



LPGPU2

LPGPU2 tool-suite helps to extend mobile battery life without sacrificing performance or quality

- The LPGPU2 toolset enables programmers to develop power-efficient code for GPUs by identifying power and performance bottlenecks
- The toolset allows developers to strike a balance between ultra-low-power requirements and high-performance graphics display/image processing
- Breakthrough techniques mean that battery life can be extended even when running graphics software, enabling innovative applications in domains from fitness to infotainment, and from security to autonomous vehicles

Berlin, 12 September 2018 - European Union-funded researchers have today released a tool suite which enables developers to deliver longer battery life in mobile devices, while ensuring high quality and performance.

The LPGPU2 tool-suite helps programmers develop power-efficient code for GPUs by identifying bottlenecks relating to performance (for example in terms of frames-per-second) and power (for example in terms of energy per instruction).

“The LPGPU2 tool will have a major impact on applications where ultra-low power or high performance graphics are priorities,” explains LPGPU2 Coordinator Ben Juurlink, professor of embedded systems architectures at TU Berlin. “Thanks to the breakthrough techniques developed by LPGPU2’s academic and industry experts, innovative applications in a wide range of domains, including healthcare, fitness, security, infotainment and autonomous vehicles, are now possible.”

By providing an end-to-end solution that starts at the application and reaches all the way to the hardware, the tool-suite provides insights and visibility not possible in other tools. This coupled with the Feedback Engine – a unique part of the tool suite that makes optimization simple by providing insightful guidance on how to improve performance and power consumption – provides an unbeatable combination.

The LPGPU2 tool suite has benefited from the expertise of a range of academic and industrial partners. TU Berlin developed the power measurement tool, while Samsung designed and implemented the data collection frameworks, the feedback engine (that functions as a virtual optimization expert) and also tested the tool suite on real mobile devices. Greek company Think Silicon validated it on their four-core NEMA GPU system. Meanwhile, Scottish software specialists Codeplay extended AMD’s CodeXL tool, allowing programmers to profile their SYCL applications, and Berlin-based video experts Spin Digital produced a high-performance, multi-API video player, which delivers performance gains of up to 25% as well as energy usage reduction of up to 25%.

Download the tool suite now from the GitHub repository:
<https://github.com/codeplaysoftware/LPGPU2-CodeXL>

About LPGPU2

LPGPU2 helps developers create software for low-power GPUs by providing a complete performance and power analysis process for the programmer. Building on LPGPU1, the project addresses all aspects of performance analysis, from hardware power and performance counters, to a framework that processes and visualizes information from these counters, to use-case applications driving the entire design. Led by TU Berlin, LPGPU2's unique consortium brings together world-class academic researchers with leading European technology companies. The team combines academic experience in research, theory, and analysis with industry expertise in terms of applications in practice, reaching production maturity and commercialization of the technology.

LPGPU2 has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 688759.

Further information:

Professor Ben Juurlink, TU Berlin

Email: coordinator@lpgpu.org

Web: www.lpgpu.org

Tel: +49.30.314-73130