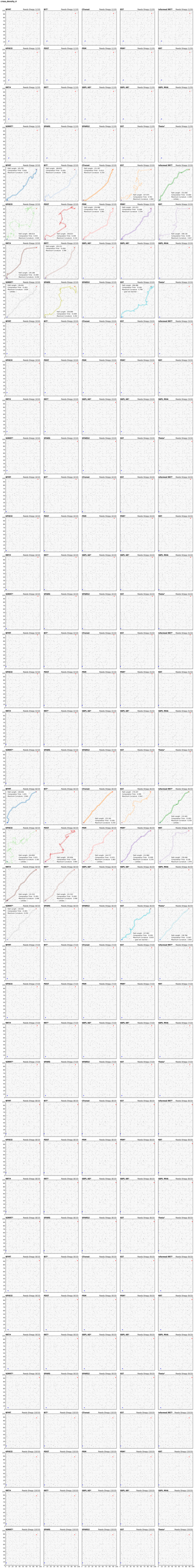cross_density_4