

Application Note

MetaMux Latency on M48E

This document tabulates the measured latency performance of the 16:1 mux instance provided by MetaMux (version 2.0.1) on the Metamako M48E device as measured by MetaWatch on a MetaApp 32 device.

The Results (in nanoseconds)

Port	Minimum latency	Average latency	Maximum latency	Latency range
et25/ap22	50	54.93	61	11

The M48E supports a range of muxes of differing sizes from 4:1 all the way up to 48:1. For the purposes of this detailed measurement, 16:1 was chosen as broadly representative of MetaMux latency. For reference, the muxes of smaller radix have slightly lower latencies and those of larger radix have slightly higher latencies.

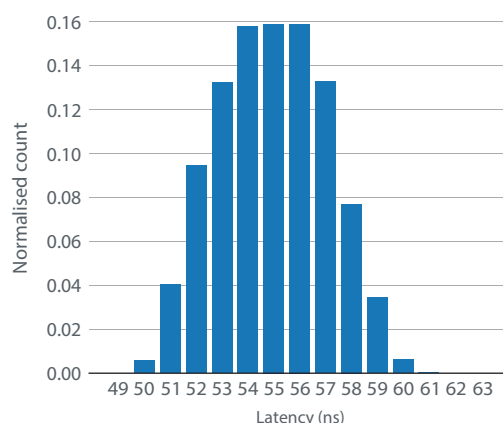
The Test Methodology

- 1 / Connect the M48E device running MetaMux under test to an MetaApp 32 device running MetaWatch via a single 10GbE link
- 2 / Establish a baseline latency measurement by configuring the L1 switch in the M48E device running MetaMux to loop back the port connecting it to the MetaApp 32 running MetaWatch and measuring the latency distribution of this path
- 3 / Configure the L1 switch in the M48E device running MetaMux to connect to each FPGA port implementing the 16 ingress ports in the mux and the FPGA port implementing the egress port. Thereafter measure the latency distribution of each mux port
- 4 / Subtract the average baseline latency through the L1 switch in the M48E device running MetaMux from the results. Then add the known, measured, two-way latency between the L1 switch on the M48E and the port (et25) connecting the M48E to the MetaApp 32 device running MetaWatch

Histograms representing the latency distribution on the single port with the lowest average latency (ap22) and across the mux as a whole:

All measurements on the right and below are in nanoseconds and include the ingress and egress transceiver latency for a Finisar FTLX8574D3BCV.

Port in mux exhibiting lowest average latency



Mux exhibiting overall lowest latency

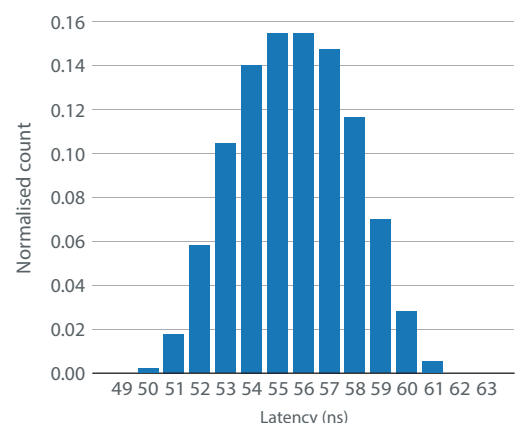


Table of the latency statistics for each port of the 16:1 mux:

FPGA Port	Minimum latency	Average Latency	Maximum latency	Latency range
ap09	51	56.13	62	11
ap10	50	55.91	62	12
ap11	51	56.14	63	12
ap12	50	55.92	62	12
ap13	51	56.05	62	11
ap14	50	55.9	62	12
ap15	50	55.95	62	12
ap16	50	56.04	63	13
ap17	49	54.93	61	12
ap18	50	55.69	62	12
ap19	50	55.62	61	11
ap20	50	55.27	62	12
ap21	49	55.29	61	12
ap22	50	54.93	61	11
ap23	50	55.57	61	11
ap24	50	55.05	62	12

Lowest value in each column marked in green/ highest value in each column marked in red

Get in touch

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