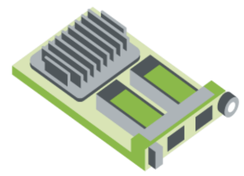
University of New Hampshire InterOperability Laboratory



Validating the OCP NIC 3.0 Bifurcation Mechanism

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UNH-IOL

The University of New Hampshire Interoperability Laboratory (UNH-IOL) is an independent, neutral third party that specializes in conformance testing. The UNH-IOL has been able to keep pace with the rapidly advancing field and that's what has made them such a distinguished figure in the conformance testing industry. Being located on a college campus also allows the lab to give experience to the future generation of STEM researchers.

OCP NIC Subgroup

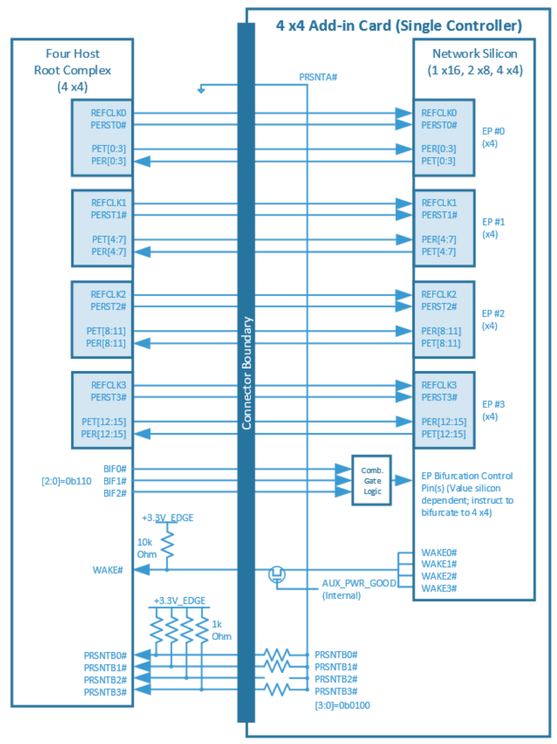
The Open Compute Project NIC subgroup is made up of various companies that have come together in order to help enhance the NIC platform in terms of scalability and compatibility for use in data centers. Their current work revolves around the OCP NIC 3.0 platform.

OCP NIC 3.0

The creation of the OCP NIC 3.0 specification brought with it many goals. The major goals being interoperability between servers and cards and expandability options. Creating a universal connector allows for different manufacturers to easily test their hardware for interoperability. The addition of a large form factor (LFF) cards, that support up to 32 PCIe lanes per card, in addition to the small form factor (SFF) cards, which support 16 PCIe lanes per card, allows for expandability. PCIe bifurcation also helps along the interoperability and expandability of this specification.

PCIe Bifurcation

PCIe bifurcation refers to the ability for a PCIe device to split its ports into multiple configurations of lane widths to create different combinations of links with its host. In the case of the OCP NIC 3.0 specification, a baseboard will always default to the lowest common link count and highest common lane width with its OCP NIC 3.0 card. This default behavior can be altered through the bifurcation control pins.



Source: OCP NIC 3.0 Specification Rev1.00
Figure 95: Quad Hosts (4 x4) and 4 x4 OCP NIC 3.0 Card (Single Controller)

Importance of Conformance Testing

When new technologies emerge, which is happening at an increasing rate to meet the many unique demands of different datacenter integrators, it is important to be able to validate their specifications. Without validation, there is no guarantee that the device will operate within its defined parameters. Having an independent source perform conformance testing against a specification is the best way to give consumers a further level of trust in the products that they purchase.