

extrinsic	time (μs)
groth16_verification	26535.294
groth16_verification_optimized	8244.307
bls12_381_pairing	8257.697
bls12_381_pairing_optimized	1448.525
bls12_381_msm_g1_10	16932.203
bls12_381_msm_g1_10_optimized	6869.276
bls12_381_msm_g1_1000	1313899.304
bls12_381_msm_g1_1000_optimized	653168.106
bls12_381_msm_g2_10	115465.191
bls12_381_msm_g2_10_optimized	23583.632
bls12_381_msm_g2_1000	10668568.358
bls12_381_msm_g2_1000_optimized	2458212.195
bls12_381_mul_projective_g1	7.997
bls12_381_mul_projective_g1_optimized	21.964
bls12_381_mul_affine_g1	8.558
bls12_381_mul_affine_g1_optimized	21.744
bls12_381_mul_projective_g2	16.884
bls12_381_mul_projective_g2_optimized	27.866
bls12_381_mul_affine_g2	15.873

extrinsic	time (μs)
bls12_381_mul_affine_g2_optimized	27.712
bls12_377_pairing	10963.996
bls12_377_pairing_optimized	1889.495
bls12_377_msm_g1_10	20745.063
bls12_377_msm_g1_10_optimized	9270.833
bls12_377_msm_g1_1000	1287941.567
bls12_377_msm_g1_1000_optimized	831275.638
bls12_377_msm_g2_10	131852.778
bls12_377_msm_g2_10_optimized	34796.364
bls12_377_msm_g2_1000	10196159.7
bls12_377_msm_g2_1000_optimized	2781007.886
bls12_377_mul_projective_g1	6.874
bls12_377_mul_projective_g1_optimized	17.357
bls12_377_mul_affine_g1	6.757
bls12_377_mul_affine_g1_optimized	16.574
bls12_377_mul_projective_g2	13.796
bls12_377_mul_projective_g2_optimized	22.244
bls12_377_mul_affine_g2	13.603
bls12_377_mul_affine_g2_optimized	22.49

extrinsic	time (μ s)
bw6_761_pairing	44374.637
bw6_761_pairing_optimized	6002.544
bw6_761_msm_g1_10	155393.789
bw6_761_msm_g1_10_optimized	53231.169
bw6_761_msm_g1_1000	13384952.549
bw6_761_msm_g1_1000_optimized	5070669.525
bw6_761_msm_g2_10	141484.937
bw6_761_msm_g2_10_optimized	39324.563
bw6_761_msm_g2_1000	12528071.088
bw6_761_msm_g2_1000_optimized	4732393.474
bw6_761_mul_projective_g1	17.048
bw6_761_mul_projective_g1_optimized	53.83
bw6_761_mul_affine_g1	18.466
bw6_761_mul_affine_g1_optimized	55.1
bw6_761_mul_projective_g2	17.45
bw6_761_mul_projective_g2_optimized	53.645
bw6_761_mul_affine_g2	17.551
bw6_761_mul_affine_g2_optimized	54.283
ed_on_bls12_381_msm_sw_10	6663.278

extrinsic	time (μs)
ed_on_bls12_381_msm_sw_10_optimized	3686.074
ed_on_bls12_381_msm_sw_1000	296140.253
ed_on_bls12_381_msm_sw_1000_optimized	215932.664
ed_on_bls12_381_mul_projective_sw	5.565
ed_on_bls12_381_mul_projective_sw_optimized	10.077
ed_on_bls12_381_mul_affine_sw	5.511
ed_on_bls12_381_mul_affine_sw_optimized	10.117
ed_on_bls12_381_msm_te_10	7813.269
ed_on_bls12_381_msm_te_10_optimized	3207.472
ed_on_bls12_381_msm_te_1000	334199.352
ed_on_bls12_381_msm_te_1000_optimized	242277.024
ed_on_bls12_381_mul_projective_te	9.133
ed_on_bls12_381_mul_projective_te_optimized	10.598
ed_on_bls12_381_mul_affine_te	5.588
ed_on_bls12_381_mul_affine_te_optimized	10.071
ed_on_bls12_377_msm_10	7768.414
ed_on_bls12_377_msm_10_optimized	3192.992
ed_on_bls12_377_msm_1000	357890.373
ed_on_bls12_377_msm_optimized_1000	267844.083

extrinsic	time (μs)
ed_on_bls12_377_mul_projective	9.406
ed_on_bls12_377_mul_projective_optimized	10.323
ed_on_bls12_377_mul_affine	8.839
ed_on_bls12_377_mul_affine_optimized	442.797