EnSilica’s processor selected for NIST’s Atomic timekeeping electronics

ECN Europe

Xtendwave has licensed EnSilica [1]’s high-performance eSi-3200 32-bit processor core to power Everset, its time code receiver solution for the next-generation WWVB atomic timekeeping signal. The new signal, broadcast by NIST (the National Institute of Standards and Technology), a US Government agency, will represent the official time of the USA and includes the implementation of daylight saving time and leap seconds.

Xtendwave, a fabless semiconductor company focused on the development of physical-layer communication technologies is developing Everset as both a chip and IP solution to provide electronic clock and appliance manufacturers with a low-cost, low-power solution for receiving and decoding the new timekeeping signal. The signal adopts an advanced communications protocol based on a new modulation and coding scheme. Xtendwave is developing Everset as part of its contract with NIST to design the new WWVB broadcasting system to overcome reception problems in certain locations and environments by enhancing performance and sensitivity as well as improving robustness to interference.

Xtendwave chose EnSilica’s eSi-3200 processor for Everset following extensive evaluation against a competing solution from the industry’s primary supplier of embedded processors. Several key factors were crucial to Xtendwave’s choice of the eSi-3200 – low gate-count, performance, low power, high code density, compact silicon area and ease of integration. EnSilica’s flexible licensing model will also facilitate the proliferation of the solution by allowing its deployment in third party products.

EnSilica provided Xtendwave with a version of eSi-3200 optimised for the Everset application, configuring it to reduce the overall processor gate count by half compared to the competing solution. The optimised version also featured custom trigonometric instructions reducing cycle count by 30% and a 2Kbyte reduction in valuable memory space.

The new Everset WWVB receiver solution will not only deliver the benefit of accurate timekeeping for radio-synchronized clocks and watches but will also enable its deployment in a host of emerging applications for energy-efficient appliances, personal electronics, telecommunications, automotive electronics, smart meters and automated controllers. Designed to operate with a smaller antenna than before, it will facilitate integration into devices once considered too small to receive the WWVB broadcast.

“EnSilica’s eSi-3200 processor clearly proved the superior choice both technically and commercially following our evaluation.” said Oren Eliezer, Xtendwave’s Chief

Technology Officer. "Technically, it was the best solution for our demanding performance criteria. Commercially, EnSilica's flexible licensing model will not only enable us to proliferate the technology but also open up a wealth of new applications."

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Links:
[1] http://www.ensilica.com