

The Mathematics ToolKit

The Mathematics ToolKit consists of Math ToolKit. You can install and use any combination of these three libraries independent from another provided you have a version of the ANSI/ISO C++ Standard Library:

- Math ToolKit™ Library - A C++ class library for writing portable, computing intensive applications.

Math ToolKit Library

Math ToolKit is a cross-platform C++ class library for creating computing intensive applications. It contains an extensive set of mechanisms that enable you to easily perform linear algebra calculations. These advanced C++ objects allow you to build scientific-computing applications while focusing on your domain rather than the efficiency of the mathematical operations. If performance is your goal, Math ToolKit offers more efficiency than any other vendor's library in existence today.

Math ToolKit classes can be categorized in the following areas:

- **Complex number** - Representation of the real value and imaginary value of a complex number.
- **Numeric vector** - Class providing the capability to represent and manipulate numerical vectors. Operations supported include addition, subtraction, multiplication, division, indexing and others.
- **Numeric matrix** - Class providing the capability to represent and manipulate numerical matrixes. Operations supported include addition, subtraction, multiplication, division, indexing and others.
- **Numeric array** - Class providing the capability to represent and manipulate numerical arrays. Operations supported include addition, subtraction, multiplication, division, indexing and others.
- **LU factorization** - Compute the lower and upper triangular matrix for a given matrix.
- **Fast Fourier Tranforms** - Mechanisms for computing Discrete Fourier Transform.
- **Random number generators** - Mechanisms for computing random number based on various probability distributions.
- **Least squares approximation** - Compute the best-fit curve for a set of data.
- **Histogram** - Class providing the capability to represent and manipulate data in histograms.

Math ToolKit was carefully designed to provide the following important benefits:

- **Efficiency** - The interfaces in Math ToolKit are designed to provide cross-platform power without incurring high overhead. Each class is customized with minimal overhead, creating a high-performance numerical library.
- **Portability** - Math ToolKit uses standard C++ syntax, therefore it is portable across numerous platforms.
- **Simplicity** - The classes and algorithms contained in Math ToolKit are quite easy to learn and simple to use, reducing the time taken to develop mathematical applications. In fact, some examples can be used as is for mathematical analysis.