*Entry for the 2022 Electronics Industry Awards: Embedded Solution Product of the Year*

**Advantech: SOM-C350** **COM-HPC computer-on-module**

Some manufacturers in the IoT board market have sought to use consumer-grade components to achieve the performance levels needed for high-precision assembly and testing. However, these components often lack the ruggedness and thermal tolerance needed for maximum uptime, leading to quality issues. Many platforms also need to accommodate multiple peripherals such as accelerators, robotic motion control cards, or video capture cards while balancing platform complexity, which can inflate ownership costs.

With this in mind, in early 2022, Advantech launched the SOM-C350 COM-HPC computer-on-module as one of a number of highly innovative and exciting technologies featuring 12th Gen Intel® Core™ Intel® Pentium® Gold and Intel® Celeron® Desktop Processors leveraging performance hybrid architecture.

A desktop socket-type CPU COM-HPC Client Size C Module, the SOM-C350 is purpose-built for COM-HPC configurations that combine a compute board for primary workloads with a carrier board that connects to external peripherals in edge applications. It combines PCIe 5.0 connectivity and DDR5 memory for a massive boost to I/O and computing performance.

The SOM-C350 has been designed to be compatible with machine vision, medical, and test equipment as well as factory automation, AI and IoT applications.

It delivers industrial-grade, desktop-level CPU performance and gives customers the option to scale up from Intel® Core™ i3 processor to Intel® Core™ i9 processor SKUs based on their needs.

The module offers a quick-deploy solution with industrial reliability for COM-HPC configurations. While previous modules were smaller with a lower thermal design point (TDP), the SOM-C350 delivers Intel® Core™ i9 processor-level performance while still meeting space constraints or supporting a greater number of PCIe cards.

Each module includes an Intel Alder Lake-S desktop socket type CPU for up to 16 cores. Its dual-channel DDR5 SODIMM memory maxes out at 128 Gbytes.

It combines performance cores (P-core) and efficiency cores (E-core) into a single die that supports up to 16 processor cores and up to 24 threads.

When compared with previous generation solutions, this delivers up to 36%, 35%, and 94% speed increases for single-thread performance, multithread performance, and graphics performance respectively.

The combination of I/O and high-level computing makes the SOM-C350 an excellent choice for applications that require breakthrough computing power.

Summary of key features:

* COM-HPC® client size C module pin out
* High scalability with socket type LGA 1700 CPU + R680E PCH
* 4 SODIMM DDR5 w/ ECC/non-ECC, max. 128GB
* High-performance iRIS Xe graphic engine and PCIe x16 Gen5
* High-speed Ethernet 2.5GbE with TSN and USB 3.2 Gen2x2
* Supports iManager, WISE-PaaS/DeviceOn and embedded software APIs

Ref: ADV327A