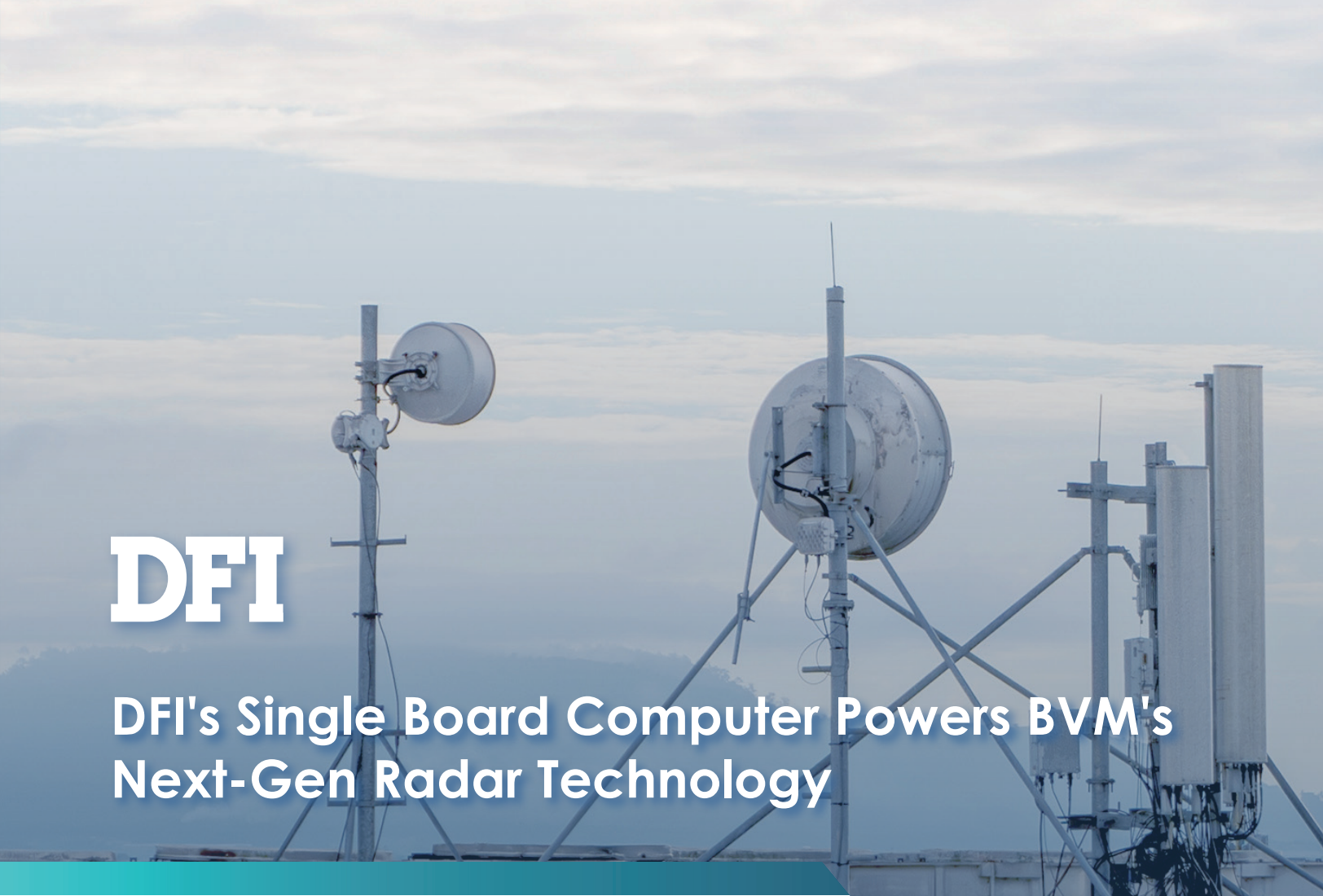


DFI

DFI's Single Board Computer Powers BVM's Next-Gen Radar Technology

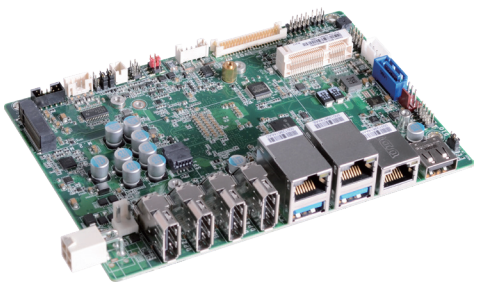
Background of Story

The global market for single board computers (SBCs) in industrial applications is witnessing remarkable growth, driven by the increasing demand for compact, high-performance, and rugged computing solutions. According to industry reports, the industrial SBC market is projected to grow at a CAGR of 6.8% between 2022 and 2027, fueled by the rapid adoption of Industry 4.0 technologies and the need for edge computing capabilities.

Industry: **Multi-industry application, such as security surveillance, industrial automation, and traffic safety.**

Application: **Radar**

Solution: **GH551-ECI-V1404I**



Background of Story

In this rapidly expanding market, forward-thinking companies are actively seeking robust, customized solutions to address their unique industrial computing requirements. A prime example of this trend is the crucial role Single Board Computers (SBCs) play in advancing industrial computing technologies, particularly in the field of radar systems.

DFI Inc., a global leader in embedded motherboards and industrial computers, undertook an exciting new project with our long-term partner, BVM Ltd., a prominent UK-based distributor and system integrator with over three decades of experience. This venture began when an innovative radar technology company approached BVM with a critical requirement for an advanced edge computing platform to enhance their capabilities and solidify their position at the forefront of their industry. Together, we set out to develop a state-of-the-art platform designed to withstand harsh environments and meet the diverse demands across industry sectors, including security surveillance, industrial automation, and traffic safety.

This collaboration showcased DFI's unwavering commitment to our customers through our technological expertise in designing and developing high-quality solutions. It also highlighted the strength of our partnership with BVM and their extensive knowledge, paving the way for an inspiring story of technological innovation and excellence.

The Extreme Environment Challenge

BVM's client required an advanced, high-performance single board computer (SBC) solution that could seamlessly integrate into their existing infrastructure while offering ample expansion capabilities to accommodate future growth. However, the true challenge resided in the stringent environmental conditions the SBC needed to withstand. The solution had to operate uninterrupted within an extended temperature range, from freezing temperatures as low as -30°C to scorching heat reaching up to +80°C, ensuring reliable performance in even the harshest of environments.

Moreover, due to the specific installation location of the product, the ability to perform "cold starts" was of paramount importance. This necessitated the SBC to be capable of booting up and functioning reliably, even in extreme cold conditions, without compromising on performance or reliability.

DFI GH551 SBC-
Engineered for Extreme Performance & Lasting Durability

Through close collaboration with DFI's sales and applications teams, BVM identified a selection of SBC solutions that aligned seamlessly with their client's stringent specifications. After a rigorous evaluation process, the customer selected AMD powered GH551 solutions – which not only met the required expansion capabilities, featuring 1 x M.2 M Key and 1 x Mini PCIe slots, but also fulfilled the demanding operational temperature range requirements of -30°C to +80°C. In addition, DFI's commitment to product longevity, backed by their 10-Year CPU lifetime availability program, aligned perfectly with the long-term needs of BVM's client. This ensured that the radar solution would have consistent hardware support through until 2031, allowing for sustained development and deployment without concerns of component obsolescence.

To ensure optimal performance and reliability, BVM and DFI conducted simultaneous operational temperature testing utilizing state-of-the-art in-house thermal testing chambers. This comprehensive testing regime verified the SBCs' performance across varying computational loads, simulating real-world scenarios. Also, this rigorous testing process enabled BVM to specify memory and storage configurations that were fully compatible with their customer's demanding application requirements, ensuring seamless integration and optimal performance.

DFI

DFI's Response & Results

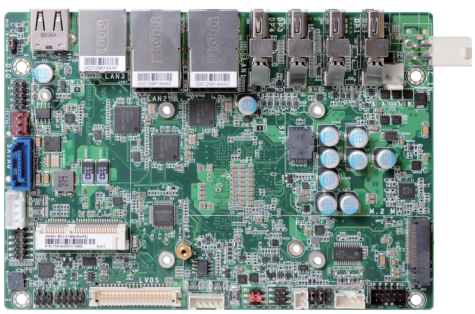
Introducing 'Auto Warm-Up' for Extreme Cold Conditions

One of the key features that set DFI's SBC apart was its auto warm-up function, which ensured reliable operation even in the most extreme cold environments. Upon system boot-up, the SBC would automatically initiate a controlled warm-up process, gradually raising the processor's temperature from -30°C to optimal levels before commencing full operation. This innovative feature eliminated the risk of system failures or performance degradation due to the harsh cold conditions, providing BVM's client with a seamless and uninterrupted radar solution deployment.

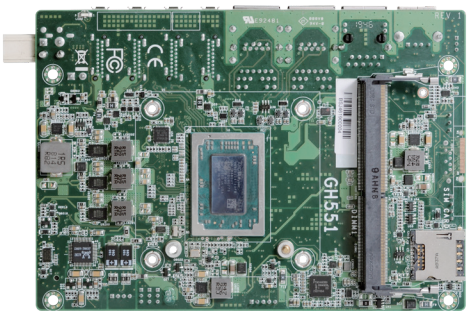
A Successful Partnership Driving Innovation

The successful collaboration between DFI and BVM resulted in the seamless integration of DFI's compact, rugged, and high-performance SBC into BVM's client's next-generation radar product, enabling them to maintain their leadership in the industry. Furthermore, DFI's outstanding technical support and product development capabilities played a pivotal role in the decision-making process. Throughout the project, DFI's team worked closely with BVM, offering expert guidance and technical support to ensure the SBC met all specific requirements. This collaborative approach, combined with DFI's willingness to conduct joint testing and validation, demonstrated the commitment to not just supplying a product, but being a true partner in the development process.

As the demand for advanced radar solutions continues to surge across various industries, strategic partnerships between innovative solution providers like BVM and industrial computing experts like DFI become increasingly pivotal. By synergizing their respective areas of expertise and leveraging cutting-edge technologies, these collaborations can deliver tailored solutions that drive operational efficiency, enhance performance, and unlock new possibilities for their valued customers, propelling them to new heights of success in their respective markets.



GH551-Front



GH551-Back

DFI

DFI

Founded in 1981, DFI is a global leading provider of high-performance computing technology across multiple embedded industries. With its innovative design and premium quality management system, DFI's industrial-grade solutions enable customers to optimize their equipment and ensure high reliability, long-term life cycle, and 24/7 durability in a breadth of markets including factory automation, medical, gaming, transportation, smart energy, defense, and intelligent retail.

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