DeckBuild is an interactive runtime and input file development environment within which all Silvaco’s TCAD and several other Silvaco products can run. DeckBuild has numerous simulator specific and general debugger style tools, such as powerful extract statements, GUI based process file input, line by line runtime execution and intuitive input file syntactical error messages. DeckBuild contains an extensive library of hundreds of pre-run examples decks which cover many technologies and materials, and also allow the user to rapidly become highly productive.

**Features**

- GUI based auto-creation of Athena process simulation input files
- Hundreds of fully run examples to jump-start new users to almost immediate maximum productivity
- Extremely powerful, simulator specific, pre-written extract statements to extract all manner of process and device characteristics at any stage during the runtime, like layer thicknesses or device threshold voltages
- Extract statements are written in a general script language allowing user definable functions
- Numerical results from previous extract statements can be used as inputs to subsequent extract statements
- Extracted quantities can be used as targets in DeckBuild’s internal optimizer, allowing automatic cyclical optimization of any parameter
- Anything in the input file can be defined as a variable, even structure file names, using a “set” statement
- Any variables created using “set” statements can be used in DeckBuild’s internal Design Of Experiment (DOE) feature, allowing an entire DOE to be run using a single input file
- DeckBuild supports constructs such as loops and Boolean operations
- Many input file creation and debug assist features, such as run, kill, pause, stop at, and re-start
- Other tools can be invoked from the tool box or directly from the input file

**Applications**

- Creating, running and debugging TCAD process and device input files as well as a number of Simucad products such as Clever
- Loading and running example files from standard CMOS to diverse technologies such as III-V VCSELS or devices made from organic materials
- Running large Design of Experiment files for various applications such as best case / worst case corner models
- DeckBuild seamlessly joins input files from different simulators by passing standard format structure files

Pull down GUI menus create process input files which automatically speeds up input file creation and removes many sources of common syntactical errors.
Benefits

- Simply filling in GUI based forms greatly reduces the time required to create complex input files since each line can be written automatically.
- Input files can be written, run and debugged one line at a time while making real time changes during development of the input files, without the need to run the file from the beginning each time as is required in batch mode.
- Convenient interface for automatically launching other interactive tools such as TonyPlot from the input file or from the tool bar, so structure file progress can be monitored in real time as it is created.

Over 40 categories of examples grouped by technology or subject, giving the user hundreds of files to use as a starting point for their own simulations.

Many input file creation and debug assist features such as run, kill, pause, stop at, and re-start from other tools can be invoked from the tool box or from the input file directly.