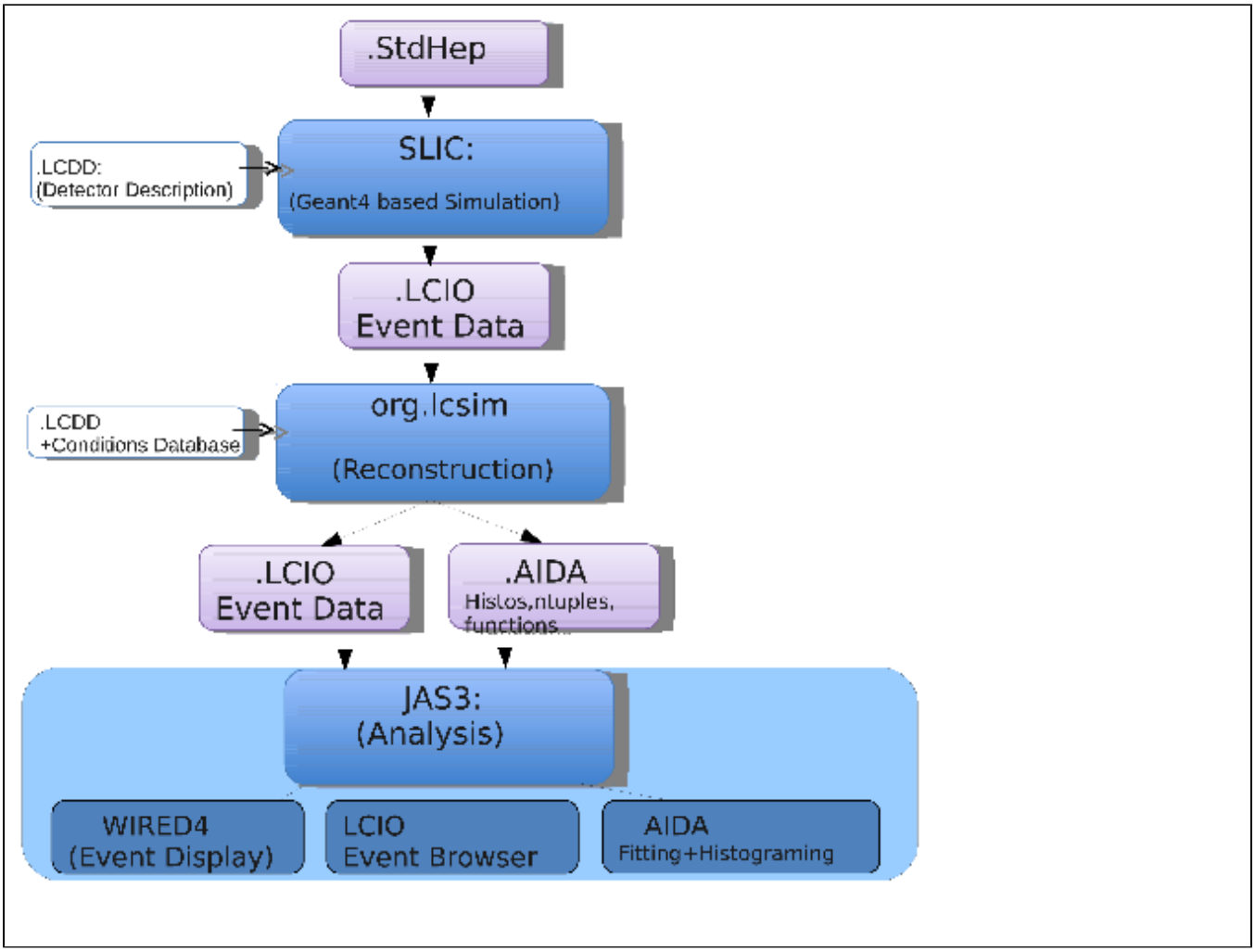
Overview

Here we give an overview of the ALCPG software suite. The elements of the suite and the work-flow from generated event to final analysis are shown in the picture below:



The ALCPG software suite consists of:

- SLIC (Simulator for the Linear Collider), to simulate the detector response. SLIC is a full simulation package that uses the Geant4 Monte Carlo toolkit to simulate the passage of particles through the detector. SLIC is the official simulator of the ALCPG and has been used primarily for studies of the SiD concept. SLIC provides a variety of physics lists that can be selected via the command line interface. SLIC reads StdHep event s and creates simulated events in the LCIO IO format used for ILC detector event data. The SLIC software package uses LCDD (Linear Collider Detector Description) for its geometry input. LCDD itself is an extension of GDML (Geometry Description Markup Language). GDML is an XML format for describing detector geometries and provides facilities for defining constants and expressions, elements and materials, geometric solids (shapes), and nested volumes. In addition to the features provided by GDML, LCDD provides definitions for identifiers, sensitive detectors and readouts, physics limits, regions, magnetic fields, and visualization parameters. LCDD makes it easy to implement various detector variations where e.g. materials, density, segmentation of the electromagnetic and hadronic calorimeter sections as well as optical properties can be varied. It's easy to run SLIC on the grid we have Grid scripts that make it easy to generate large data sets, takes care of names, random seeds etc..
- lcsim.org is a reconstruction and analysis package for simulation studies for the international linear collider. It is entirely developed in Java for ease of development and cross-platform portability. The package is designed to be detector geometry and technology agnostic, so it can be used to work with data for any detector. The package reads and writes data in LCIO format, so can be used with a wide variety of other linear collider software packages.

- JAS3 (Java Analysis Studio) is a general purpose, open-source data analysis framework. The following features are provided in form of plug ins:
  - LCIO Event Browser.
  - WIRED 4 is an extensible experiment independent event display.
  - AIDA (Abstract Interfaces for Data Analysis) compliant analysis system. It provides tools for plotting of 1d, 2d and 3d histograms, XY plots, scatterplots etc. and fitting (binned or unbinned) using an extensible set of optimizers including Minuit.