We present a portable and highly-scalable framework that targets problems in the astrophysics and numerical relativity communities. This framework combines the parallel DENDRO octree with wavelet adaptive multi-resolution and a automatic code-generation physics module to solve the Einstein equations of general relativity in the BSSNOK formulation. The goal of this work is to perform advanced, massively parallel numerical simulations of binary black hole and neutron star mergers, including Intermediate Mass Ratio Inspirals (IMRIs) of binary black holes with mass ratios on the order of 100:1. We will discuss the development of automatic code generators for computational relativity supporting SIMD vectorization, OpenMP, and CUDA combined with efficient distributed memory adaptive data-structures. Preliminary results of binary black hole mergers will be presented.