

SUCCESS STORY

ASUS IoT Tinker Board S R2.0 Series: The Reliable Choice to Realize Thermal Imaging Application

WHY ASUS IoT ?

Quality

SBC designed to meet the demands of performance, compatibility and scalability

Service

World-leading service capabilities and long-term technical support

Delivery

Stable and on-time delivery to ensure smooth project deployment

The Customer

A world-leading creator of thermal-imaging sensor technology

Calumino is a world-class team of experts in the development and commercialization of thermal imaging, deriving its portmanteau name from the technology's utilization of calories and luminosity. The company is on a mission to merge powerful and economical thermal-sensor technology with artificial intelligence (AI), helping to propel industries forward by delivering new levels of insight and efficiencies for businesses. It has pioneered world's first high-performing and cost-effective thermal sensor, a revolutionary platform technology that unlocks the potential of intelligent sensing for a broad range of new use cases across diverse industries. The **Calumino** team brings decades of global experience across myriad markets, including micro and nano fabrication, optical module assembly, AI, the Internet of Things (IoT), solutions development and commercialization.

The Challenge

Shortage of single-board computers threatened delivery

Calumino's software stack was initially developed for a well-known competitor single-board computer (SBC). However, a global shortage of this particular product struck at about the same time **Calumino** was required to ship the finished product to its customers in mass quantity. The distribution network was estimating a lead time approaching a full year, and still with uncertainty — even with a 100% down payment. Matters deteriorated during early 2022, triggering **Calumino** to seek alternative SBC suppliers.

But supply issues weren't the only concern for **Calumino**. For example, an alternative solution needed to ensure system portability from the code base previously implemented on the competing SBC. It also needed the same or similar general-purpose input/output (GPIO) pin-out as the competing SBC. Finally, the availability of compliant Power over Ethernet (PoE) add-on options was considered vital.

The solution

ASUS IoT Tinker Board S R2.0 series exceeded all requirements

Calumino evaluated multiple solutions from various high-profile vendors. While all the competing solutions claimed compatibility with the originally-intended SBC, Calumino encountered multiple challenges. These included the absence of critical libraries and features that were considered standard in existing Linux images and compatibility quirks with the Python versions utilized by Calumino. The company also identified a lack of clear documentation, the inefficiency and sluggishness of the technical support received. Factoring in the occurrence of unexpected CPU task scheduling, leading to alternative SBCs to overheat, and the inadequate availability of Power over Ethernet (PoE) add-on options, Calumino soon narrowed down its search to a single option — ASUS IoT Tinker Board S R2.0 series.

Tinker Board S R2.0 series stood out from the competition in being able to meet all requirements of Calumino through a very rapid development cycle. In particular, Tinker Board S R2.0 series offers significantly improved performance compared to other popular SBC boards.



Tinker Board S R2.0 Series

Tinker Board S R2.0 series also features standard maker connectivity options, including a 40-pin GPIO interface that allows for interfacing with a broad range of inputs and devices. With a wide range of accessories, including a fan less chassis, the ASUS IoT PoE Splitter Board and ASUS IoT MIPI Converter, Tinker Board S R2.0 series offers great system expandability.

There were also other critical benefits that elevated Tinker Board S R2.0 series to being the perfect solution for Calumino's requirements. ASUS IoT provides local direct technical support through field application engineer team to well-assist customer with trouble shooting and system maintenance. Furthermore, in order to deeply engage and facilitate customer's projects, ASUS IoT offers evaluation boards and sample hardware for development and testing.

The outcome

Shortened time to market, and cooler, more reliable operation

With Tinker Board S R2.0 series, Calumino was able to bring its second-generation Sensor Hub to market in August 2022, on time and to the desired specification. Since their introduction, the devices have met all performance expectations — and the reliability has been adjudged as outstanding.

The second-generation Calumino Sensor Hubs operate cooler than the previous generation, powered by a competing SBC, and have operated without issues. Thanks to the local technical support from ASUS IoT, Calumino was able to address any-and-all minor software-compatibility issues discovered in the field with rapid roll-out of software updates. The choice of Tinker Board S R2.0 series has boosted Calumino's ability to deliver innovative, high-performance and reliable sensors to the world of smart-building applications.

"When it comes to mission-critical availability and reliability, it is clear to us that ASUS Tinker Board can be trusted to deliver."

Liuhan Zhang

Calumino Head of Product Development

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