

# Innodisk supporting a new agricultural revolution through AI-powered solutions



Innodisk provided an EP CANbus EMUC-B202-W1 solution to farm cultivators in China. The EP expansion cards are often used in transportation, as well as communication and diagnostics between factory automation equipment.

## Introduction

The implementation of AIoT technology has accelerated the use IoT, cloud computing and big data, etc., in the different stages of agricultural production; leading to the emergence of digital and smart agriculture.

"Smart agriculture" is the combination of agriculture and technology by means of modern IoT solutions, with the goal of overhauling traditional farming using modern operation methods. Controlling agricultural production by applying sensors and software on mobile platforms or computer platforms allows for traditional agriculture to be more "intelligent".

During a technical exchange between Innodisk and a long-term partner (a domestic manufacturer of industrial tablet computers), they showed us a product made for farm cultivation that they have been developing. We soon realized that Innodisk can provide services that will expand the capacity of existing equipment and meet the needs of future function development, thus expanding the possibility of future applications.

This product from the industrial tablet computer manufacturer is mainly used in automatic pilot systems for farm cultivation. It offers a whole

# Our Roadmap to Success

## EMUC-B202-W1 USB to dual Isolated CAN bus 2.0B

- A farm cultivator needs 2 CAN channels and the IPC itself has no reserved CAN bus interface. The Innodisk expansion board card can expand the capacity of the mainboard, thus reducing the development costs of redesigning the mainboard.
- IPC mainboard reserves MiniPCIe interface, it and is compatible with Innodisk CAN board and which delivers communication performance in line with client requirements.
- In addition, it provides a complete driver and accelerates integration of secondary API development. Its real-time, high-quality technical support has earned high appraisal from clients. It supports a variety of CAN bus high-level protocols such as J1939 and CANopen, suitable for different vehicle application requirements.



variety of functions, such as identifying obstacles, sending alarms and evasion capabilities - safely and accurately achieving high efficiency in agricultural work through environmental perception and precise driving. Aside from meeting the abovementioned technical requirements, the solution provided by the Innodisk EP product team also allows for simultaneous monitoring and tracking of the working conditions of all farm machinery as well as vehicle control.

### Challenges

- The stability and reliability of signal reception: Mutual communication, signal reception, and data accuracy between the equipment in the embedded system need to be achieved
- Satisfying different transmission requirements: A variety of interface conversion is required in the introduction of an industrial IOT communication network, and even more requirements need to be met for real-time data transmission of communicating objects with special functions
- Simplifying network protocols: To apply smart agriculture to different types of farm cultivation models, the industrial tablet computer manufacturer has developed different end user applications for each model's requirements. The customer needs a way to significantly simplify the integration process of industrial network protocols

### Solution

- CAN bus expansion card: It allows communication between automotive protocols of microcontroller units without the need for a host computer. The signal is sent and connected to various equipment and vehicles through a single twisted cable. It is also widely applied to automation and embedded system industries
- Platform compatibility: Dual-port solution is compatible with ARM architecture and Linux operating systems
- Long-term supply: Innodisk can meet long-term supply needs
- Strong and stable EP Can bus: EMUC-B202-W1 expansion card can withstand rough environments like temperature variations, electromagnetic interference, and unstable power supply

### Conclusion

Through Innodisk's CAN bus solution, our farm cultivation client is able to meet different vehicle requirements when it comes to using CAN modules to support multiple protocols. Long-term supply also means that manufacturers do not have to worry about shortage of parts in the later stages of the product lifespan. Innodisk has a team of firmware experts and a wide range of product specifications and connectivity interfaces that can be tailored to meet any onboard application need.

### Our Promise

We believe that through great cooperation, Innodisk can aid clients in overcoming all challenges. By maintaining efficient communication, we ensure that the tailored solution will be suitable for your application, from initial stages of communication to the final execution. We will continue to devote to innovative hardware, firmware, and software integration.