



**Figure J.5** (a) Log-determinants of growing NTK submatrices of size  $m = nd$  ( $d = 10$ ) from a ResNet50 (evaluated at 32-bit precision), computed using MEMDET in 64-bit precision. The matrix size grows up to  $m = 100,000$ . Each curve corresponds to a different number of blocks  $n_b$  used in the MEMDET block LDL decomposition. The black curve ( $n_b = 1$ , overlaid by colored curves) corresponds to the conventional LDL decomposition where the entire matrix is loaded into memory. Colored curves correspond to increasing values of  $n_b = 2^2, 2^3, 2^4, 2^5$ , where MEMDET performs block-wise computation. (b) Relative error between each  $n_b > 1$  curve and the exact LDL baseline ( $n_b = 1$ ). All errors remain at the level of  $10^{-14}$ , indicating that MEMDET’s numerical behavior is stable and consistent with machine precision.