



The Need for Silicon Photonics in Exascale Computing

Christopher Wilson

Hewlett Packard Enterprise

chris.wilson@hpe.com

Abstract – An Exascale computer can accomplish 10^{18} operations per second. That's a billion billion FLOPs, or floating-point operations, per second. In 2008, the world got its first Petascale computer, which is 10^{15} operations per second, so an Exascale computer is at least 1000 times more powerful than that. To help enable a computer as astonishingly powerful as this, power efficient, high-bandwidth, long reach communication becomes necessary.

This presentation will discuss the role silicon photonics will have in enabling Exascale computing, as well as some of Hewlett Packard Enterprise's developments in both the VCSEL and micro-ring resonator technologies.

Bio – Christopher Wilson is a Master Technologist at HPE's Silicon Design Lab in Fort Collins, Colorado. Chris' work focuses on advanced development technologies such as VCSEL and micro-ring resonator photonic communication circuitry to help enable high-performance computer systems for key customers, including the United States Government.

Chris holds a bachelor of science in electrical engineering from the University of Idaho.