

PyTorch Keras PL Quantum Device Benchmarkings December 2023

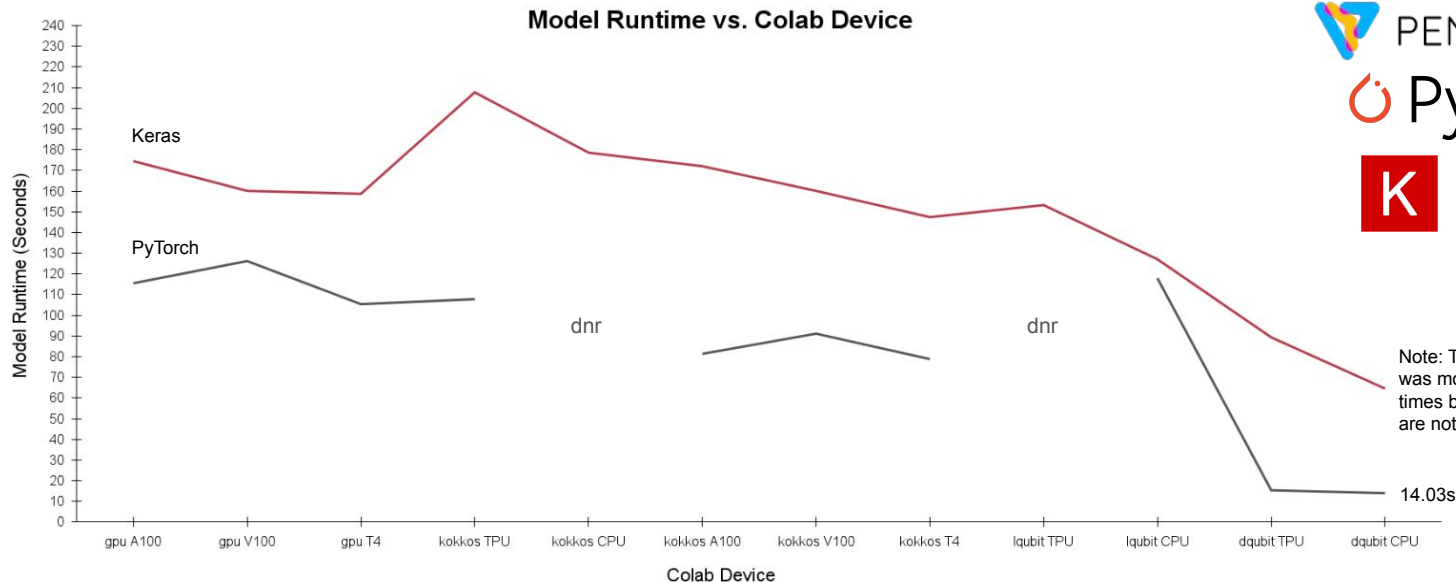


Figure 2/Table 2: PennyLane Keras Model Runtime vs. Colab Device

Colab Device	gpu A100	gpu V100	gpu T4	kokkos TPU	kokkos CPU	kokkos A100	kokkos V100	kokkos T4	lqubit TPU	lqubit CPU	dqubit TPU	dqubit CPU
Time	174.53	160.12	158.71	207.76	178.62	172.05	160.13	147.44	153.26	127.07	89.34	64.58
Cost	\$0.0634	\$0.0238	\$0.0090	\$0.0113	\$0.0004	\$0.0625	\$0.0238	\$0.0084	\$0.0083	\$0.0003	\$0.0049	\$0.0001
Eff	0.09	0.26	0.70	0.43	14.11	0.09	0.26	0.81	0.78	27.87	2.30	107.92
Date	12/2/23	12/2/23	12/2/23	12/2/23	12/2/23	12/2/23	12/2/23	12/2/23	12/2/23	12/2/23	12/2/23	12/2/23

Figure 2/Table 2: PennyLane PyTorch Model Runtime vs. Colab Device

Colab Device	gpu A100	gpu V100	gpu T4	kokkos TPU	kokkos CPU	kokkos A100	kokkos V100	kokkos T4	lqubit TPU	lqubit CPU	dqubit TPU	dqubit CPU
Time	115.48	126.21	105.38	107.79	dnr	81.36	91.12	78.83	dnr	117.91	15.43	14.03
Cost	\$0.0419	\$0.0188	\$0.0060	\$0.0059	n/a	\$0.0296	\$0.0136	\$0.0045	n/a	\$0.0003	\$0.0008	\$0.0000
Eff	0.21	0.42	1.58	1.58	n/a	0.42	0.81	2.83	n/a	32.37	77.16	2286.57
Date	12/2/23	12/2/23	12/2/23	12/2/23	12/2/23	12/2/23	12/2/23	12/2/23	12/2/23	12/2/23	12/2/23	12/2/23

