



DFI

Bridge Crane solution provides one-off customization and worry-free management

DFI's EC511-SD series is equipped with the sixth-generation Intel® Core™-i processor and Intel® Q170 chipset, providing high-performance computing and excellent graphics. The EC511-SD series has many industrial-grade I/O interfaces and PCIe expansion slots, bringing ideal solutions to high-end intelligent applications such as mechanical automation, AOI systems, and monitoring. The EC511-SD series also realizes the smart production of Industry 4.0.

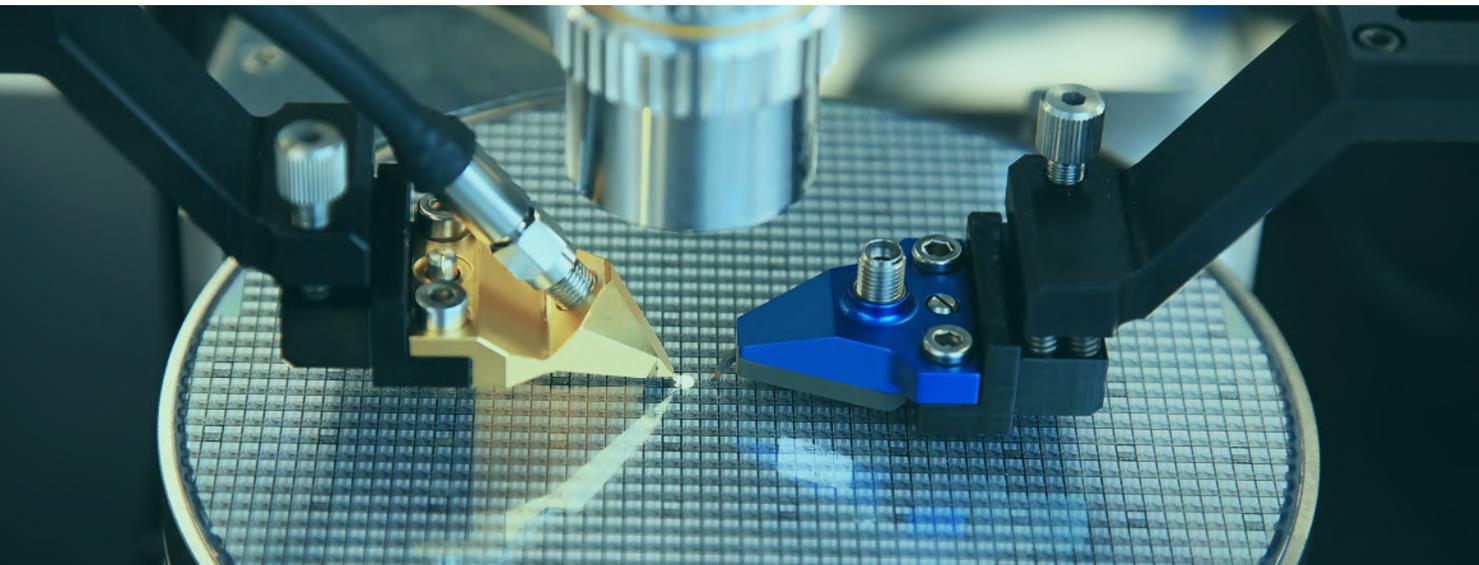
Region: **Taiwan**

Industry: **Foundry, LCD panel assembly**

Application: **Bridge crane**

Solution: **EC511-SD**





An overhead crane, commonly called a bridge crane, is a type of crane found in industrial environments. An overhead crane consists of parallel runways with a traveling bridge spanning the gap. A hoist, the lifting component of the crane, travels along the bridge. Every year in the modern ports of the world, tens of thousands of containers and bulk goods come in and out through bridge cranes. Unlike mobile or construction cranes, overhead cranes are typically used for either manufacturing or maintenance applications, where efficiency or downtime are critical factors. The unmanned use of bridge cranes is necessary for highly automated production plants such as advanced wafer fabs in Taiwan.

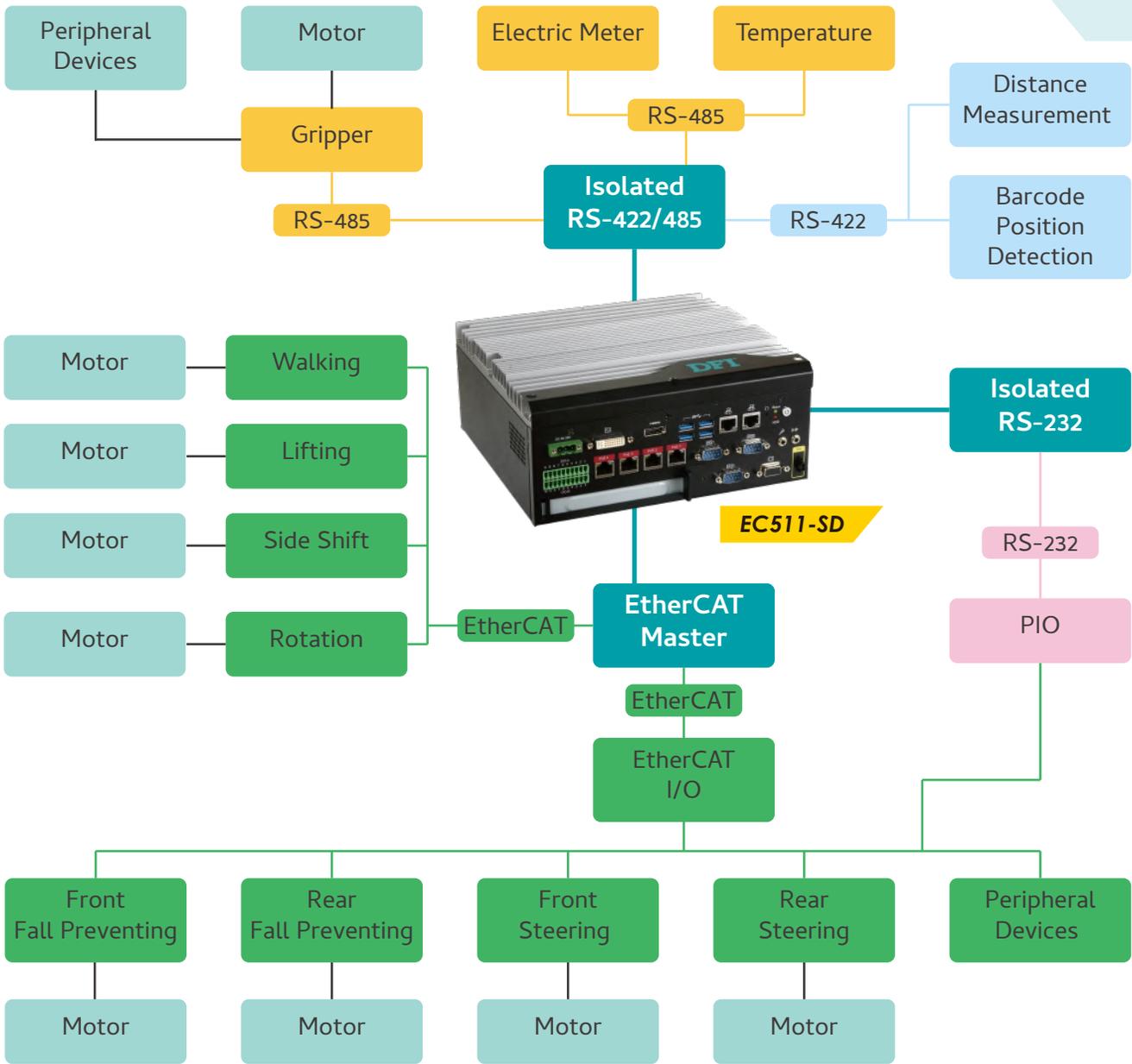
However, the bridge crane also brings many additional requirements and challenges to industrial computers. First of all, the number of COM ports used to connect mechanical components must be sufficient and compatible with protocols such as RS-232/422/485 and must have galvanic isolation protection to meet the high-voltage industrial environment. Secondly, the operating bridge cranes

are anywhere from seven to eight feet above the ground, or even higher. When a failure or a system crashes, it will not be easy to quickly repair and freeze the entire bridge line.

A world-renowned foundry in Taiwan and a leading LCD panel assembly manufacturer originally used industrial computer solutions that lacked sufficient COM ports and galvanic isolation protection. Several USB interface COM ports must be indispensable. The other cord increases the cost, making the cabling more complicated and taking up much internal spaces. The old solution does not support out-of-band (OOB) management. Once a failure occurs, it will take a longer and time-consuming follow-up repairs, reducing the production line's efficiency. Both tangible and intangible losses are expensive.

The DFI customized EC511-SD system has a flexible expansion card, it is able to provide four COM ports with galvanic isolation protection and can also support RS-232/422/485 by adjusting the jumper to improve deployment flexibility. The built-in power

over ethernet (POE) directly supplies power to the IP camera. The EC511-SD based on the Q170 chipset corresponds to the Intel vPro platform and supports iAMT active management technology. When the bridge crane's control computer encounters a failure, it can be rebooted remotely via the wireless network immediately without any effort.



After upgrading the old system to DFI's EC511-SD, the complicated USB interface COM port cable is omitted. The internal structure of the unmanned bridge crane is more straightforward and more reliable, therefore, improving the operating efficiency of the fab. It also virtually helped Taiwan consolidate its world-leading position in the foundry field.

Finally, EC511-SD supports a 15-year long-term supply of CPUs until the fourth quarter of 2030 and has a diversified selection of processor models, which makes the use of EC511-SD occur with no worries.

Founded in 1981, DFI is a leading global provider of high-performance computing technology across multiple embedded industries. With its innovative design and premium quality management systems, 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, mission-critical, and intelligent retail. The robotized bridge crane will also be the boundary where DFI brings higher value to the semiconductor and LCD panel industry.

“Taiwan remains the largest semiconductor production material buyer globally in 2020 and 2021, with its major foundry operators and integrated circuit packaging and testing service providers keen to expand capacity and upgrade technology. Manufacturing automation does matter to keep relentless in the foundry business.”

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