

## Eurotech

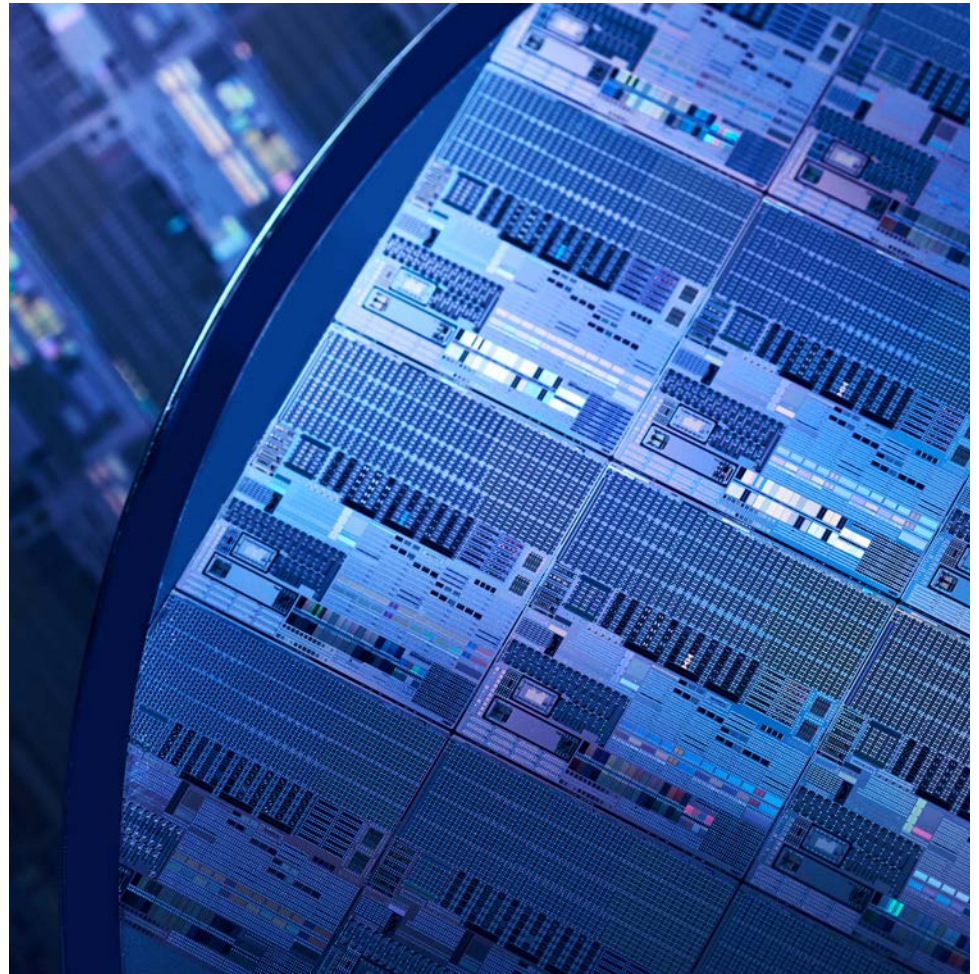
Eurotech is a multinational company that designs, develops and supplies Edge Computers and Internet of Things (IoT) solutions – complete with services, software and hardware – to system integrators and enterprises. By adopting Eurotech solutions, customers have access to IoT building blocks and software platforms, to Edge Gateway to enable asset monitoring and to High Performance Edge Computers (HPEC) conceived also for Artificial Intelligence (AI) applications. To offer increasingly complete solutions, Eurotech has activated partnerships with leading companies in their field of action, thus creating a global ecosystem that allows it to create “best in class” solutions for the Industrial Internet of Things. Learn more about Eurotech at [www.eurotech.com](http://www.eurotech.com).

**20% Less power consumption\***

**30% Less additional boards needed in the system\***

## Advme8088 Solution Overview

Semiconductors are an essential part of our everyday life: from our smartphones to our cars, smart home equipment and complex systems that we use everyday at work, they form the skeleton of our digital-based world, powering a huge percentage of humans’ activities. In order to produce this immense amount of miniaturized hardware, the expensive semiconductor manufacturing systems had to evolve at an extreme speed in just a few decades, creating some problems in the path especially related to end-of-life components and upgradability.



\*Data based on an estimation following internal tests

solution overview

## The Challenge: Legacy standards with next-gen components

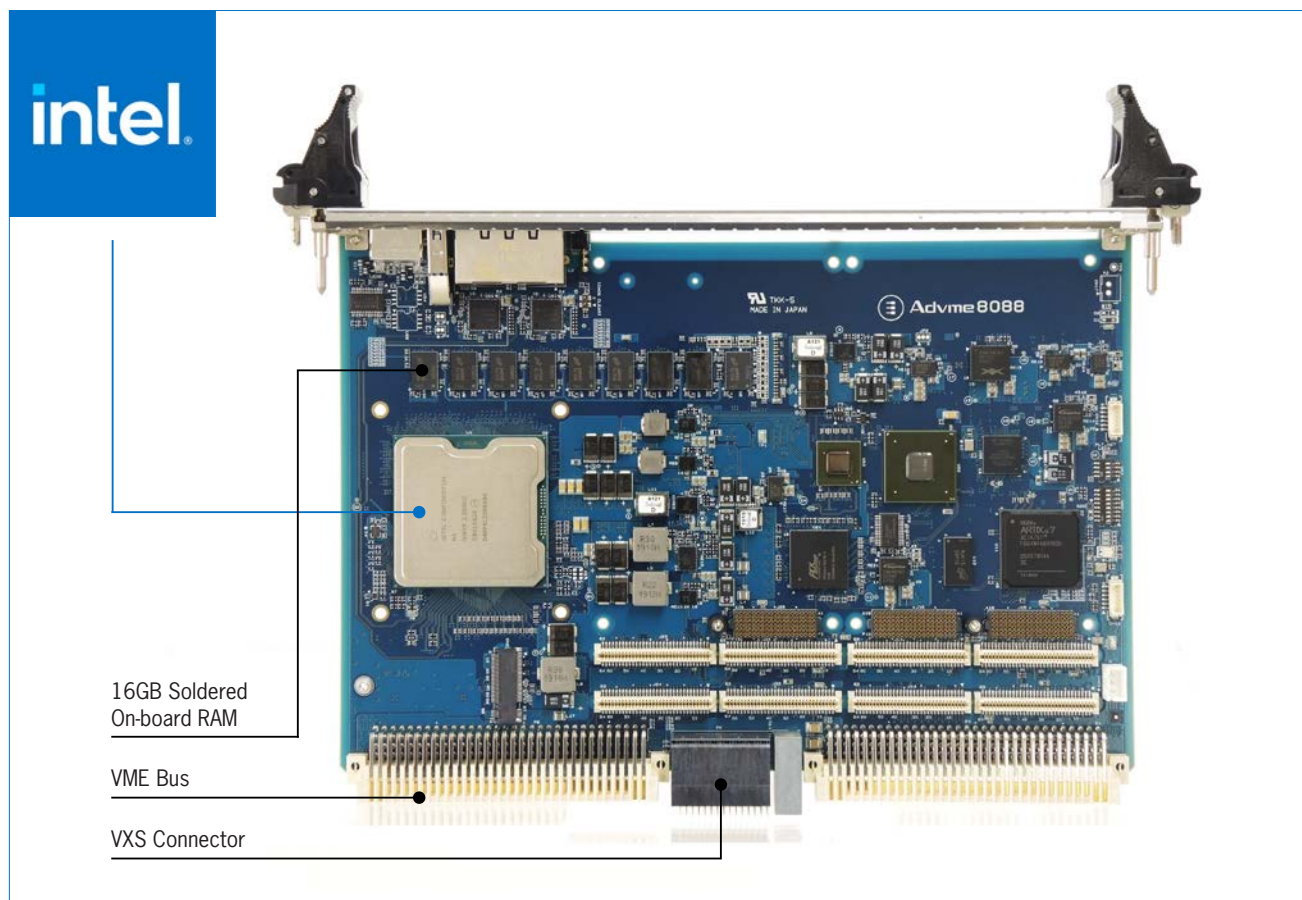
In the semiconductor industry, the required investment needed to develop and build new systems keeps rapidly increasing. Lower latency and higher processing throughput are in fact required for physical control systems in order to produce thinner patterns and shortening the manufacturing time.

On the other hand, being the life cycle of this kind of complex systems usually (much) more longer than 10 years, results in an exponentially growing demand for legacy boards with next-gen components such as new CPUs or faster RAMs.

This happens because, in order to reduce the development costs and risks, companies often decide to keep using the same legacy boards, which leads to situations where the boards themselves get to an end-of-life status way before the systems they are installed in do.

Engineering these legacy boards with next-gen components has a series of bottlenecks and problem solving to overcome, which makes the design process feasible only by experienced companies in the market like Eurotech, which has more than 40 years of history in developing sophisticated boards and systems for different markets, including the semiconductor manufacturing one.

## The Solution: Advme8088



solution overview

## General Description

The Advme8088 is our latest 6U 1-slot wide VME CPU board equipped with the Intel Xeon D-1700 processor, specifically engineered to overcome many of the issues caused by the necessity of upgrading older semiconductor manufacturing systems with new hardware.

The Intel Xeon D-1700 processor has higher CPU performance, improved AI inferencing performance, more cores and faster interface, making it ideal for edge computing and applications that handle a large number of inputs and processes simultaneously.

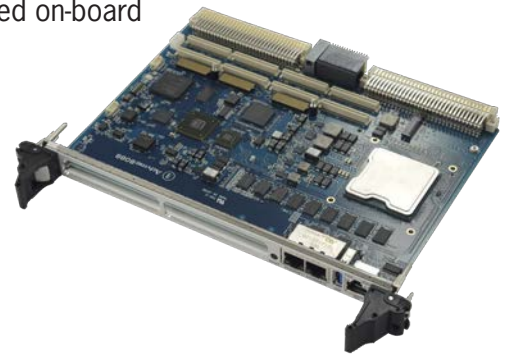
The Serial RapidIO interface connected to the VXS and XMC connectors, enables seamless high-speed communication with peripheral boards and external devices.

The two XMC slots are both connected to the CPU via PCI Express Gen3 x8 and support high-speed network interfaces and accelerators.

Thanks to the on-board (soldered) RAM, it is ideal for applications that require high reliability and vibration resistance.

## Key Features

- Intel Xeon D-1700 Processor
- ECC DDR4-2400 16GB (max), Dual Channel, Soldered on-board
- XMC/PMC 2 Slots
- M.2 (PCIe3 x4/SATA)
- 2x Gigabit Ethernet ports
- VME 64x, 2eSST
- VXS PO Connector
- 2x Serial RapidIO Gen.2 4x
- 6U, 1 Slot width
- Single 5V Power Supply
- VxWorks 7



## Customer Use Case - Position control mechanism for lithography machine

Advme8088 is used by our customer as part of a lithography machine: specifically, Advme8088 handles the position control mechanism making use of a high-speed optical network for memory sharing.

In the process, Advme8088 receives and elaborates complex flow of data from the many position sensors installed in the system, providing feedback to the actuators via the optical network.

Thanks to the progressive core architecture and the upgraded interface, the customer could reduce the number of CPU boards in the existing system by 30% and the total power dissipation by 20%, a huge milestone in terms of resources, space and energy saving.\*

\*Data based on an estimation following internal tests



## The Intel Difference

Advme8088 is equipped with the Intel Xeon D-1700 processor at its heart, and that's what enables most of the interesting features of the board.

Intel's technology is in fact compatible with a wide ecosystem of existing hardware, which makes it the best platform to ensure a 100% intercompatible environment between older connection standards, sensors and different components.

Because of how critical the end-of-life aspect is, it is fundamental to also ensure that the CPU will last for many years at a different range of temperatures and conditions, and this is also possible to guarantee thanks to the reliability provided by the Intel CPU family.

Intel does not only offer a wide array of compatibility tools, but also shines when comes to performance: ranging through the different SKUs that Intel offers for the next-gen Xeon D, from low-end spec to higher-end spec based on the necessity for the final product, Intel ensures a cutting-edge performance output in terms of computational power, TCC compatibility and an extremely fast PCIe Gen.4 interface.

## What is the Semiconductor Lithography?

The photolithography is a semiconductor device fabrication process, which includes all processes that shape or alter pre-existing shapes on deposited material.

For example, in conventional lithography, the wafer is coated by a process called "rotation coating" through a photosensitive chemical called photoresist. The photoresist is then exposed by specific machines, called mask-aligners or steppers, which align masks (usually made of quartz), focus the radiation and finally expose the photoresist to an ultraviolet radiation of appropriate wavelength.

The unexposed region is then removed from the developing solution.

After etching and other processes, the remaining photoresist is removed by plasma ashing or simply by dissolving it in a suitable solvent.

