operations. Among the most impactful innovations are self-service check-in kiosks, which provide a user-friendly alternative to traditional check-in processes, allowing patients to take control of their arrival experience while significantly reducing wait times and administrative burdens.

Challenges

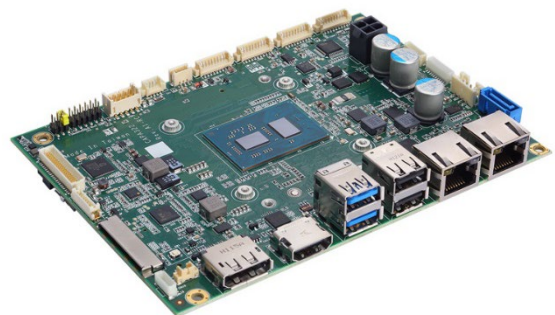
The customer was looking for a 3.5-inch embedded SBC to develop a self-service check-in and queuing kiosk for a university hospital in Taiwan. The industrial-grade motherboard needed to feature a fanless design and a quad-core processor to ensure reliability during continuous use in a medical environment. Additionally, the total system thickness had to be less than 3 cm, presenting a unique design constraint that required a customized hardware solution.

Main Requirements

- 3.5" embedded SBC with fanless design
- Quad-core processor with a base frequency of 2.0 GHz or higher
- Supports HDMI and DP outputs
- 1 COM port and 7 USB ports
- Compact design for restricted space
- Wi-Fi connectivity for real-time updates of patient information and queuing tasks

The Impact of Self-Service Check-in Kiosks in Hospitals

Axiomtek has proposed its CAPA322, an Intel Atom®-based 3.5-inch embedded board featuring dual 2.5GbE LAN ports and two M.2 slots (Key E and Key B) for 5G/ LTE/4G/Wi-Fi connection. The single-board computer is upgraded tremendously in connection speed and expandability to meet various demands for expansion and connectivity in IoT applications. In



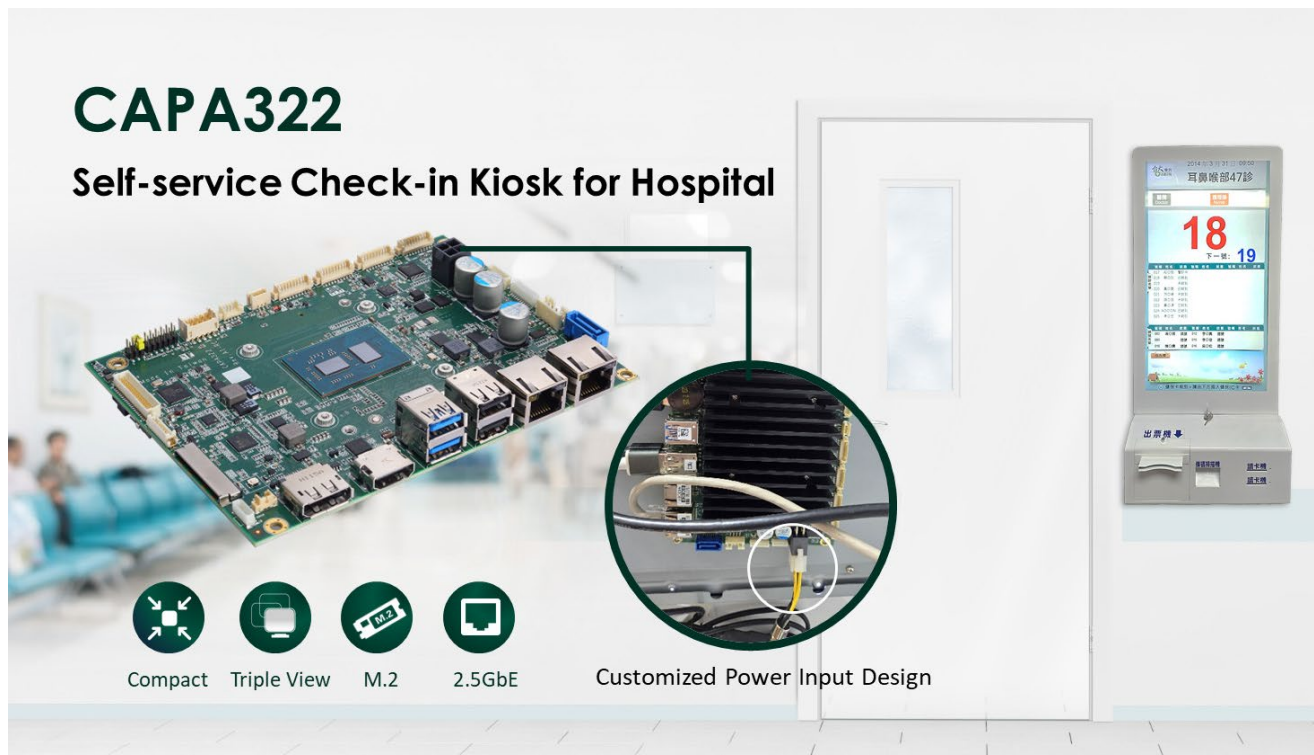
In addition, the CAPA322 provides a triple view which includes HDMI 2.0 and DisplayPort++; while the LVDS co-layouts with the eDP, the user could choose either one according to the demand.

The wide operating temperature ranges from -20°C to $+70^{\circ}\text{C}$ or -40°C to $+85^{\circ}\text{C}$ maximizes the deployment potential. The input power adapts 12 to 24V DC in. In terms of storage, the CAPA322 provides one SATA-600 slot and a mSATA slot. The board supports optional TPM 2.0 to ensure the security of data and operation.

Application

Self-service Check-in Kiosk for Hospital

The client has implemented Axiomtek's CAPA322 in the check-in and queuing kiosks designed for the National Taiwan University Hospital in Taipei. This self-service kiosk enhances patient registration and improves operational efficiency by reducing wait times and streamlining check-in. Additionally, the customizable power input design reduces the overall thickness of the system, optimizing space and ensuring seamless integration.



CAPA322
Self-service Check-in Kiosk for Hospital

The image features a green CAPA322 circuit board with various ports and components. A circular inset shows a close-up of the power input design with a custom cable. Below the board are four icons representing features: Compact, Triple View, M.2, and 2.5GbE. To the right, a white kiosk with a large screen displays a queue number '18' and other information. The background shows a hospital waiting area with blue chairs and a white door.

Compact Triple View M.2 2.5GbE Customized Power Input Design

System Configurations of the CAPA322

- Intel® Celeron® processor N6210/J6412 or Intel Atom® x6413E processor
- 1 DDR4 SO-DIMM for up to 32GB
- 4 USB 2.0, 2 USB 3.2 Gen2 and 2 2.5GbE LAN
- 1 HDMI, 1 DisplayPort and 1 LVDS
- 1 PCI Express Mini Card slot for USB 2.0 expansion card
- 1 M.2 Key E and 1 M.2 Key B

Why Axiomtek

As healthcare continues to embrace digital transformation, the self-service check-in kiosks are likely to become a standard feature in hospitals, helping to create a more streamlined and patient-centered environment. Healthcare providers can improve not only their operational workflow but also the overall patient journey, fostering satisfaction and loyalty in an increasingly competitive landscape.

“Integrating Axiomtek’s CAPA322 embedded SBC into our hospital queuing system has significantly improved performance and efficiency. The flexibility and reliability of the board allowed us to meet the stringent demands of the medical environment seamlessly. Axiomtek’s support in customizing the design of the power input position has been instrumental in reducing the overall system size, which was crucial for this project,” said the engineer of the customer.

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 the deployment of best-in-class solutions.