MENTOR EMBEDDED
Graphics & UI Solutions

SOLUTION FEATURES:

- Specialized MCU, MPU, and GPU UI frameworks for use with Mentor Embedded Linux and Nucleus RTOS

- Advanced graphics solutions:
  - Heterogeneous multicore and multi-OS systems
  - Safety-critical and mixed criticality solutions
  - High performance shared graphics (GPU)
  - Embedded Hypervisor and ARM® TrustZone® support

- Specialized UI performance tooling with visual analysis of key UI metrics such as frame rate, responsiveness, boot time alongside system metrics

- Diverse and established partner ecosystem including: Altia, SocioNext CGI Studio, Tara Systems Embedded Wizard

BENEFITS:

Reduced BOM Costs
The breadth of options and optimized graphics and UI solutions provided by Mentor Graphics allow device manu-facturers to reduce requirements on processor selection and memory, thus lowering costs

Improved Time to Market
Advanced graphics solutions and pre-instrumented runtimes speed the development, debug, and optimiz-ation of graphics subsystems

Access to Industry Experts
Mentor Embedded has a dedicated UI development team of graphics specialists who are available to help solve the most complex graphics design and performance challenges

Addressing Today's User Interface Challenges

Today's embedded devices increasingly require a sophisticated user interface (UI) with an expectation for usability and performance set very high by smart phones and tablet computers. If a user has a poor experience – including device responsiveness, animation smoothness, or start-up time – the device will fail regardless of how good the device might otherwise be.

Because of this, developers are now required to address very complex and stringent embedded device requirements related to the UI. Cutting-edge and proven UI solutions are required to help developers incorporate rich graphics to make optimal use of the latest multicore and heterogeneous System-on-Chip (SoC) architectures, address complex safety-critical and mixed criticality needs, or run UIs on heavily resource-constrained hardware.

Mentor® Embedded Graphics & UI solutions address the diverse and challenging needs of the market through established UI technologies and new market-leading features from its dedicated team of career graphics and UI specialists. The Mentor Embedded Graphics & UI solutions include:

Broad Range of Advanced Graphics Enablement

Mentor Embedded provides specialized MCU and MPU UI frameworks for use with a wide range of architectures including ARM®, Intel, MIPS, and PowerPC.

Making use of the Mentor Embedded Nucleus® RTOS, or Yocto™ Project-based Mentor Embedded Linux®, developers can create UIs for a wide range of embedded markets including automotive, industrial, medical, home auto-mation, wearables, mil/aero and the Internet of Things (IoT).

Mentor's advanced graphics solutions provide answers for developers considering deploying applications on homogeneous or heterogeneous multicore, as well

mentor® embedded

as multi OS-based systems through the Mentor Embedded Multicore Framework. Complex safety-critical and mixed criticality needs are addressed through reference architectures and cutting-edge reference designs for render stacks with shared GPU access.

Nucleus Add-on for the Qt® Framework

Qt Designer and Qt/Widgets can be used to create compelling, interactive UIs with the Nucleus RTOS in applications such as medical, white goods, automotive, and consumer electronics. The Nucleus port of the open source Qt framework provides access to widely deployed technology, cross-platform support, and access to a large development community of more than 450,000 developers in over 70 countries.

Mentor offers one of the smallest, most optimized integrations of Qt on any RTOS; the solution is fully integrated with existing Qt UI design tooling and workflow. Additional performance and memory optimization tooling from Mentor, not available with standard open source Qt, enables the framework footprint to be reduced by up to 70%.

Performance Analysis

The Mentor Embedded Sourcery™ CodeBench IDE includes Sourcery Analyzer, an award-winning embedded design analysis solution that combines a unique profiling and analysis engine with data visualization capabilities. Trace data visualization and analysis provides deeper and faster insight into difficult UI problems by performing customized analysis across the OS, UI framework, and the application layer.

Using Sourcery Analyzer, developers can compare system metrics like the execution profile (LISRS, HISRS, Tasks, Events) and CPU state or utilization, against UI-defined

The Sourcery™ Analyzer tool provides graphical feedback on key UI and system metrics across the OS, UI framework, and even application layer.

metrics such as frame rate, response times, and boot time analysis to get a true visual understanding of embedded system behavior.

UI Experts

Standing behind Mentor's industry-leading UI solutions is a dedicated team of graphics and UI experts. This core team is comprised of graphics specialists with decades of experience in embedded UI research and development, and contributions to industry organizations such as the Khronos Group. Mentor specialists help customers with graphics optimizations, system architecture consulting, and the creation of sophisticated and customized UI solutions.

More about Mentor Embedded

The Mentor Graphics® Embedded Systems Division comprises the Mentor Embedded family of products and services, including embedded software IP, tools, and professional services to assist developers and silicon partners to optimize their products for design and cost efficiency.

For the latest product information, call us or visit: w w w . m e n t o r . c o m / e m b e d d e d