

ROOT Technology

Inventors/Technical Experts:

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Technical Description:

The ROOT system provides a set of object oriented frameworks with all the functionality needed to handle and analyze large amounts of data in a very efficient way. Having the data defined as a set of objects, specialized storage methods are used to get direct access to the separate attributes of the selected objects, without having to touch the bulk of the data. Included are histogramming methods in 1, 2 and 3 dimensions, curve fitting, function evaluation, minimization, graphics and visualization classes to allow the easy setup of an analysis system that can query and process the data interactively or in batch mode. Thanks to the built in CINT C++ interpreter the command language, the scripting, or macro, language and the programming language are all C++. The interpreter allows for fast prototyping of the macros since it removes the time consuming compile/link cycle. More information: <http://root.cern.ch>

Pros:

- Can efficiently analyze large amount of data.
- Allows fast prototyping of macros.
- Large number of existing users.

Cons:

- Open source license. No exclusivity possible.

IP Status:

Technology maturity: Used by most high energy physics experiments in the world.
Downloaded 550 000 times since 1997.

Patent status: Not patented.

Accessibility Available under open source license.

Market/Application suggestions:

The system has been designed in a way that it can query its databases in parallel on MPP machines or on clusters of workstations or high-end PC's. ROOT is an open system that can be dynamically extended by linking external libraries. This makes ROOT a premier platform on which to build data acquisition, simulation and data analysis systems. It is until now used in applications for flight planning systems, insurance, stock market, pharmaceutical research, medical imaging, telecom, aerospace research, defense, oil, IT, and crash simulation.