

Performance Report – Exalink Fusion FastMux

This report details the performance of the ExaLINK Fusion **FastMux** firmware (ver 1.6.0). All measurements were taken using the **ExaNIC HPT**, High Precision Timing capture card (0.25ns resolution) from the start of a frame arriving, to the start of a frame departing the device. For this test, line card bay B was used and port B14 was configured as the upstream (egress) port. Ingress ports were configured in the following order: B4,2,1,12,6,5,16,15,10,9,8,13,7,3,11. Reported results are port-to-port at 10 Gb/s, delays due to SFP+ transceivers and signal propagation over fibers/cables are not included.

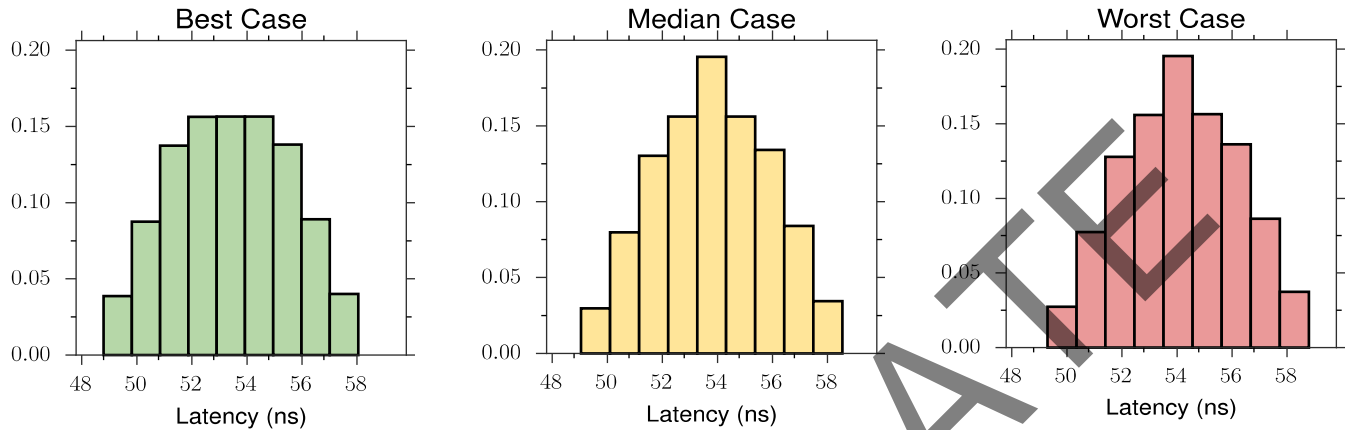


Figure 1: Latency distributions for (a) best case - B12, (b) median case - B15, and (c) worst case - B1

Figure 1 shows latency distributions for the best case (minimum of minimums), median case (median of medians) and worst case (maximum of maximums) configurations, found on ports B12, B15 and B1 respectively. The results show distributions strongly centered on a median of approximately 53ns and minimal variance between the cases.

Table 1 shows the performance of ports B1-B16 sorted in order of average latency. The absolute minimum latency of 48.79ns is achieved by ports B12, B11, B7 and B9. The median of medians latency of 53.79ns is found on the majority of ports. The median latency varies by 0.5ns between all ports. The latency for any given port varies by at most 9.50ns.

Ingress Port	Average (ns)	Minimum (ns)	Median (ns)	Maximum (ns)	Variance per port (ns)
B12	53.43	48.79	53.54	58.04	9.25
B11	53.56	48.79	53.54	58.29	9.50
B7	53.61	48.79	53.54	58.29	9.50
B9	53.61	48.79	53.54	58.29	9.50
B13	53.67	49.04	53.79	58.29	9.25
B10	53.75	49.04	53.79	58.54	9.50
B16	53.82	49.04	53.79	58.54	9.50
B15	53.83	49.04	53.79	58.54	9.50
B5	53.83	49.04	53.79	58.54	9.50
B3	53.89	49.04	53.79	58.54	9.50
B4	53.89	49.04	53.79	58.54	9.50
B8	53.91	49.29	53.79	58.54	9.25
B6	53.92	49.29	54.04	58.54	9.25
B2	54.03	49.29	54.04	58.79	9.50
B1	54.13	49.29	54.04	58.79	9.50
Variance across ports (ns)	0.70	0.50	0.50	0.75	

Table 1: FastMux latency breakdown