DFI

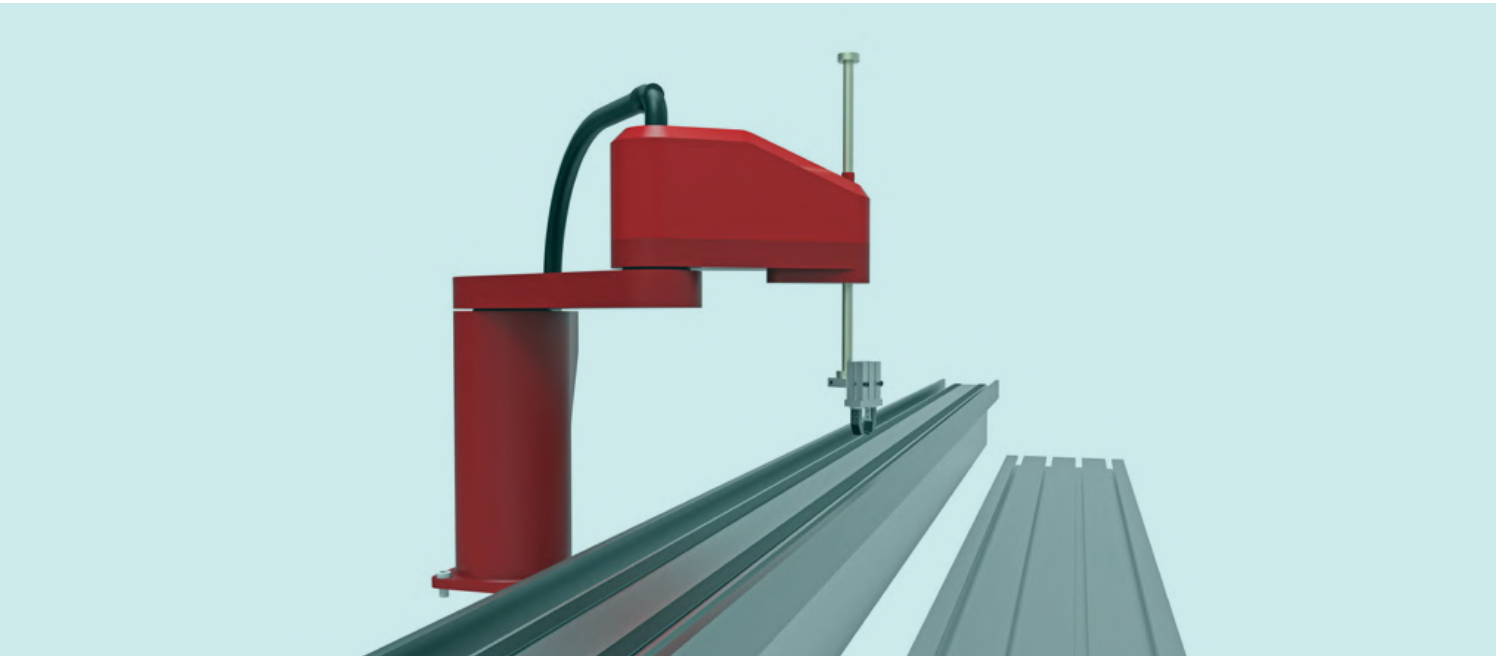
Highly reliable embedded system with multi-port Ethernet to create a SCARA with precise control

SCARA is a particular type of industrial robot with cylindrical coordinates. It generally has 4 degrees of freedom, including translation along the X, Y, and Z directions and rotation around the Z-axis. The SCARA is characterized by small load and fast speed, so it is mainly used in 3C industries such as quick sorting, precision assembly, or the food industry. The traces of SCARA can be seen in wafers, panel handling, circuit board transportation, and insertion and assembly of electronic components in the IC industry. With the high reliability brought by the onboard memory and the multi-port Ethernet that meets customers' needs, DFI EC700-BT3054 assists customers in creating accurate SCARA.

Region: **China**
Industry: **automated production line**
Application: **SCARA**
Solution: **EC700-BT3054**

Case Study: Success Story

www.dfi.com / inquiry@dfi.com / +886 (2) 2697-2986



SCARA (Selective Compliance Assembly Robot Arm or Selective Compliance Articulated Robot Arm) is a specially configured robot arm. It is a new assembly robot concept proposed by a Japanese manufacturer in 1981. A small load characterizes it. On the other hand, the speed is fast, so it is mainly used in fast sorting, precision assembly, other 3C industry, the food industry, and other fields.

The SCARA robot arm has rigidity in the Z-axis direction and can bend in the XY direction. According to the SCARA parallel axis structure, its component is compliant in the X-Y order but rigid in the Z direction, so its name is ”Selective compliance”. This feature has advantages in planar assembly operations, such as inserting a round pin into a round hole.

Another feature of the SCARA is that the joint structure of its two components is similar to a human arm, so there will be the word "articulated" in the name. This feature allows the arm to enter some narrow or restricted areas, and then exit the site by folding. This feature is conducive to moving assembly materials from one closed workstation to another.

Compared with the traditional Cartesian coordinate robot arm, SCARA will respond faster, and the equipment environment will be cleaner. In addition, its single-seat mount requires a smaller footprint, so it adopts a more straightforward and unobstructed installation method. But it also needs more precise software control, such as system control software that supports EtherCAT (Ethernet for Control Automation Technology).

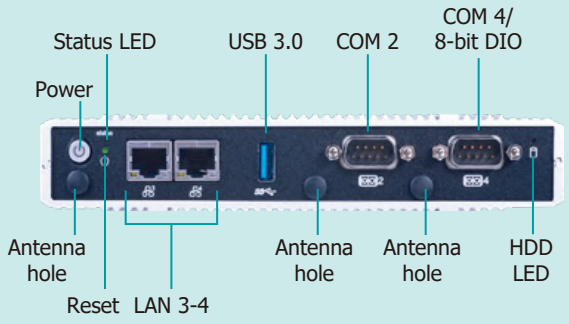
A robot manufacturer in China that integrates R&D, production, sales, and service, focuses on core components in intelligent manufacturing and industrial automation. After years of development and accumulation, its self-developed linear motor

systems, machine vision systems, and industrial robot series products are widely used in automotive, medical, 3C, food, solar, semiconductor, new energy, packaging, and other industries.

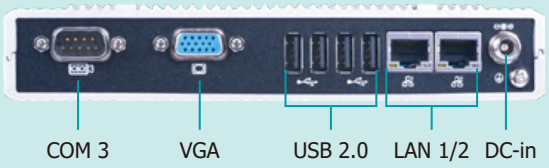
Its robot product line also includes SCARA. One of the products used for the assembly and processing of electronic and automotive components, with high speed and high repeat positioning accuracy (arm's length 400mm, maximum load of three kilograms), due to the real-time remote control signal and visual monitoring, must use an external EtherCAT network control card, and connect the monitoring camera via Ethernet. Therefore, in addition to the existing data transmission requirements, its computing brain must provide a four-port Ethernet network. In addition, its compact mechanism design has a small footprint and an extensive range of motion, but it also brings the necessity of shock-resistance.

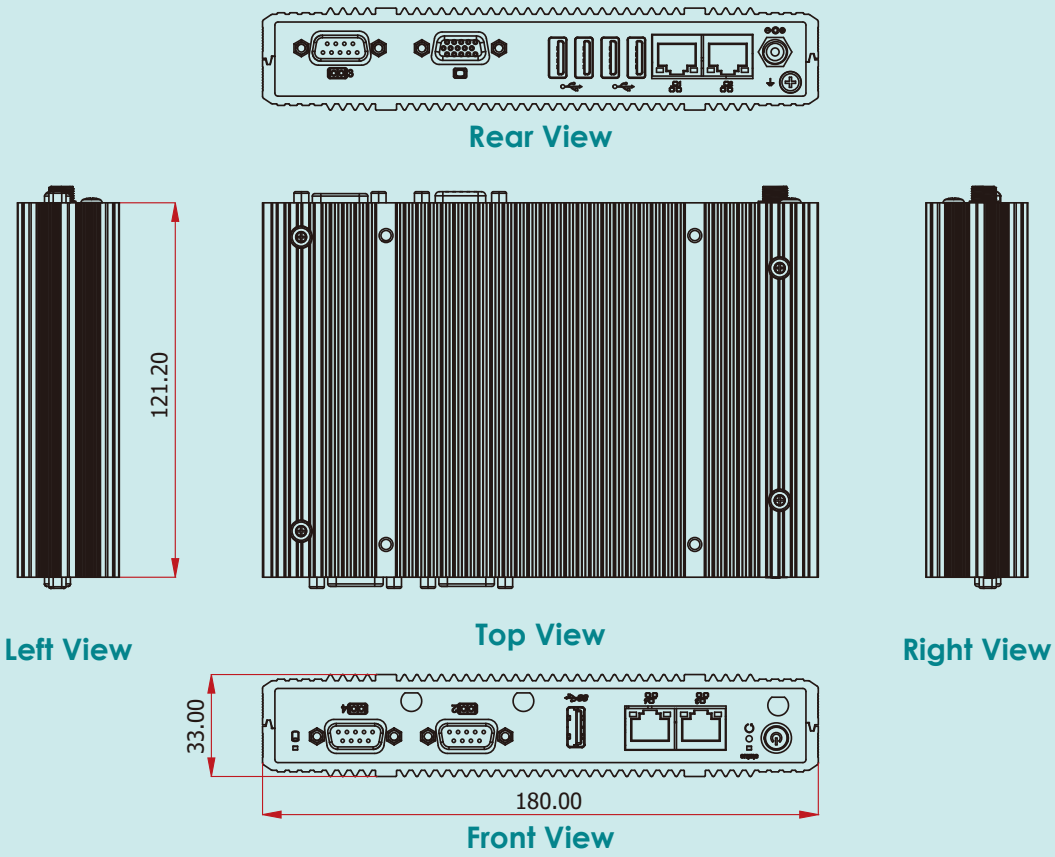
So they chose DFI EC700-BT3054 as the control brain of this SCARA. Because this embedded system combines anti-vibration onboard memory, ultra-thin form factor, four Ethernet ports, and a more wider input voltage range, all of which perfectly meet customers' needs. EC700-BT also has a model that supports memory error correction code (ECC) for more robust memory data integrity. According to the Intel IOTG product schedule, the processor used in EC700-BT will be supplied until the first quarter of 2028, which means that customers will not have to worry about out-of-stock issues within a few years and increase the return on investment.

Front View



Rear View





From the general-purpose super large load to the lightweight SCARA, the EC700-BT series and the newer EC700-AL are perfect matches made in heaven. If you want to build and then create a streamlined and highly integrated robot workstation, you must not miss DFI's complete solution.

Please click or scan the QR code to see our website if you would like us to contact you.

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.

Website: www.dfi.com

eStore: estore.dfi.com

For more information, please contact your DFI regional sales representative or send us an email: inquiry@dfi.com