As a function of the # of test statistics As a function of the # of permutation statistics Each point represents a sample of 500 P-values Each point represents a sample of 500 P-values 0.04 0.04 Standard Deviation # perms 0.03 500 Standard 1000 2000 0.02 3000 4000 5000 0.01 0.01 64 128 500 1000 2000 3000 4000 5000 Number of test statistics used with PhiMr Number of permutations (0 corresponds to testing without PhiMr filter)

test stats

16

32

64

128 256

512

0 (no filter)