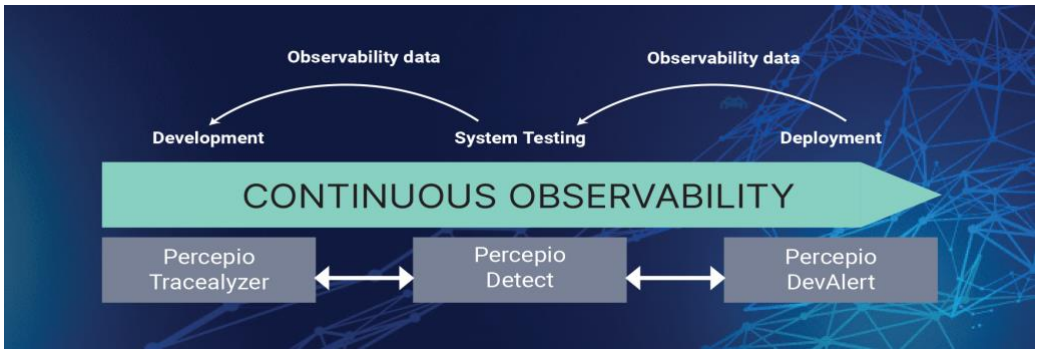
Percepio Detect™

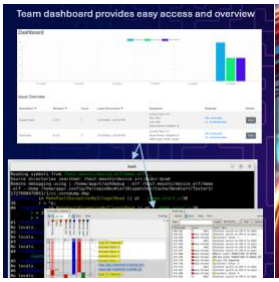


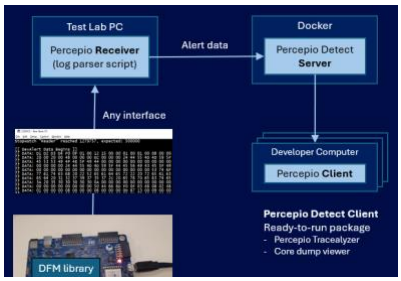
Verify System Stability and Detect Hidden Risks

Percepio Detect™ is a powerful observability tool designed to identify elusive stability risks in RTOS-based embedded software. By capturing crashes, anomalies, and timing issues in real time, Percepio Detect helps teams detect problems early, reduce debugging time, and improve software reliability. With support for in-house testing, CI/CT integration, and field test monitoring, Percepio Detect provides systematic visibility into runtime behavior and system health and integrity and synergistically extend capabilities to Percepio Tracealyzer. This enables Continuous Observability®.

Key highlights

- **Capture crashes, anomalies, and timing issues in real time for systematic visibility.**
- **Debug faster with automatic crash dumps and system snapshots – "real issue forensics".**
- **Detect timing and multithreading issues with precision stopwatches.**
- **Reduce debugging time by up to 90% by eliminating the need for issue reproduction**
- **Profile software performance over extended periods without large trace logs.**
- **Integrates seamlessly into CI/CT workflows**
- **Private, on-premises deployment ensures full control over sensitive data**
- **Licensed per seat or per installation**





Collaborate for Faster Progress and Superior Quality

Percepio Detect is a team solution that enables collaborative debugging through a shared server and web-based dashboard. This makes it easy to track stability risks, analyze performance data, and share insights across development and testing teams. By integrating Percepio Detect into continuous testing workflows, software teams can automatically collect and analyze stability metrics as part of their CI/CT pipeline. Unlike traditional debugging methods that rely on reproducing errors, Detect captures issues as they occur, making debugging faster and more efficient.

For high-confidence debugging, Percepio Detect can be used alongside Tracealyzer. While Tracealyzer provides detailed event traces, Detect runs independently on the device, monitoring system stability with minimal performance impact. Together, these tools provide deep, layered observability for embedded software teams. When extended with DevAlert cloud-based observability, you cover the full product lifecycle ensuring the stability, integrity and efficiency of your RTOS-based systems.

Information provided are preliminary and may represent product roadmap capabilities.

percepio™
CONTINUOUS OBSERVABILITY

Detecting Critical Stability Risks in RTOS-Based Systems

Developing RTOS-based embedded software brings inherent multithreading risks that may cause **elusive stability issues**. These issues may remain undetected despite extensive testing, code reviews and static analysis, as they are not apparent in the source code. They only surface as intermittent errors, often in late stages of testing where they become **notoriously difficult to reproduce and debug**.

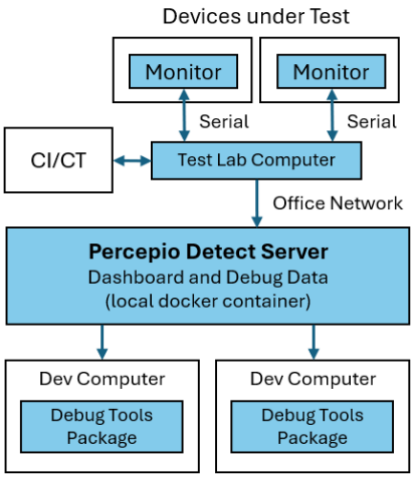
By monitoring **key performance metrics** in runtime, Percepio Detect identifies multithreading risks that may cause intermittent errors under slightly different circumstances. This could be, for example, potential deadlocks and near misses related to software timing or resource usage. Such issues can make your software brittle and sensitive to variations in thread timing, in the end triggering errors during real-world use.

Percepio Detect monitoring can be included in your regular integration testing to find multithreading risks early and with minimal effort.

Intermittent Errors

- Hard Fault Exceptions
- Expired Watchdogs
- Race Conditions
- Thread Starvation
- Timeouts
- Memory Leaks
- Stack Overflows
- Deadlocks
- Priority Inversions
- Data Sampling Jitter
- Buffer Overruns
- Failed Asserts

Verify, Detect, and Resolve – Release with Confidence



shared dashboard with debug data access for team collaboration.

How can intermittent issues be investigated easily?

Sporadic errors are challenging to debug due to limited initial information and difficulty in reproducing them. Percepio Detect provides **deep observability** on crashes, errors, and other detected issues and risks from the very first observation. Get **visual RTOS traces** on multithreading issues and see **call-stacks,** function arguments and variables on hard faults. Leverage ultra-fast application logging with 99% less performance overhead to get more details with minimal impact.

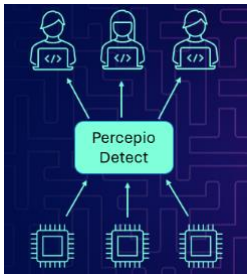
How to verify software timing and resource usage?

Percepio Detect enables systematic monitoring of software timing and resource usage over **unlimited time without high-bandwidth trace streaming**. Thread metrics are calculated on the device in real time and aggregated as statistics. For high confidence results, monitoring can be active in field testing over many days or weeks. The metrics data will survive device crashes and restarts, and built-in data integrity checking protects against data corruption. Detect **near-miss anomalies** that could lead to future failures and Identify **latency bottlenecks**.

Continuous Observability® by Percepio

Percepio Detect is a core component of Percepio's Continuous Observability portfolio, providing deep software insights across all development stages. Whether used during unit testing, integration testing, or in-field monitoring, Detect helps teams build more reliable, maintainable, and high-performing embedded systems.

Let your Observability Driven Development (ODD) journey start today!



Contact Us!

Contact Percepio to learn more and sign up for evaluation