Antillion and Solidigm™: Driving Innovation at the Edge

During a time when edge computing is poised to revolutionize industries, Antillion has emerged as a leader in designing and building high-performance, ultra-compact edge computing platforms under its Pace product line. From security applications and search and rescue to industrial and mobile computing solutions, Antillion is focused on designing high-performance edge solutions in the smallest, most portable form factors.

Edge computing is a distributed computing paradigm that brings computation and data storage closer to the location where it is needed, rather than relying on a centralized data center. This approach reduces latency, increases efficiency, and enhances real-time data processing, which is particularly useful in environments where immediate data analysis is crucial, such as in autonomous vehicles.

Antillion's Unique Edge Computing Solutions

Antillion specializes in designing and manufacturing edge computing platforms that are highly portable and scalable. Unlike traditional data center solutions, which prioritize raw computational power within fixed infrastructures, Antillion's Pace platforms are designed for environments where space, weight, and mobility are critical constraints. These platforms scale from backpack-mounted systems to racks deployed in vehicles, aircraft, and remote locations.

Antillion's customer-first, flexible approach distinguishes it from other companies that specialize in edge deployments. Rather than forcing users to adapt their workflows to rigid computing infrastructures, Antillion begins with the end goal in mind—what the user needs to achieve—and then aligns these requirements to Pace platforms, each being able to have uniquely-tailored configurations. Whether it's a high-performance processing unit used in the field for real-time situational awareness or a computing system capable of withstanding challenging environmental conditions, Antillion delivers purpose-built solutions that maintain seamless interoperability across deployments.

How Solidigm's High-Density Storage Helped Antillion Redefine Edge Computing

At the heart of many of Antillion's distinctive products lie Solidigm's small form factor and high-density storage solutions, which have enabled Antillion to reimagine what's possible at the edge.

"Integrating Solidigm's E1.S and E1.L solid-state drives (SSDs) into its designs has led to significant advancements," said Alistair Bradbrook, Antillion founder and COO. "In the past, designing compact computing solutions often required sacrificing storage capacity and performance due to physical constraints. However, with Solidigm's cutting-edge NVMe SSDs, Antillion has been able to dramatically increase storage density without compromising on speed or efficiency."

For example, the introduction of the E1.S form factor allowed Antillion to fit unprecedented amounts of storage into its ultra-compact edge devices. These Solidigm NVMe SSDs provide significantly higher data throughput and compared to the previous SATA SSDs, making them ideal for edge deployments where energy efficiency is crucial.[1] The E1.L series further expands on this by offering even greater capacities, pushing the boundaries of what is possible in mobile and edge computing.

Innovation in Action

Traditionally, first responders and security personnel have relied on radio communications and manually processed information. But Antillion's innovations are advancing the communications capabilities of these critical groups to new levels. Using its smallest Pace platform, the A2, Antillion developed a wearable tactical computer that integrates high-speed computing and data storage capabilities, enabling real-time processing, situational awareness, and data analytics in the field.

Figure 1. Antillion A2 Pace platform

By incorporating Solidigm E1.S NVMe SSDs, the Pace A2 can store and process vast amounts of mission-critical data while remaining lightweight and compact. First responders, for instance, can access high-resolution video feeds, sensor inputs, and AI-driven analytics directly from their wearable A2, leading to improved decision-making in high-pressure situations. The modular nature of the SSDs means that users can easily upgrade storage capacity as needed without having to redesign the entire system.

Performance Gains Through Benchmarking

Antillion conducted benchmarking to assess the performance impact of integrating Solidigm SSDs into its system build appliance, LOEN. Compared to legacy SATA-based storage, the transition to Solidigm™ D7-P5520 NVMe solutions resulted in up to a 30% reduction in system build times, significantly improving deployment speed and operational efficiency.[2] This reduction is particularly critical in emergency response scenarios, where rapid system setup can mean the difference between success and failure.

Their testing revealed that networking upgrades had a relatively minor impact on overall performance when compared to storage improvements. This underscores the importance of high-speed, high-density SSDs in accelerating system deployment and data processing at the edge.

Focus on Reliability

With a focus on quality and efficiency, Antillion observed that Solidigm SSDs demonstrated exceptional reliability in edge environments, with zero failures across hundreds of deployed Solidigm drives.

Solidigm's commitment and collaboration has been instrumental in enabling Antillion to push the boundaries of edge computing while maintaining high standards of quality and performance.

SOLIDIGM + antillion

The Future of Edge Computing and Storage

Antillion's collaboration with Solidigm extends beyond adopting their storage solutions to a commitment to shared innovation. As edge computing continues to evolve, the increasing demand for localized data processing, enhanced security, and real-time analytics will require even more compact and powerful computing solutions. With storage density and performance continuing to improve, future applications may include AI-powered field analysis and edge-based cybersecurity.

By combining cutting-edge storage with purpose-built computing platforms, Antillion and Solidigm are unlocking new possibilities for industries ranging from emergency services to industrial automation and beyond. This solution exemplifies how the right technology collaborations can drive meaningful advancements.

Appendix

1. Comparing bandwidth of Samsung SM883 to Solidigm™ SSD D5-P5336.

2. Source: Antillion

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