

Low-Power BA21 Processor Core Brings 32-bit Benefits to Embedded Microcontroller Applications

Design Automation Conference — Austin, Texas, USA — June 3, 2013 — Processor intellectual property company Beyond Semiconductor and IP provider CAST, Inc. today unveiled the ultra-low power BA21™ embedded processor, further expanding the BA2x™ family of 32-bit processor cores.

The [BA21 Low-Power Embedded Processor](#) delivers 32-bit processing capability in a small, energy-efficient package, achieving 2.5 CoreMarks, operating up to 125 MHz, and needing under 10K gates (with a 65nm process). Its two-stage pipelined design is optimized for low power consumption in deeply embedded applications such as wireless communications or mixed-signal control. It offers a powerful step up from 8-bit microcontrollers used for such applications, as well as being a more efficient choice over larger general-purpose system processors.

“The world’s rush towards big data accessed anywhere requires devices that can capture, process, and analyze information within severe power budgets, and this can only be achieved through highly efficient hardware designs,” said Matjaž Breskvar, chief executive officer of Beyond Semiconductor. “To address such needs, this new BA21 core applies unmatched design efficiency to the most area- and power-sensitive end of the processor spectrum, doing more work in less silicon and using less energy than any comparable 8-, 16-, or 32-bit processor. It’s the perfect fit for the next generation of intelligent sensors, deeply embedded devices, or as a helper in complex SoCs.”

Energy consumption levels for a BA21-based system can be as low or lower than those possible with any competing processor thanks to the small silicon footprint, extreme code density, and lower memory demand of the BA2™ instruction set architecture (ISA). Effective power management functions such as clock gating of unused units and hardware or software controller dynamic frequency scaling further reduce energy usage. Options for expanded capabilities include floating point functions, hardware multiplication/divide, vectored interrupt control for fast response, and a memory protection unit.

“The royalty-free BA2x family has a growing reputation for offering a smart, technically-competitive IP choice in a processor market dominated by a single provider,” said Nikos Zervas, vice president for marketing of CAST. “CAST has long been a leader in 8051 applications and for last few years our customers have been asking for greater capabilities for more advanced designs. The BA21 is the perfect answer to that request: it offers great appeal to designers seeking to differentiate their products through better performance, lower energy usage, quick development, and a lower price point.”

The BA21 comes bundled with a customizable set of peripherals and functions. It expands the BA2x Family of 32-bit processors, complementing the mid-range BA22™ and the higher-end BA25™ full application processor. All support the BA2 instruction set architecture, which provides efficient operation and extreme code density for greater system-wide power savings.

Product packages include the Eclipse- and GNU-based BeyondStudio™ tool set to facilitate software development. A complete BA21 system board is available for easy evaluation or as a quick software development platform.

Already in use by early customers, the BA21 Low-Power Embedded Processor Core is available immediately, and will be highlighted in CAST's booth at DAC (#2024).

Learn more about CAST by visiting www.cast-inc.com, calling +1 201.391.8300, or emailing info@cast-inc.com. Access further information on Beyond Semiconductor by visiting www.beyondsemi.com, calling +1 650.488.7413, or emailing info@beyondsemi.com.

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