We present a new implementation of exact diagonalization for generic quantum lattice models, ALPS/diagonalization, based on the ALPS (Algorithms and Libraries for Physics Simulations) library[1]. The ALPS project is an open source effort aiming at providing high-end simulation codes for strongly correlated quantum mechanical systems as well as C++ libraries for simplifying the development of such code. ALPS already contains an exact diagonalization application called “fulldiag” and “sparsediag”; the former one is a full diagonalization and the latter one is a Lanczos code[2]. Although the implementations of the existing application are robust and proven to give correct answers to various quantum lattice models such as Hubbard model and quantum spin models on various lattice structure from one dimensional chain lattice two dimensional kagome lattice, they are limited to single node calculation and the parallelization efficiency are poor. Our ALPS/diagonalization implementation aims to fill the gap for multi-node clusters. The original diagonalization code is widely used not only by the community of strongly correlated systems but also by other groups who are interested in quantum lattice models[3]. Owing to the ALPS library, the current implementation holds the same applicability to various quantum lattice models as the existing implementation. We here present the performance improvements over the original code on various quantum lattice models. Full source code of ALPS/diagonalization can be obtained on github[4] as an open source software under the ALPS Application license.