PTC Perc Real-Time Java for Embedded Systems

PTC Perc is a real-time Java runtime and development solution, purpose-built for Embedded Systems in Industrial Control, Aerospace, Defense, Energy, and Transportation.

Embedded Systems

Perc is designed for embedded systems. An embedded system is a computer that performs a dedicated function within a larger mechanical or electrical system. They are often expected to operate for months or years without interruption. Today's high-technology products, from smartphones to automobiles to unmanned aircraft, are increasingly "software defined." Their operational features and capabilities are determined more by software than physical hardware. Even when additions and improvements are made to hardware, the end-user experience of those changes is largely shaped by the software in an on-board embedded system.

Real-Time Systems

Perc is designed for real-time systems. A real-time system has timing deadlines. It must respond to events such as user input, sensor data, or performing a periodic task within a deadline. Real time isn't about raw speed. It's about consistently executing tasks within a predetermined time frame. The word for this characteristic is "determinism."

The Difference

What makes PTC Perc different from other Java platforms? Most "traditional" Java platforms are targeted to general purpose systems with powerful CPUs and lots of memory and storage to run desktop, server, and cloud-based applications for many users, often simultaneously. Those users have come to expect occasional delays when they interact with their applications.

On the other hand, Perc targets embedded systems that run a single application, monitoring and controlling an electro-mechanical device with deterministic precision. That's not to say the application cannot be large or complex. In some cases, Perc runs hundreds of thousands of lines of code with dozens of concurrent threads of execution, but that code is crafted to perform a dedicated mission-critical function.

PTC Perc gives embedded systems developers the tools they need to make their Java code run deterministically with features such as ahead-of-time compilation, preemptible garbage collection, thread scheduling, page locking, priority inheritance, and jitter-free timing.

Learn more at **ptc.com/products/developer-tools/perc**.