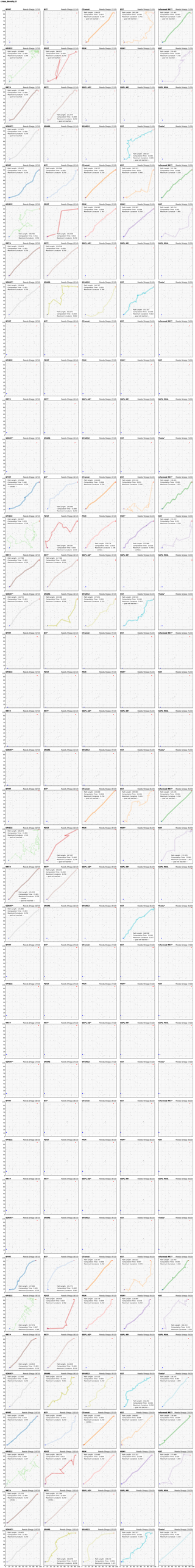cross_density_0