

Intel Introduces the 13th Gen Intel® Core™ i7-1376PRE and accompanying Intel® Airworthiness Evidence Package

Intel's new 13th Gen Intel® Core™ i7 processor supported with the Intel® Airworthiness Evidence Package (Intel® AEP) is built for DO-254 safety certifiable applications. Based on Intel's performance hybrid architecture with integrated Intel® Silicon Integrity Technology, this latest processor is poised to redefine how the avionics industry approaches safety certifiable applications.

Intel® Hybrid Technology merges two existing architectures: Performance-cores (P-cores) and Efficient-cores (E-cores). Single and multiple-threaded operations are performed simultaneously, despite the constraints dictated by the power capacities and other equipment limitations. By having both P-cores and E-cores in one package, Intel's performance hybrid architecture can generate a more efficient distribution of core usage depending on the application. This happens because P-cores help increase performance to handle complex workloads. E-cores meanwhile focus on multi-threaded throughput and power limited scenarios.



Intel's performance hybrid architecture has P-cores and E-cores working alongside one another. Workloads can be bound to certain cores. Generally, the P-cores are preferred for priority tasks and applications requiring limited threading, while the E-cores are available for power-limited scenarios and/or background applications with lighter processing requirements.

Features and advantages of 13th Gen Intel® Core™ i7-1376PRE processors include:

- Extended temperature range [-40C, 100C]

- Configurable TDP of 20W, 28W and 35W
- Gen 12 Iris Xe Graphics for graphics and compute workloads
- Intel® Time Coordinated Computing (Intel® TCC) for deterministic performance
- Intel® Silicon Integrity Technology for integrated anomaly detection and mitigation

One of the most compelling new features integrated with Intel® Silicon Integrity Technology is dual-core lockstep, where two E-cores are coupled and compared cycle-by-cycle for high reliability computing. Intel® TCC includes software and silicon optimizations significantly enhancing temporal determinism within the processor.

Utilizing Intel® AEP in conjunction with 13th Gen Intel® Core™ i7-1376PRE processor is particularly advantageous for avionics use cases. The Intel® AEP accelerates time to certification by providing confidential design and development assurance data that is normally not disclosed. With access to the airworthiness-related data, Intel enables customers to build their certification packages for the full hardware and software stack forming the foundation for safety-critical applications. The Intel® AEP aids in meeting the design assurance requirements of DO-254/ED-80 and the development assurance guidance of AMC/AC 20-152A for COTS devices integrated into airborne electronic hardware.

Among the artifacts included in the Intel® AEP are single event effects (SEE) analysis, failure modes effects and diagnostic analysis, dependent failure analysis and freedom from interference analysis. To help customers maximize the silicon's deterministic performance, the Intel® AEP includes also an AMC 20-193 Guide, which provides guidance for configuring Intel processors to limit the interference between the cores and core resources.

For more information about how Intel avionics offerings can help you reach your objectives, please contact us at IOTG-PublicSector@Intel.com or visit our website intel.com/aerospacedefense

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