Table 2: Comparison of various approximations of the log-determinant $\hat{\ell}_n$ with the exact computation ℓ_n obtained in 64-bit floating-point precision (first row). Values represent average percentage relative errors over five trained networks, with standard deviations in parentheses. Bold values indicate the closest approximation, with the next-best underlined.

Quantity	Model	Configuration	ResNet9	ResNet9	ResNet18	MobileNet
	Dataset		CIFAR-10	CIFAR-10	CIFAR-10	MNIST
	Subsample Size		$n = 1000$	$n = 2500$	$n = 1000$	$n = 2500$
ℓ_n	Direct Computation (64-bit)	(*Reference*)	76538 (203)	181377 (649)	65630 (842)	−183962 (7869)
Relative Error $\frac{\lvert\hat{\ell}_n - \ell_n\rvert}{\ell_n}$	Direct Computation (16-bit)		12.41% (0.12)	17.05% (0.13)	14.00% (0.24)	66.97% (2.13)
	Direct Computation (32-bit)		<u>3.67%</u> (0.06)	<u>6.77%</u> (0.08)	<u>5.25%</u> (0.09)	**14.27**% (0.95)
	Block Diagonal		76.49% (0.12)	75.15% (0.16)	92.76% (1.55)	112.55% (1.22)
	SLQ		81.51% (0.16)	80.89% (0.24)	101.03% (1.64)	84.52% (1.51)
	Pseudo NTK		118.35% (0.10)	122.35% (0.27)	122.95% (0.25)	75.32% (1.04)
	FLODANCE	$n_0 = 1, n_s = 50$	7.75% (0.77)	11.27% (1.10)	12.19% (0.30)	36.41% (2.53)
	FLODANCE	$n_0 = 1, n_s = 100$	5.61% (0.32)	8.54% (0.63)	8.09% (0.68)	35.51% (1.46)
	FLODANCE	$n_0 = 300, n_s = 500$	**1.34**% (0.11)	**1.37**% (0.14)	**2.9**% (0.81)	<u>23.19%</u> (1.76)