

Server NIC Trace Lengths

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Scope and Purpose

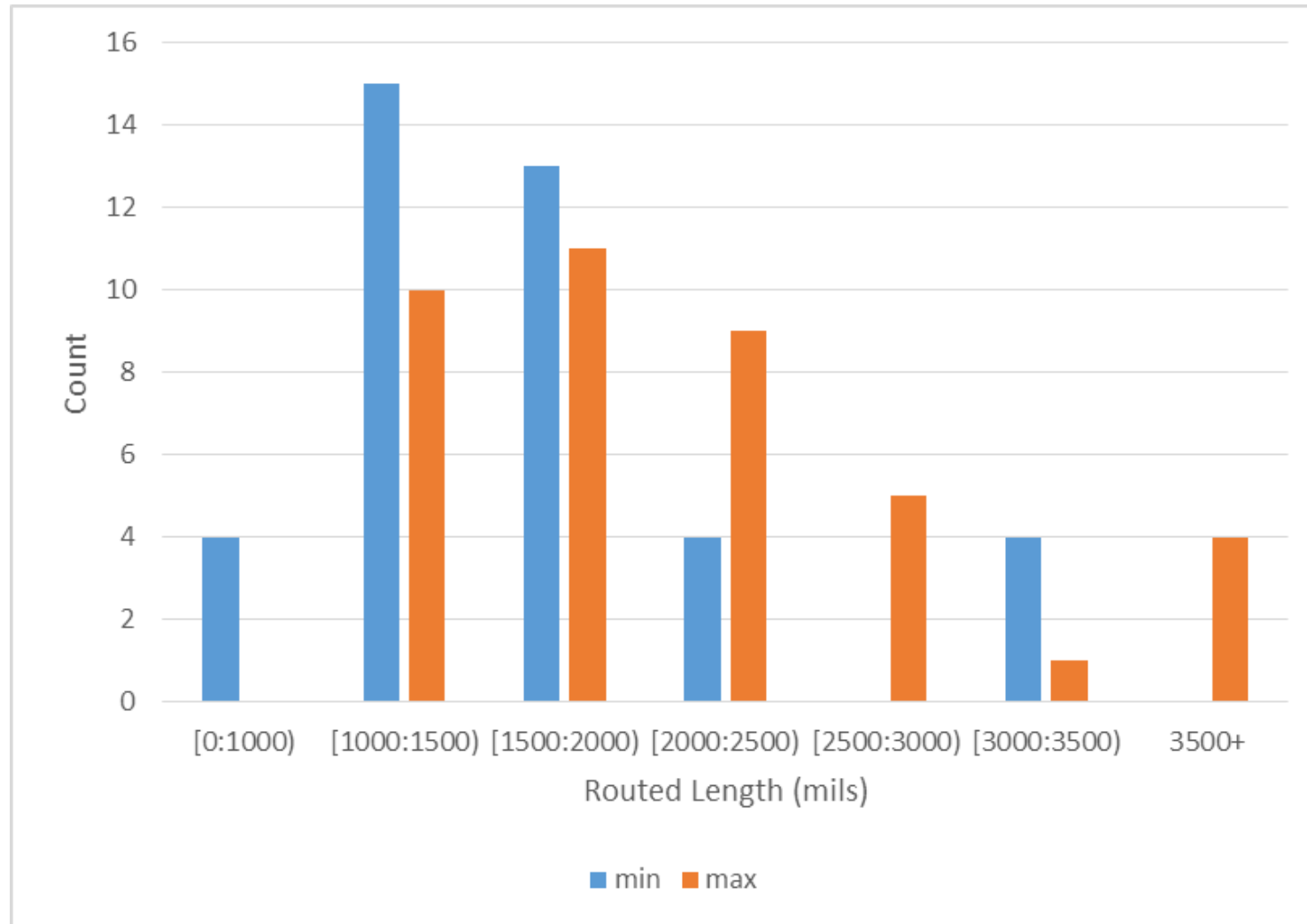
- [lim 3ck 01a 0518](#) , [ghiasi 3ck 01a 0518](#) and others provided proposals for the server “endpoint” host loss of an asymmetric host budget
- Studied the minimum and maximum routed PCB trace lengths on a collection of NICs to corroborate the proposals

Data Clarifications

- ~40 commercially available NIC adapters made by Intel Corporation
- 10 Gbps/lane and 25 Gbps/lane copper cable PHYs
- Different mechanical form factors (i.e. PCIe, OCP, etc.)
- SFP or QSFP type connectors
- Variety of PCB materials and loss characteristics
 - 10Gbps/lane = $\sim 0.75\text{dB/in}$ @ 5 Ghz
 - 25Gbps/lane = $\sim 0.9\text{dB/in}$ @ 13GHz
- Does not include package trace length (i.e. length is only the BGA ball to connector pin)



Server NIC Card PCB Routed Trace Lengths



Thanks!