



# Case Study

## 4K Medical Recorder

## The Medical Recorder Results in High-Quality Healthcare

Today integrating medical devices with recording systems is important and has several benefits and purposes for hospitals. Trainee doctors can review the surgeries in detail for better training, resulting in improved patient care. Also, it protects medical providers from disputes and lawsuits with evidence. Therefore, the introduction of a recording system is valuable for hospitals.

### Challenges

The customer is a medical equipment integrator developing professional software and information systems for the healthcare industry since 2004. It also provides development and production services of specialized hardware and radiotherapy ancillary equipment. The customer was looking for a medical-compliant device that meets EN 60601-1 standard to record medical images and videos. The device needed to seamlessly integrate with the customer's designated GPU or capture card while supporting 4K resolution to surpass their current solution.

### Main Requirements

- High-performance Intel® Core™ processor
- Compliant with EN 60601-1 medical standards
- Supports the customer's designated GPU/capture card
- 1 HDMI and 2 DisplayPort++ with 4K UHD supported
- Isolated I/O ports for stable and safe output
- Long-term supply assurance for product durability and longevity

### The EN 60601-1 Certified Medical Platform, mBOX600, for Smart Healthcare

Axiomtek proposed its mBOX600, a medical-grade system featuring the 9th/8th Gen Intel® Core™ i7/i5 processor, certified with EN 60601-1 standards. Purpose-built for edge computing and smart healthcare applications, the system not only supports one HDMI and two DisplayPort ++ ports for 4K UHD triple display but also has a PCIe x16 slot where users can install a GPU card or a frame grabber

to obtain higher performance for edge AI and image analysis use cases. (picture 1: mBOX600)

To enable a Wi-Fi connection, it is equipped with one full-size mini PCIe card slot for a Wi-Fi module and supports two SMA-type antenna connectors. In terms of connectivity, the two COM and LAN ports support isolation for better data security and interference. Four USB 3.1 and two audio jacks are also available.



picture 1: mBOX600

Moreover, it provides one 2.5" SATAIII and one M.2 Key M 2280 NVMe SSD slot. The mBOX600 is based on the COM Express Type 6 SoM, which allows fast upgrades and ensures a long-life cycle of the system.

## **Application**

### **4K Medical Recorder for Medical Procedures**

The customer integrated Axiomtek's mBOX600 with its proprietary medical software as a versatile recording device that captures images and videos from various medical examination devices, such as endoscopy, microsurgeries, and other high-precision procedures.

As a procedure is recorded, it will be archived in the picture archiving and communication system (PACS) for analysis and future review to optimize the procedure quality. As the videos are archived and saved in the storage server of the hospital, they can be viewed by medical providers with high-level access.

Addressing customer demands for specific capture card compatibility, Axiomtek implemented minor hardware modifications to enhance flexibility. This adjustment enables seamless integration with a wide range of capture cards, significantly improving the product's adaptability to diverse requirements.



## System Configurations of the mBOX600

- 9th Gen Intel® Core™ i7 processor
- EN 60601-1 Certification
- 2 DDR4-2666 SO-DIMM for up to 64GB memory
- 1 HDMI & 2 DisplayPort++ with 4K UHD
- 2 COM & 2 GbE LAN with isolation
- Half-size PCIe x16 slot
- Swappable 2.5" SATAIII SSD tray with security lock
- Antimicrobial coating chassis

## Why Axiomtek

As one of the leaders in industrial PC field, Axiomtek excels with customization and is dedicated to introducing high-computing platforms for medical providers and providing smart medical solutions around the world.

“Axiomtek promptly provided a test sample and swiftly adjusted the hardware to address issues with the capture card to ensure it aligned perfectly with the customer's requirements. Through collaborative efforts and intelligent design, we are confident that Axiomtek’s medical device is fully equipped to meet our customer’s demands in medical applications,” said the product manager of the company.

## 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.