The 2013 Global Multi–core Challenge

Objective: Design the Highest Performing Multi-core Packet Processing Algorithm using bare metal C/C++ programming of the OCTEON Multi-core processor, on a state-of-the-art Multi-core Simulator. Students can download the OCTEON SDK and Simulator to complete the Challenge on a Linux-based x86 PC. No OCTEON hardware or experience is required.

Challenge Deadline: Entries must be submitted by 11:59 PM PST, Saturday November 30, 2013.

Eligibility and Background: The Challenge is an annual contest designed for 3rd and 4th year university undergraduates in engineering, math and the physical sciences; but freshmen and sophomores are also welcome. Prior experience in coding, computer architecture or embedded systems is advantageous, but not required. Many instructional resources are freely provided. Cavium OCTEON Multi-core processors power the internet and won The Linley Group "Best Embedded Processor" Award of 2011.

Prizes: The total amount of the cash prizes is $7448; of that amount we are allocating $5380 for First Prize and $2068 for Second Prize.

College Credit: Some professors are willing to support students who wish to pursue the Challenge as an extra credit project, and even for a 1 credit honors project. Students are encouraged to approach professors regarding these options. We provide many instructional resources, examples with sample code, and online seminars for students to learn and make progress on the Challenge.

Why 7448, 5380 and 2068? For added fun, there is a contest for students to submit Youtube videos speculating on our rationale for the three cash amounts. An iPad mini will be awarded for each of the following - (1) the video with the correct answer, and (2) the funniest video explanation (as judged by the most votes on our Youtube channel at www.youtube.com/user/CaviumUniversityProg). Video entries must be submitted by the Challenge deadline. Email your video links to university@cavium.com.

Algorithm Requirements: The winning entry will be the code that processes traffic in the fewest clock cycles while meeting specific functional requirements and design constraints – such as maintaining packet order and scaling performance as the number of cores increases. Details are available via the download site for registered students.

Getting Started: After registering for the Challenge, you will receive an email directing you to a download site for the Challenge details and the required resources.
To register – see the “Global Multi–core Challenge” at
http://www.cnusers.org/index.php?option=com_chronocontact&chronoformname=Cnusers_University_Students_Registration