Layered hybrid halide perovskites consist of layers of corner connected metal halide octahedra separated by organic cations, here protonated primary amines. This class of materials can be further divided into compounds that adopt the Ruddlesden-Popper (RP) structure, where the octahedra in neighbouring layers are offset from one another and those that adopt the Dion-Jacobson (DJ) structure, where the octahedra in neighbouring layers lie directly over one another. In this talk we examine the crystal structures and physical properties of RP phases with a checkerboard ordering of cations in the octahedral layers, so-called double perovskites. Unlike all-inorganic RP phases, hybrid RP phases are characterized by well defined three dimensional ordering of cations, and octahedral tilting distortions driven by hydrogen bonding interactions. In this talk I will first use symmetry mode analysis to map out the symmetry consequences of cation ordering and octahedral tilting. This will be followed by a literature survey that identifies the favoured distortion patterns, and a bonding analysis that sheds light on the bonding interactions behind those preferences. The work will be discussed within the framework of controlling the structural distortions and phase transitions for applications like ferroelectrics and baracalorics.