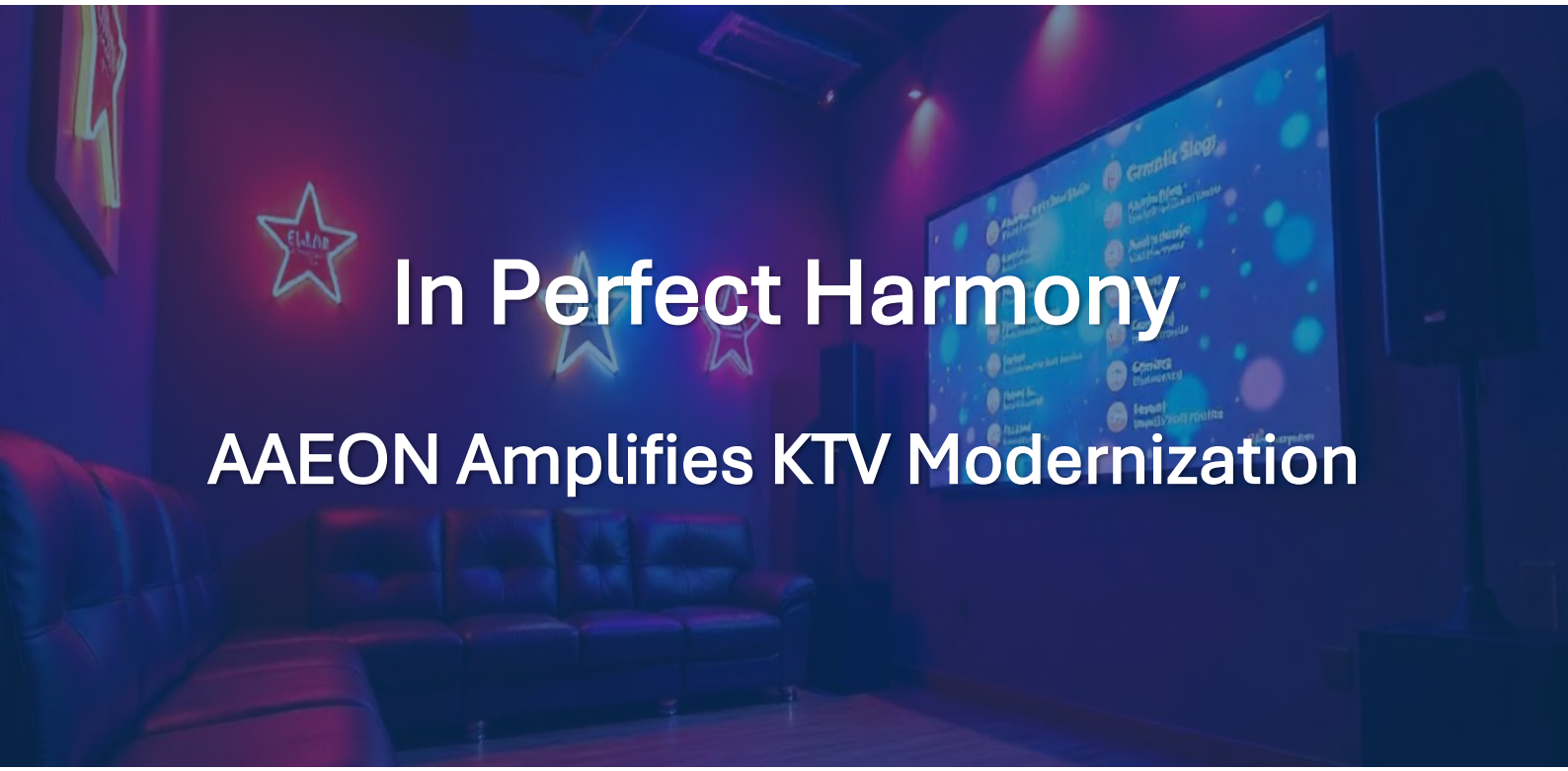


In Perfect Harmony

AAEON Amplifies KTV Modernization

Introduction

A leading company in the entertainment space renowned for its chain of karaoke venues was looking to modernize its setup across a number of sites, with emphasis being on improving customer experience without requiring extensive renovation of its existing equipment framework.

The company had previously worked with a number of providers from across the embedded computing sphere to develop such entertainment systems. However, given their modernization project had precise requirements that combined a need for quality with flexible customization, AAEON struck the right note with its flexible approach.

Remixing Solutions to Stay in Tune with the Customer's Tempo

Initially in the running for the project was one of AAEON's standard Panel PC products, as a number of them matched the 21.5" size the customer required. However, the customer wanted a smooth transition that allowed them to maintain the Android-based user interface of their existing setup, and so a customized solution was required. In addition to this, maintaining the company's brand image was important, so the chassis of the display screen for the system was crucial, as it had to be consistent with those already in place across the company's many locations.

Another consideration was the customer's storage requirements. Renowned for the vast range of songs available at their karaoke venues, being able to keep a large library of songs while also being able to update said library without having to update each system individually was a prerequisite. As such, cloud-based storage was preferred to SSD or onboard storage.

Finally, the customer required a platform with a low power profile, but still capable of handling the audio and visual synchronization needs of the application, which were innately important due to the nature of their business.

With AAEON's Help, a Star is Born

To meet the customer's expectations, AAEON's team developed a custom 21.5" Projected Capacitive Multi-Touch Screen Panel PC equipped with a chassis sporting the client's branding.

Because the majority of standard products from this product line are built to support Windows® operating systems, AAEON integrated its RICO-3288 RISC-based Pico-ITX single-board computer into the system to leverage the board's Android™ OS compatibility.

The RICO-3288 typically offers a choice of Android™ 9.0 or Debian 10, but given the existing software used by the customer's setup, AAEON's software team worked with them to fine-tune the board, allowing it to run on an Android™ 12 OS and providing extensive collaborative debugging services to overcome compatibility issues and ensure reliable operation.

With respect to the customer's storage requirements, the RICO-3288 offered both 16GB of eMMC and a Micro SD card slot, but this would have been a suboptimal method of storing media for the entertainment system due to system-level storage requiring updates to be performed individually.

Fortunately, the RICO-3288 had multiple routes through which to connect to the company's media library on the cloud, delivering songs on-demand without missing a beat.

The first of these was the board's IEEE 802.11 a/b/g/n/ac Wi-Fi support, which allowed the system to communicate with and receive media from the cloud with flexibility. With this broad Wi-Fi support, the system could maintain steady wireless connectivity whether a venue was equipped with an older router (b/g) or a modern one (n/ac).

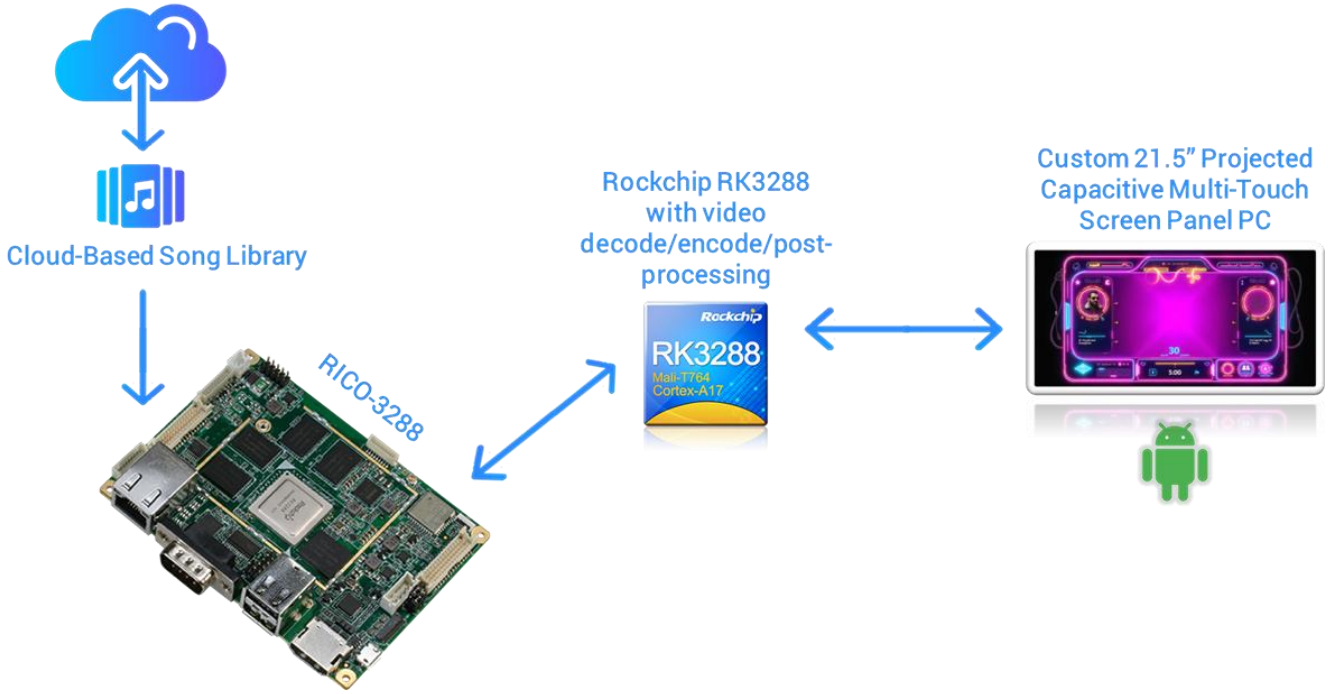
Moreover, it could connect to both 2.4 GHz (longer range) and 5 GHz (faster, less crowded) networks for HD video streaming and cloud content over Wi-Fi with good performance and low latency. A second option offered by AAEON's platform was a Gigabit Ethernet port for venues that lacked a strong wireless infrastructure, making the overall solution flexible and configurable for multiple scenarios.

The most important part of the setup was how well it performed as a fully integrated entertainment system. For the display element of the setup, AAEON's custom-built Panel PC was more than capable. Boasting a Color TFT LCD Display with 350 nits of luminance, 178° viewing angles both horizontally and vertically, as well as a robust, mountable chassis, the Panel could be easily installed across sites with different practical considerations while presenting stunning visual media to patrons.

To ensure video and audio were consistently in sync, AAEON proved the right choice. Its RICO-3288 offered advanced video decode and encode capabilities thanks to its Rockchip® RK3288 with Arm® Cortex®-A17 processor, which not only allowed for clear displays, but on-chip video post-processing features such as de-interlace, de-noise, and color enhancement.

In addition to this, AAEON's technical team provided extensive real-time debugging and software testing to ensure every lyric landed in perfect harmony with the visuals, giving the customer peace of mind in knowing their system would work as intended in the long term.

Application Architecture



The Afterparty

AAEON prides itself on not only producing world-class products, but also being an agile partner to its customers. This element of the AAEON philosophy was on full display throughout the application development process, with one of the key reasons AAEON was chosen being its ability to customize hardware based on the needs of the project.

Alongside this, AAEON's fast and professional software services were of vital importance, particularly when it came to overcoming compatibility issues through software tuning to make sure the customer's trademark Android-based user interface could be retained across its upgraded hardware.

Thanks to the fast route to deployment AAEON provided, alongside its crucial support across all areas of the customer's application setup, the customer was able to roll out dozens of new, integrated entertainment systems across multiple venues without issue. As a result, the customer opted to work with AAEON to provide upgrades to systems across multiple countries as it continues to upgrade venue setups during the next two years.

About AAEON

Established in 1992, AAEON is one of the leading designers and manufacturers of industrial IoT and AI Edge solutions. With continual innovation as a core value, AAEON provides reliable, high-quality computing platforms including industrial motherboards and systems, rugged tablets, embedded AI Edge systems, uCPE network appliances, and LoRaWAN/WWAN solutions. AAEON also provides industry-leading experience and knowledge to provide OEM/ODM services worldwide. AAEON works closely with premier chip designers to deliver stable, reliable platforms. For an introduction to AAEON's expansive line of products and services, visit www.aaeon.com.