SIEMENS EDA

Calibre® LogView User's Manual

Software Version 2021.2

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Chapter 1
Introduction to Calibre LogView

This section introduces the Calibre® LogView tool and identifies the requirements for running the tool and the syntax conventions.

Product Overview

Calibre LogView is a Graphical User Interface (GUI) tool you can use to view the information in Calibre log files (also referred to as the Calibre transcript). Information from a Calibre job transcript is also written to a database which can then be viewed and exported in an easily readable format using Calibre LogView.

Calibre LogView lets you view run time and resource utilization for jobs that are run within the Calibre Post-Tapeout Flow. Refer to the *Calibre Post-Tapeout Flow User's Manual* for information on interpreting log files. Refer to "Supported Products" on page 57 for a list of tools supported by Calibre LogView.

Calibre LogView enables you to:

- View a summary of a Calibre job.
- Perform a runtime and operations analysis.
- Analyze the progression of layout geometries and hierarchy through the job.
- Analyze the hardware and memory usage.
- Debug errors.
- Monitor the progress of a running job.

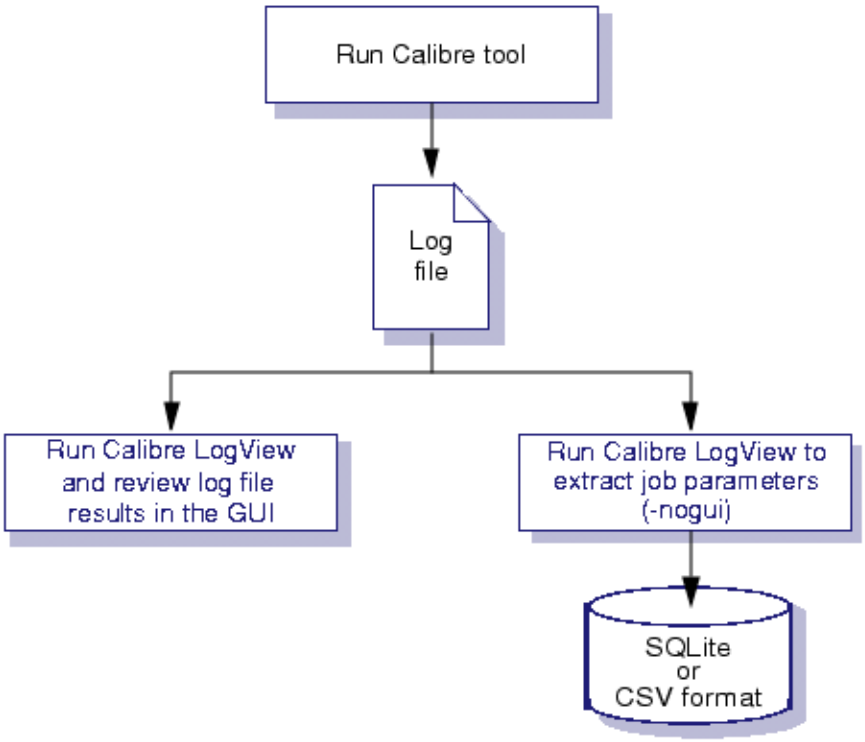
Workflow

You use Calibre LogView to display and view the log file, or to extract job parameters from a log file and output to SQLite or CSV format.

Figure 1-1 shows a basic workflow using Calibre LogView to:

- Review a log file using a graphical user interface (GUI) to display the log file in different formats (summary, graphs, table, and text).
- Extract job parameters from a log file and output the parameters to a SQLite or CSV database format.

Figure 1-1. Calibre LogView Workflow



Related Topics

calibrelogview

Product Requirements

This section includes information on the platform support and requirements for running Calibre LogView.

Table 1-1. Calibre LogView Product Requirements

Platform Support	Calibre LogView runs on all supported Calibre platforms.
Licensing	A Calibre nmDRC-H license is required to run the Calibre LogView tool, but it is not consumed by the tool.

Table 1-1. Calibre LogView Product Requirements (cont.)

Environment Variables	• You must set the MGC_HOME or CALIBRE_HOME environment variable. • You can optionally use the LOGVIEW_DB_PATH environment variable to direct the LogView database files to be written to another directory.

Related Topics

Calibre Administrator's Guide [Calibre Administrator's Guide]

Syntax Conventions

The command descriptions use font properties and several metacharacters to document the command syntax.

Table 1-2. Syntax Conventions

Convention	Description
Bold	Bold fonts indicate a required item.
Italic	Italic fonts indicate a user-supplied argument.
`Monospace`	Monospace fonts indicate a shell command, line of code, or URL. A bold monospace font identifies text you enter.
Underline	Underlining indicates either the default argument or the default value of an argument.
UPPercase	For certain case-insensitive commands, uppercase indicates the minimum keyword characters. In most cases, you may omit the lowercase letters and abbreviate the keyword.
[ ]	Brackets enclose optional arguments. Do not include the brackets when entering the command unless they are quoted.
{ }	Braces enclose arguments to show grouping. Do not include the braces when entering the command unless they are quoted.
‘ ’	Quotes enclose metacharacters that are to be entered literally. Do not include single quotes when entering braces or brackets in a command.
| or ||	Vertical bars indicate a choice between items. Do not include the bars when entering the command.
…	Three dots (an ellipsis) follows an argument or group of arguments that may appear more than once. Do not include the ellipsis when entering the command.

Table 1-2. Syntax Conventions (cont.)

Convention	Description
Example: **DEVice** {*element_name* [‘(’*model_name*‘)’]} ***device_layer*** {***pin_layer*** [‘(’*pin_name*‘)’] …} [‘<’*auxiliary_layer*‘>’ …] [‘(’*swap_list*‘)’ …] [BY NET | BY SHAPE]	

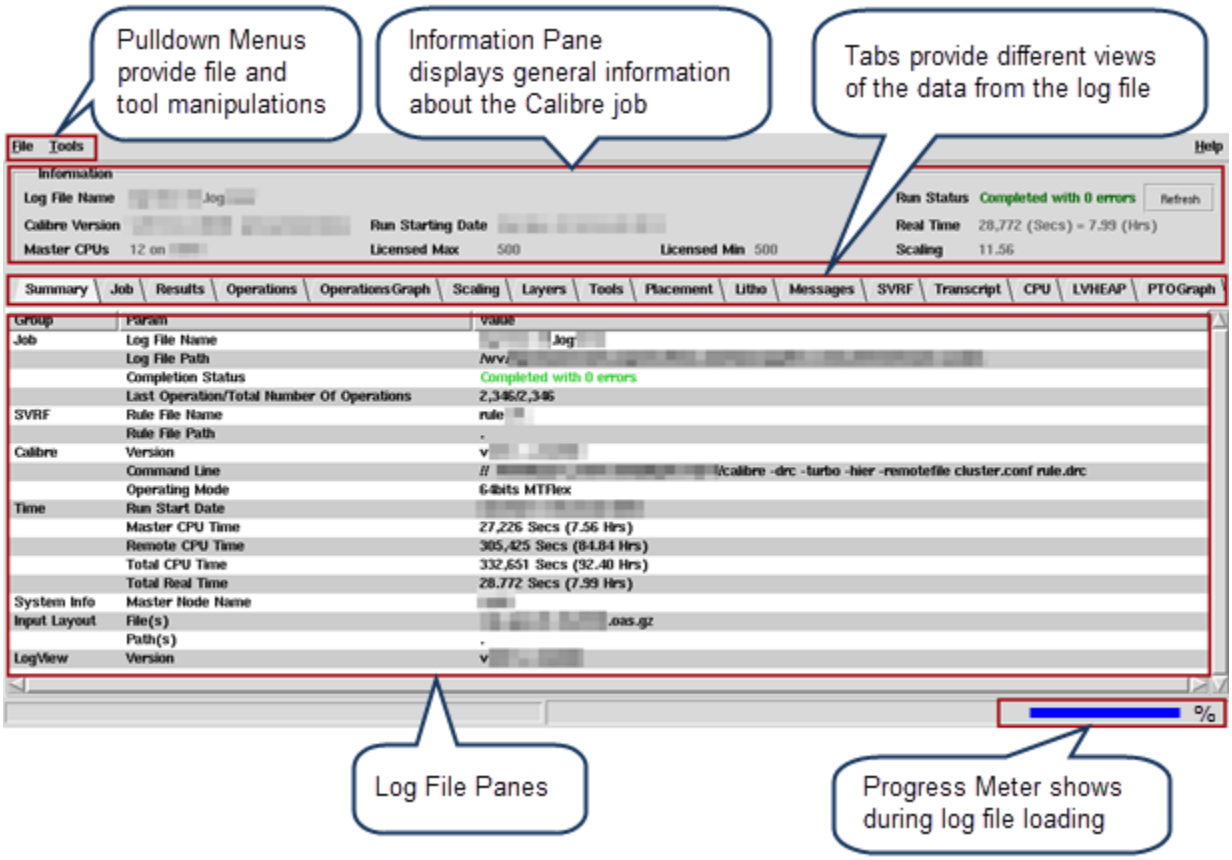
Chapter 2
Calibre LogView Basics

This section describes the features of the Calibre LogView GUI.

Features of the User Interface

This section identifies and provides information describing the key features of the Calibre LogView user interface.

Figure 2-1. Calibre LogView Graphical User Interface

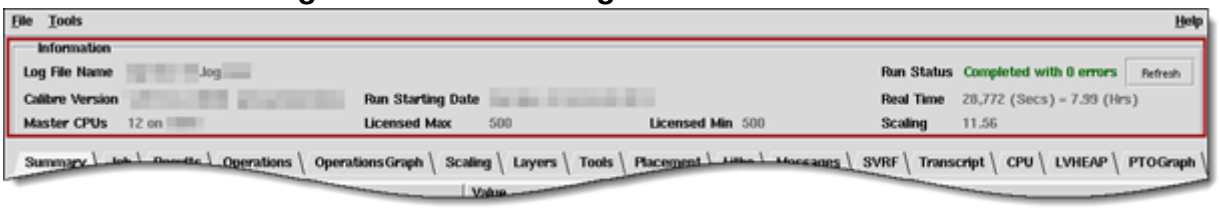


Information Pane

The information pane displays general information about the Calibre job and is persistent across all tabs. Information includes some of the primary job parameters, including log file name, Calibre version, and run status. These parameters can also be found in the Job and Results tabs.

Some information is highlighted in green or red to identify the status of that parameter. For example, in Figure 2-2 the run status is highlighted in green because the run completed with no errors.

Figure 2-2. Calibre LogView Information Pane



When a Calibre job is still running and updating the log file, you can use the **Refresh** button located in the upper right corner of the information pane to update the information in the Calibre LogView GUI.

Pulldown Menus

This section describes the File and Tools pulldown menus in the Calibre LogView GUI.

The **File** pulldown menu contains the following options:

- **Open Log File** — Displays the Open Log File dialog box allowing you to navigate to and select a log file to open.
- **Open Database** — Displays the Open Database dialog box allowing you to select and open a log file previously saved in a database (*.sqlite*) format.
- **Export** — Displays the Output File dialog box which you use to export the currently open database file in a Comma Separated Value (*.csv*) format.
- **Exit** — Exits the Calibre LogView application.

The **Tools** pulldown menu contains the following options:

- **Print Graph** — Displays the Print Image dialog box which you use to create a GIF (*.gif*) or PostScript (*.ps*) image of the Scaling graph.
- **Collect Calibre Logs** — Displays the Collect Calibre Logs dialog box which you can use to collect Calibre log files from the Calibre remote hosts and create a tar output file named *logfile.tar.gz*. The fields and options are as follows:
  - Log File — Specifies the path and name of the input Calibre log file to Calibre LogView.
  - Output File — Specifies the path and name of the output tar file containing the Calibre remote host log files. Also included in the output file is a shell script and a CCM log file. You can optionally edit the shell script to specify the log files to collect and then invoke it from the command line to rerun the application. The CCM

log file (*ccm.log* or *calcm.ccm*) contains communications between the Calibre job and Calibre® Cluster Manager (CalCM).

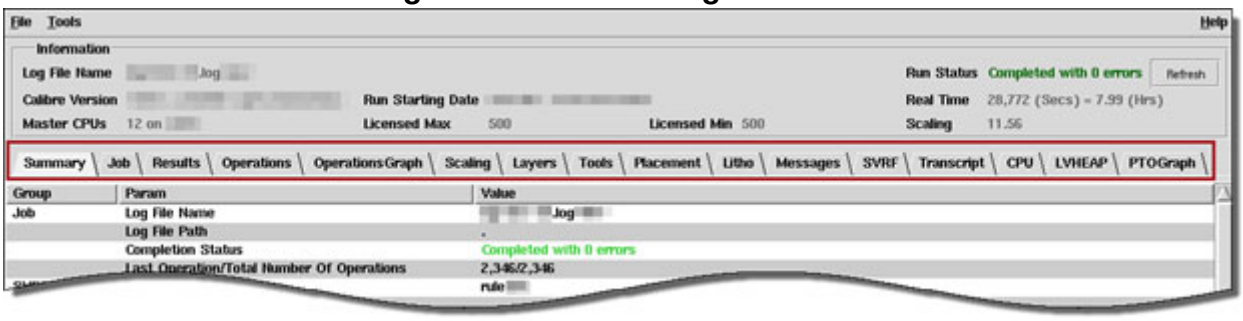
  - Remote Copy Command — Provides choice of Linux®[1] file copy options. You can choose either **rcp** (remote copy protocol) or **scp** (secure copy protocol). The default is **rcp**.
  - Message — Displays the record of the log file collection and the output file creation.
  - Collect — Begins the log file collection and output file creation.
  - Close — Exits the Collect Calibre Logs dialog box and returns to the Calibre LogView GUI window.

- **Options** — Displays the Options dialog box containing the following options:
  - Refresh Settings — The **Repeat** button enables or disables the Refresh function. When enabled (selected), the Refresh function updates the log file for a running job until the job completes. The “Refresh Rate (Secs)” field specifies the frequency of the Refresh function. The default is 30 seconds.
  - Database Settings — The *.sqlite* database file is generally written to the current directory. The “Database alternative path” field is used when the current directory is write-protected. This field displays the current database path and can be used to change the value for the current session. Before starting Calibre LogView, you can set the LOGVIEW_DB_PATH environment variable to the database path. The default database path is */tmp*.

Tabs

The Calibre LogView window organizes the log file information for display across several different tabs.

Figure 2-3. Calibre LogView Tabs



- **Summary** — Displays a selected subset of the Job and Results parameters.
- **Job** — Displays detailed information about the Calibre job configuration.

1. Linux® is a registered trademark of Linus Torvalds in the U.S. and other countries.

- **Results** — Displays detailed results of the Calibre job.
- **Operations** — Lists the details about the layer operations that were performed during the run.
- **OperationsGraph** — Displays a graphical representation of the layer operations that are displayed in the **Operations** tab.
- **Scaling** — Displays a graph of hardware utilization during the job.
- **Layers** — Displays the geometry counts for the input layers.
- **Tools** — Displays information about the cumulative results for the tool categories of operations.
- **Placement** — Displays information about cell placement.
- **Litho** — Displays information about the litho operations performed.
- **Messages** — Displays error, warning, or informational messages that were generated during the Calibre run.
- **SVRF** — Displays the SVRF rule file that was echoed in the log file.
- **Transcript** — Displays the transcript from the Calibre run.
- **CPU** — Displays the CPU information for the Calibre job remote processes.
- **LVHEAP** — Displays the LVHEAP memory usage for the remote processes during the Calibre job.
- **PTOGraph** — Displays a graph of the memory and time information for post-tapeout (PTO) flows running with Calibre® FullScale™.

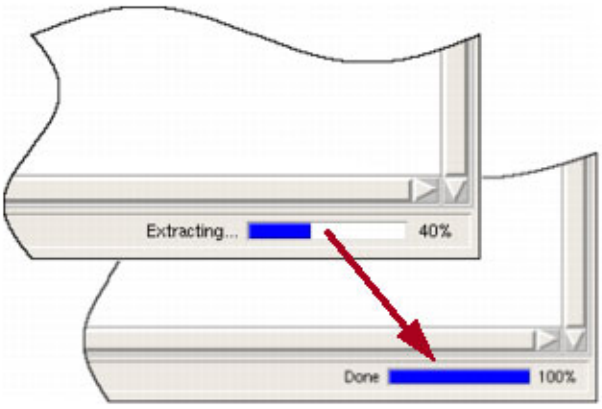
Note

The PTOGraph tab is hidden when a non-PTO transcript is loaded.

Progress Meter

The progress meter, located in the bottom right corner of the Calibre LogView window, displays the progress of extracting and displaying the contents of the log file as a percentage. When the process of loading the log file into the GUI is complete (100%), the progress meter no longer displays.

Figure 2-4. Progress Meter



Log File Panes

The data from the log file is organized across a set of log file panes. You select a tab to display the related set of information in the log file pane.

Details about the contents displayed in each of the panes is provided in the "Calibre LogView GUI Reference."

Related Topics

Calibre LogView GUI Reference

Chapter 3
Running Calibre LogView

This section describes the Calibre LogView command line syntax and how to invoke Calibre LogView and review a log file.

Calibre LogView Command Line Syntax

This section provides reference information on the Calibre LogView command line syntax.

Refer to "Syntax Conventions" on page 11 for the command syntax conventions.

calibrelogview

Invokes the Calibre LogView tool or extracts a log file into a database format.

Usage

calibrelogview {[-log *logfile*] [-output_database *database_filename*] [-export *export_file*]} ||
calibrelogview -nogui -log *logfile* [-output_database *database_filename*]
[-export *export_file*] || **calibrelogview** -nogui -log *logfile* [-collect_logs [-rcp | -scp]] ||
calibrelogview -help

Arguments

- -log *logfile*

  This option opens a log file in Calibre LogView. The log file to open is specified by the *logfile* argument. If this argument is not provided, the log file can be opened from the GUI menu. If the -nogui option is specified, the -log option must be specified.

- -output_database *database_filename*

  This option extracts the database into a *.sqlite* format. The *database_filename* argument specifies the name of the database. If this argument is not provided, the database is created using the default name "<*logfile*>.*logview.sqlite*".

- -export *export_file*

  This option exports the log file to a *.csv* file. The *export_file* argument specifies the name of the exported file.

  If this argument is not provided, the *.csv* output is not automatically created. In this case, you can use the **File** > **Export** menu item to export to a *.csv* file.

- -nogui

  This option prevents the GUI from opening so that you can use the Calibre LogView extractor in a command line mode. The -log option must be specified with this option.

- -collect_logs [-rcp | -scp]

  This option collects the Calibre log files from the Calibre remote hosts and creates a tar output file named *logfile.tar.gz*. You can choose either rcp (remote copy protocol) or scp (secure copy protocol) Linux file copy options. The default is rcp. If the -collect_logs argument is not provided, a tar output file can also be created through the Calibre LogView GUI under the **Tools** pulldown menu and the Collect Calibre Logs dialog box.

- -help

  This option displays usage information.

Description

The calibrelogview command, when entered without the -nogui argument, can be used to invoke the Calibre LogView tool, open a log file, open a database file, and extract the log file into *.sqlite* or *.csv* format.

The calibrelogview command used with the -nogui argument extracts a log file into a database (*.sqlite*) format without invoking the Calibre LogView tool.

Examples

Example 1

Invokes Calibre LogView without opening a log file.

```
calibrelogview
```

Example 2

Invokes Calibre LogView, opens and displays the log file named *mdp.log*.

```
calibrelogview -log mdp.log
```

Example 3

Invokes Calibre LogView, opens and displays the log file named *mdp.log*, and exports the log file to *mdp_log.csv*.

```
calibrelogview -log mdp.log -export mdp_log.csv
```

Example 4

Extracts the logfile named *mdp.log* to a database named *mdp_log.sqlite* without invoking the Calibre LogView GUI.

```
calibrelogview -nogui -log mdp.log -output_database mdp_log.sqlite
```

Example 5

Collects the Calibre log files and creates a tar file of the Calibre remote host logs using the rcp Linux file copy command.

```
calibrelogview -nogui -log mdp.log -collect_logs -rcp
```

Related Topics

Invoking Calibre LogView and Reviewing a Log File

Invoking Calibre LogView and Reviewing a Log File

In this procedure you invoke Calibre LogView and view the contents of a log file.

Prerequisites

- Product requirements have been met. See “Product Requirements” on page 10.
- Log file from a Calibre job.

Procedure

1. Invoke Calibre LogView using either of the following methods. Refer to the calibrelogview reference page for more information on the command line syntax.

   - Enter the following command to invoke Calibre LogView and open a log file:

     ```
     calibrelogview -log <logfile_name>
     ```

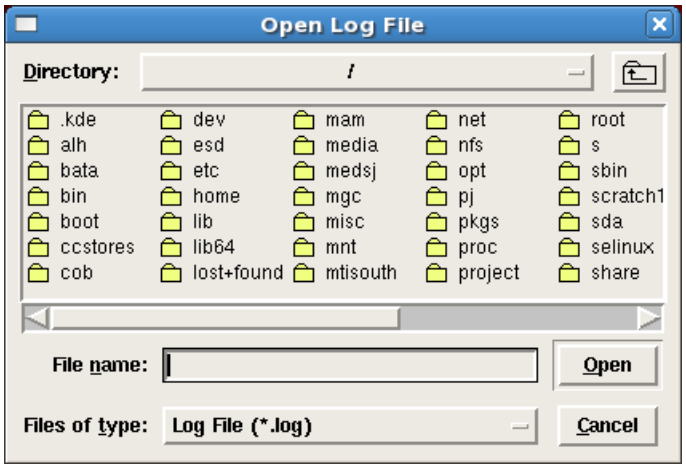
   - Enter the following command to invoke Calibre LogView without opening a log file:

     ```
     calibrelogview
     ```

   This displays the Calibre LogView window and the Summary tab by default.

2. If you invoke Calibre LogView without specifying the -log argument:

   a. Select **File > Open Log File** to display the Open Log File dialog box.

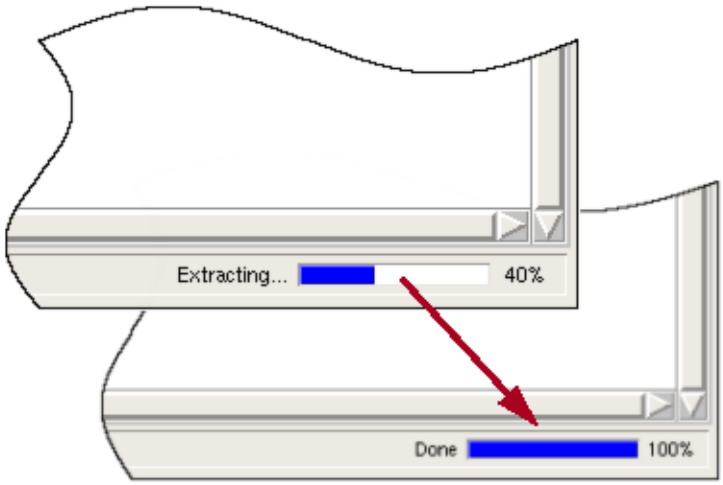


   b. Navigate to and select the log file.

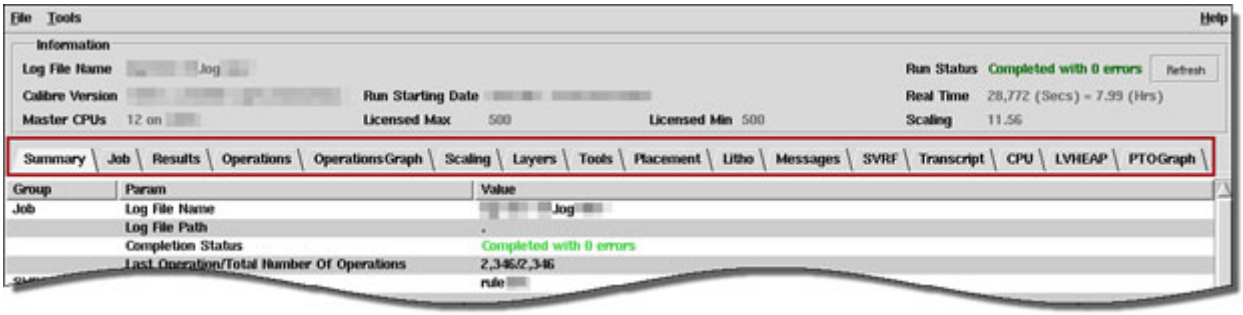
   c. Click **Open**.

3. Notice the progress meter located in the bottom right corner of the Calibre LogView window. This meter displays the progress of opening the log file. When the process of loading the log file into the GUI is complete (100%), the progress meter no longer displays as shown in Figure 3-1.

Figure 3-1. Progress Meter



4. Click on each of the tabs to view the information extracted from the log file.



Refer to the "Calibre LogView GUI Reference" for details about the information presented in each tab.

5. Close Calibre LogView by selecting **File > Exit**.

Results

You have now invoked Calibre LogView and viewed the contents of a log file. The contents of the log file were extracted into a database which is stored in the same location as the log file and has the suffix *logview.sqlite* appended to the log file name. The database can be re-loaded into Calibre LogView by selecting **File > Open Database**.

Related Topics

Job Pane

Results Pane

Layers Pane

Scaling Pane

Litho Pane

Chapter 4
Calibre LogView GUI Reference

This section describes the information presented in each of the Calibre LogView panes.

Note

The term “primary” in the Calibre LogView pane descriptions refers to the host machine from which you invoke a Calibre job. The primary host is sometimes referred to in commands, environment variables, and transcripts as a “local” or “master” host.

See “Glossary” in the *Calibre Administrator’s Guide* for more information on the hardware and distributed processing terms used with Calibre.

Table 4-1 provides a summary of the panes described in this chapter.

Table 4-1. Calibre LogView Panes

Pane	Description
Summary Pane	Provides a summary view of the Calibre job.
Job Pane	Provides details about the Calibre job configuration.
Results Pane	Displays results of the Calibre job.
Operations Pane	Displays results by layer or operation.
OperationsGraph Pane	Provides a graphical representation of the parameters by operation that are displayed on the Operations pane.
Scaling Pane	Provides a graphical representation of the runtime and hardware utilization.
Layers Pane	Displays layer information for the Calibre job.
Tools Pane	Displays tool information for the Calibre job.
Placement Pane	Displays information the cells that are in the design
Litho Pane	Displays litho information for the Calibre job.
Messages Pane	Displays the errors and warnings that were generated during the Calibre job.
SVRF Pane	Displays the SVRF rule file.
Transcript Pane	Displays the Calibre transcript in its native form.

Table 4-1. Calibre LogView Panes (cont.)

Pane	Description
CPU Pane	Displays the CPU information for the Calibre job remote processes.
LVHEAP Pane	Displays the LVHEAP memory usage for the remote processes during the Calibre job.
PTOGraph Pane	Displays a graph of memory and time information for Calibre® FullScale™ jobs only.

Summary Pane

To access: **Summary** tab

The Summary pane displays a high-level summary of the Calibre job. The parameters on this pane are also found on the Job and Results panes.

Table 4-2 provides information on each of the fields available on this pane.

Figure 4-1. Summary Pane

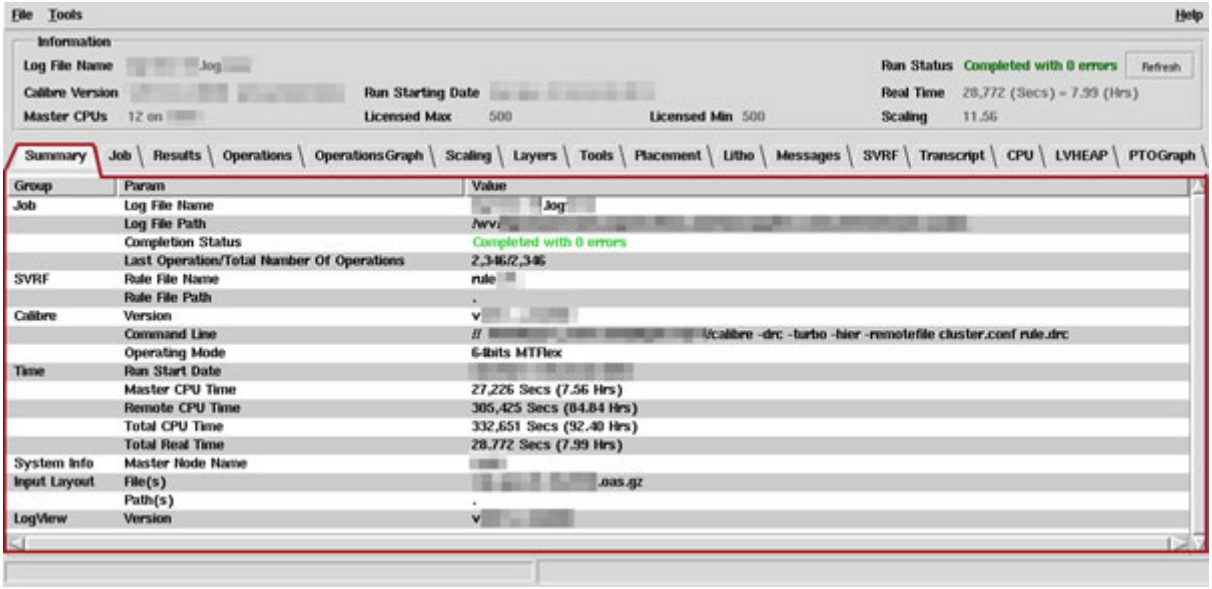


Table 4-2. Summary Pane Contents

Group Name	Param Name	Description
Job	Log File Name	The name of the log file for the Calibre job.
	Log File Path	The path to the log file.
	Completion Status	The completion status of the Calibre job. Red highlighted text indicates the status is “Not complete” or there are non-zero errors. Otherwise, text is highlighted in green.
	Last Operation/Total Number of Operations	Last operation and total number of operations.
SVRF	Rule File Name	The name of the rule file used for the job.
	Rule File Path	The path to the rule file.
Calibre	Version	The version of Calibre used to run the job.
	Command Line	The command used to invoke the Calibre tool.
	Operating Mode	The operating mode (MT, MTflex, Hyperscaling) used to run the Calibre job.
Time	Run Start Date	The starting date and time for the job.
	Master CPU Time	The total CPU time used by the primary host to complete the job.
	Remote CPU Time	The total CPU time used by the remote hosts to complete the job.
	Total CPU Time	Master CPU Time + Remote CPU Time
	Total Real Time	The total elapsed clock time.
System Info	Master Node Name	The name of the primary host used for the Calibre job.
Input Layout	File(s)	The name of the input file used for the Calibre job.
	Path(s)	The path to the input file.

Job Pane

To access: **Job** tab

The Job pane displays details about the Calibre job configuration.

Table 4-3 provides information on each of the fields available on this pane.

Figure 4-2. Job Pane

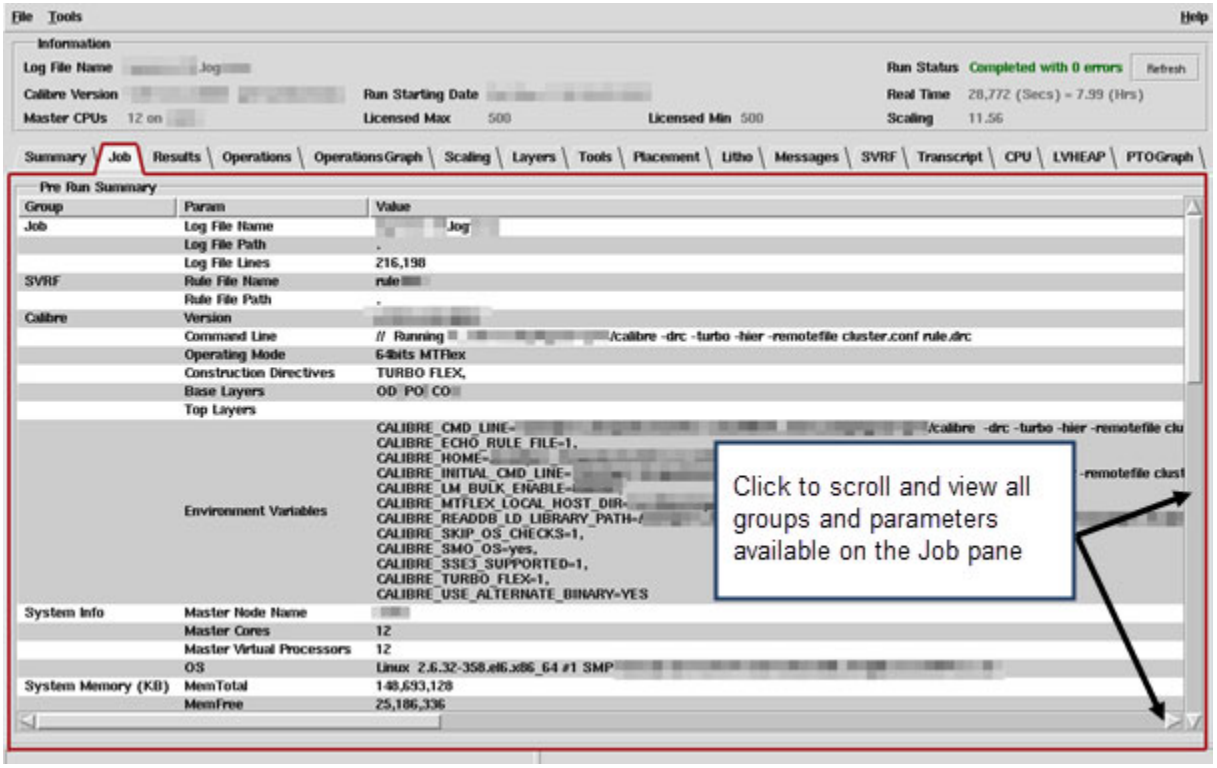


Table 4-3. Job Pane Contents

Group Name	Param name	Description
Job	Log File Name	The filename of the source log file.
	Log File Path	The path to the source log file.
	Log File Lines	The number of lines in the log file.
SVRF	Rule File Name	The name of the rule file used for the Calibre job. From: `--- RULE FILE = Path/Name`
	Rule File Path	The path to the rule file used for the Calibre job. From: `--- RULE FILE = Path/Name`
Calibre	Version	The version of the Calibre tool used for the Calibre job. From: `// Calibre Version`
	Command Line	The command used to invoke the Calibre tool. From: `// Running Calibre: <Command_Line>`
	Operating Mode	The modes used for the Calibre job. Possible values: 64bit, MTFlex, MT, and Hyper

Table 4-3. Job Pane Contents (cont.)

Group Name	Param name	Description
	Construction Directives	Commands influencing the HDB construction. Possible values: TURBO FLEX or ULTRA FLEX
	Base Layers	The list of values from the Layout Base Layer statements in the SVRF section.
	Top Layers	The list of values from the Layout Top Layer statements in the SVRF section.
	Environment Variables	The environment variables and values used for the Calibre job. From: `--- CALIBRE_* ENVIRONMENT VARIABLES:`
System Info	Master Node Name	The name of the primary used for the Calibre job. From: `// Running on <OS1 Name OS2>`
	Master Cores	The number of primary cores used for the Calibre job. From: `// CPU Info: Cores = <Cores>`
	Master Virtual Processors	The number of primary virtual processors used for the Calibre job.
	OS	The operating system of the platform used for the Calibre job. From: `// Running on <OS1 Name OS2>`
System Memory (KB)	MemTotal	The size of the memory reported for the primary node. From: `// MemTotal: <MemTotal> kB`
	MemFree	From: `// MemFree: <MemFree> kB`
	SwapTotal	From: `// SwapTotal: <SwapTotal> kB`
	SwapFree	From: `// SwapFree: <SwapFree> kB`
	Cached	From: `// Cached: <Cached> kB`
	Buffers	From: `// Buffers: <Buffers> kB`

Table 4-3. Job Pane Contents (cont.)

Group Name	Param name	Description
	Layer Directory	The directory specified for disk-based layer storage. From: `LAYER DIRECTORY dir`
Remotes	This section includes various parameters that control and indicate the number of remote processors throughout the connection and licensing and the course of execution.	
	Beginning Number of Cores	The value from the “Licensed Products” section of the transcript.
	Remote Command Dynamic	Indicates that Dynamic CPU Allocation is enabled. “Yes” if REMOTE COMMAND DYNAMIC was used in the remote host configuration file, else “No”
	Remote Virtual CPUs	Indicates that remote virtual cores are used. Virtual cores are only available on processors which are Simultaneous Multi-Thread (SMT) capable, and when it is enabled in the operating system and environment. The Intel name for SMT is Hyper-Threading. From: `// Connecting to allowed additional virtual CPUs` Possible values: Yes or No.
	First Remote Name	Indicates one of the remote hosts is connected (the first name is listed). From: `// Connected to CPU on remote host <Name ...>`
	turbo	Indicates the instruction to use multi-threaded parallel processing with the optional number of processors. From: `// Running Calibre: <Command Line>` Possible values: -turbo, -turbo *#processors*, or null.
	turbo litho	Indicates the instruction to use multi-threaded parallel processing for RET and MDP operations with the optional number of processors. From: `// Running Calibre: <Command Line>` Possible values: -turbo_litho, -turbo_litho *#processors*, or null.
	Running on CPUs	The number of remote cores connected prior to licensing. From: `// Running on <number CPUs> (pending licensing)`

Table 4-3. Job Pane Contents (cont.)

Group Name	Param name	Description
	Litho On CPUs	The number of remote cores connected for RET and MDP operations, prior to licensing. From: `// LITHO operations available for use on <number> CPUs (pending licensing)`
	MTFlex Local	The number of local cores on the primary node. From: `// MTflex CPU resources: <local_number> Local, <remote_number>/### Remote`
	MTFlex Remote	The total number of remote cores assigned to the job, including both physical and virtual cores. From: `// MTflex CPU resources: <local_number> Local, <remote_number>/### Remote`
	Licensed Min	The smallest number of licensed cores indicated at the beginning of the job for the various product groups used in the job. From the smallest value in: `// <type> products running on <number> cores:`
	Licensed Max	The largest number of licensed cores indicated at the beginning of the job for the various product groups used in the job. This value is used for the ceiling of the scaling graph. From the largest value in: `// <type> products running on <number> cores:`
	Processor Count Min	The smallest number of cores indicated at the end of the job for the various product groups used. From the smallest value in: `--- PROCESSOR COUNT ... = <number> ...`
	Processor Count Max	The largest number of cores indicated at the end of the job for the various product groups used. From the largest value in: `--- PROCESSOR COUNT ... = <number> ...`
	Dropped Remotes	Count of dropped remotes from error messages. A non-zero value is highlighted in red and a zero value is highlighted in green.
	Last No. of Remotes	The latest or final number of remotes. Calculated from *<Licensed Max> - <Dropped Remotes>*.
Input Layout	File(s)	The name(s) of the input layout file(s).
	Path(s)	The path(s) to the input layout file(s).
	Input File Type	The types (OASIS®[1] and GDS) of the input layout files.

Table 4-3. Job Pane Contents (cont.)

Group Name	Param name	Description

	Input File Version	From:
		`OASIS VERSION: <version>`
		OR
		`GDS VERSION: <version>`

	Precision	From: `DATABASE PRECISION: <precision>`
	Magnification	From: `MAGNIFICATION: <magnification>`
	Primary Cell Name	From: `--- PRIMARY CELL = <cell>`
	Max Cell Graphical Count	From the table: `INPUT DATA FOR INDIVIDUAL CELLS,` the largest sum of POLYGONS and PATHS. This can help to distinguish the input layout file.
	Database Extent	From: `--- DATABASE EXTENT = [ x1 , y1 ] -> [ x2 , y2 ]`
	Database Area (um^2)	Calculated from (x2-x1)*(y2-y1) in um^2

1. OASIS® is a registered trademark of Thomas Grebinski and licensed for use to SEMI®, San Jose. SEMI® is a registered trademark of Semiconductor Equipment and Materials International.

Results Pane

To access: **Results** tab

The Results pane displays the results of the Calibre job.

Table 4-4 provides information on each of the fields available on this pane.

Figure 4-3. Results Pane

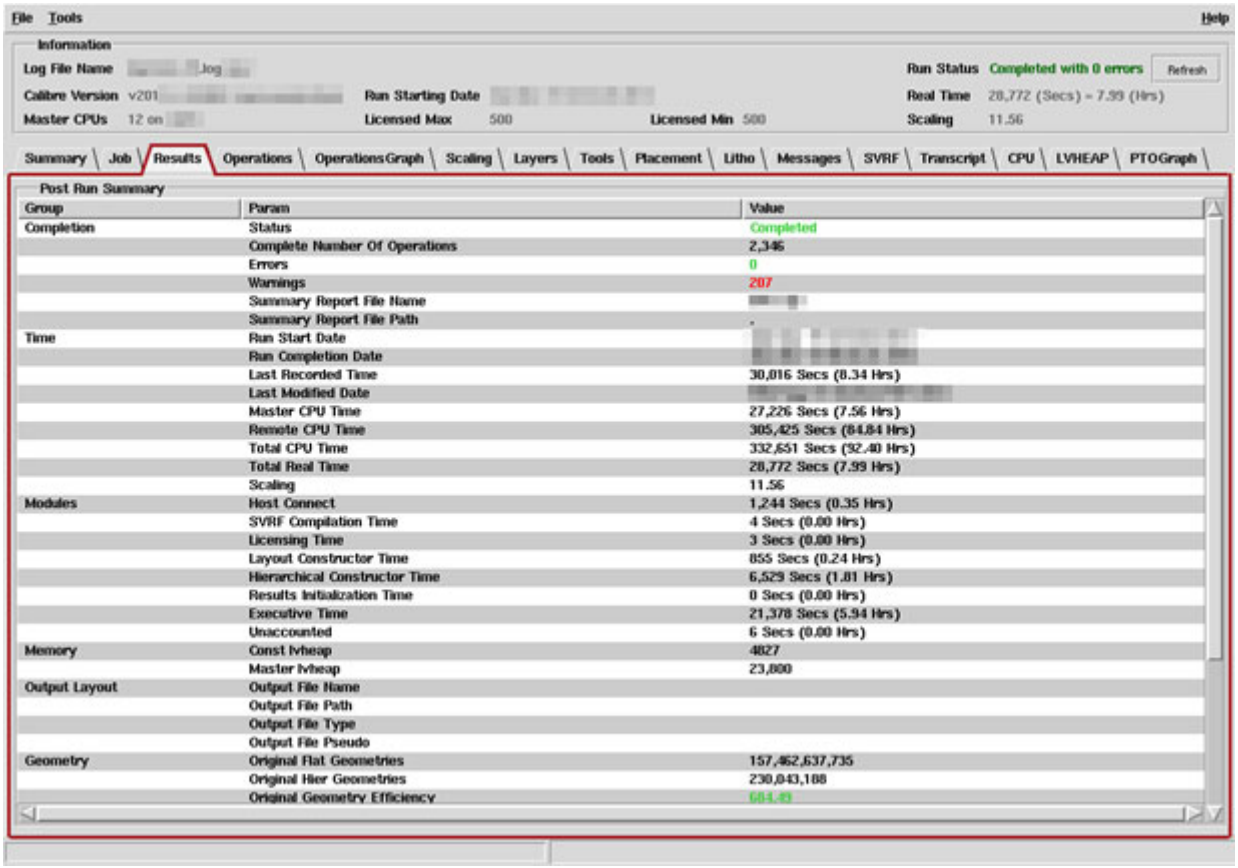


Table 4-4. Results Pane Contents

Group Name	Param Name	Description
Completion	Status	Indication of the job completion as “Completed” (green) or “Not Complete” (red).
	Complete Number Of Operations	From the last operation completed: `CPU TIME = ... OPS COMPLETE = number OF ### ...`
	Errors	Count of Messages with Type=ERROR. A non-zero value is highlighted in red.
	Warnings	Count of Messages with Type=WARNING. A non-zero value is highlighted in red.
	Summary Report File Name	From: `--- SUMMARY REPORT FILE = Path/Name`
	Summary Report File Path	From: `--- SUMMARY REPORT FILE = Path/Name`

Table 4-4. Results Pane Contents (cont.)

Group Name	Param Name	Description
Time	Run Start Date	From: `// Starting time: Date`
	Run Completion Date	From: `--- CALIBRE::DRC-H COMPLETED - Date`
	Last Recorded Time	The last indication of elapsed time from the job completion, or from operations, or other indications in an incomplete job.
	Last Modified Date	From the Log File modification date/time.
	Master CPU Time	From: `--- TOTAL CPU TIME = Master + Remote ...`
	Remote CPU Time	From: `--- TOTAL CPU TIME = Master + Remote ...`
	Total CPU Time	Calculated from <*Master CPU Time*> + <*Remote CPU Time*>
	Total Real Time	From: `--- TOTAL CPU TIME = ... REAL TIME = Real`
	Scaling	Representative of the average number of cores processing the job. Calculated from <*Total CPU Time*> / <*Total Real Time*>
Modules	Host Connect	The time from Run Start Date to the date/time indicated at the end of the host connections. Note that this time is included in elapsed time, but not in Total Real Time.
	SVRF Compilation Time	From: `--- STANDARD VERIFICATION RULE FILE COMPILATION MODULE COMPLETED. CPU TIME = ... REAL TIME = Time ...`
	Licensing Time	From: `--- CALIBRE::DRC-H LICENSING MODULE COMPLETED. CPU TIME = ... REAL TIME = Time`
	Layout Constructor Time	From: `--- LAYOUT DATABASE CONSTRUCTOR COMPLETED. CPU TIME = ... REAL TIME = Time ...`

Table 4-4. Results Pane Contents (cont.)

Group Name	Param Name	Description

	Hierarchical Constructor Time	From:
		`HIERARCHICAL DATABASE CONSTRUCTOR COMPLETE.`
		`CPU TIME = ... REAL TIME = Time`

	Results Initialization Time	From: `--- CALIBRE::DRC-H RESULTS DATABASE INITIALIZATION MODULE COMPLETED. CPU TIME = ... REAL TIME = Time`
	Executive Time	From: `--- CALIBRE::DRC-H EXECUTIVE MODULE COMPLETED. CPU TIME = ... REAL TIME = Time`
	Unaccounted	Calculated from Last Recorded Time minus all module times. This value is normally from integer roundoff of the module times.
Memory	Const lvheap	Indication of the memory requirement for the input layout: From: `--- LAYOUT DATABASE CONSTRUCTOR COMPLETED. CPU TIME = ... LVHEAP = Memory/###/### ...`
	Master lvheap	The largest LVHEAP max number from the operations.
Output Layout	Output File Name	From: `--- GLOBAL DRC RESULTS DATABASE FILE = Path/Name (type)`
	Output File Path	From: `--- GLOBAL DRC RESULTS DATABASE FILE = Path/Name (type)`
	Output File Type	From: `From: --- GLOBAL DRC RESULTS DATABASE FILE = Path/Name (type)`
	Output File Pseudo	From: `DRC RESULTS DATABASE name type pseudo. Possible value: PSEUDO`
Geometry	Original Flat Geometries	The estimated number of flat geometries in the input layout file. From: `--- TOTAL GEOMETRIES READ FROM ORIGINAL LAYERS = Hier (Flat)`

Table 4-4. Results Pane Contents (cont.)

Group Name	Param Name	Description
	Original Hier Geometries	The number of hierarchical geometries in the input layout file. From: `--- TOTAL GEOMETRIES READ FROM ORIGINAL LAYERS = Hier (Flat)`
	Original Geometry Efficiency	Calculated from Original Flat Geometries/Original Hier Geometries. A smaller value indicates a flatter hierarchy and a value less than three is highlighted in red.
	Constructed Flat Geometries	The estimated number of flat geometries after the Layout Constructor has completed. From: `--- TOTAL GEOMETRIES WRITTEN TO ORIGINAL LAYERS = Hier (Flat)`
	Constructed Hier Geometries	The number of hierarchical geometries after the Layout Constructor has completed. From: `--- TOTAL GEOMETRIES WRITTEN TO ORIGINAL LAYERS = Hier (Flat)`
	Constructed Geometry Efficiency	Calculated from Constructed Flat Geometries/Constructed Hier Geometries. A smaller value indicates a flatter hierarchy and a value less than three is highlighted in red.
	Generated Flat Geometries	The estimated number of flat geometries written to the output layouts. From: `--- TOTAL RESULTS GENERATED = Hier (Flat)`
	Generated Hier Geometries	The number of hierarchical geometries written to the output layouts. From: `--- TOTAL RESULTS GENERATED = Hier (Flat)`
	Generated Geometry Efficiency	Calculated from Generated Flat Geometries/Generated Hier Geometries. A smaller value indicates a flatter hierarchy and a value less than three is highlighted in red.
	Cell Count	From: `CELL AND PLACEMENT SUMMARY, line TOTAL <cells> <placements> <flat placements>.` Indicates the total number of cells after construction.
	Cell Efficiency	Calculated from <Total Cell Placements> / <Cell Count>.
	Input Data Rate	Calculated from <Const LVHEAP> / <Layout Constructor Time>. Indicates roughly the rate of data transfer from the input layout file in MB/sec.

Operations Pane

To access: **Operations** tab

The Operations pane displays job results by layer or operation. The results displayed in this pane are extracted from the “OPS COMPLETE” lines in the “EXECUTIVE MODULE” of the log file. You can sort any column on this pane in ascending or descending order by clicking on the column header.

Table 4-5 provides information on each of the fields available on this pane.

Figure 4-4. Operations Pane

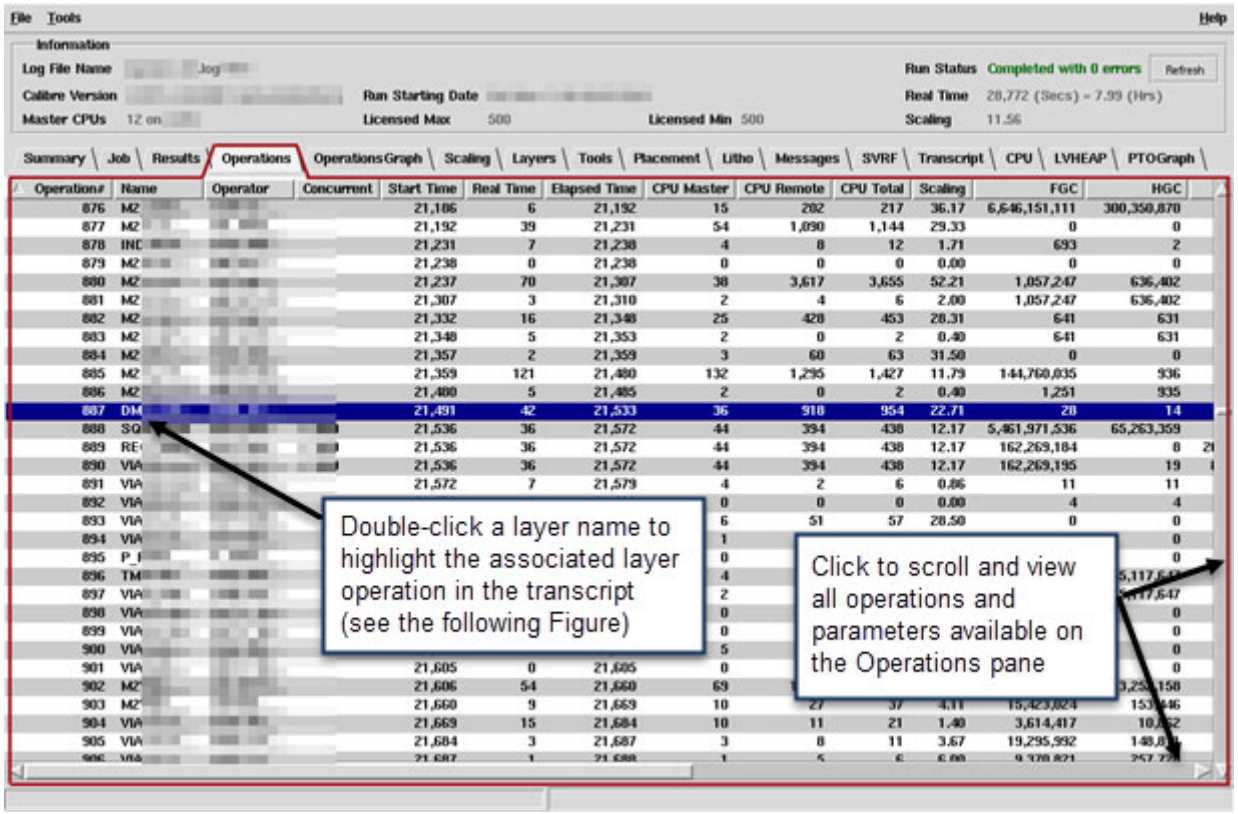


Figure 4-5. Highlighting a Layer Operation in the Transcript

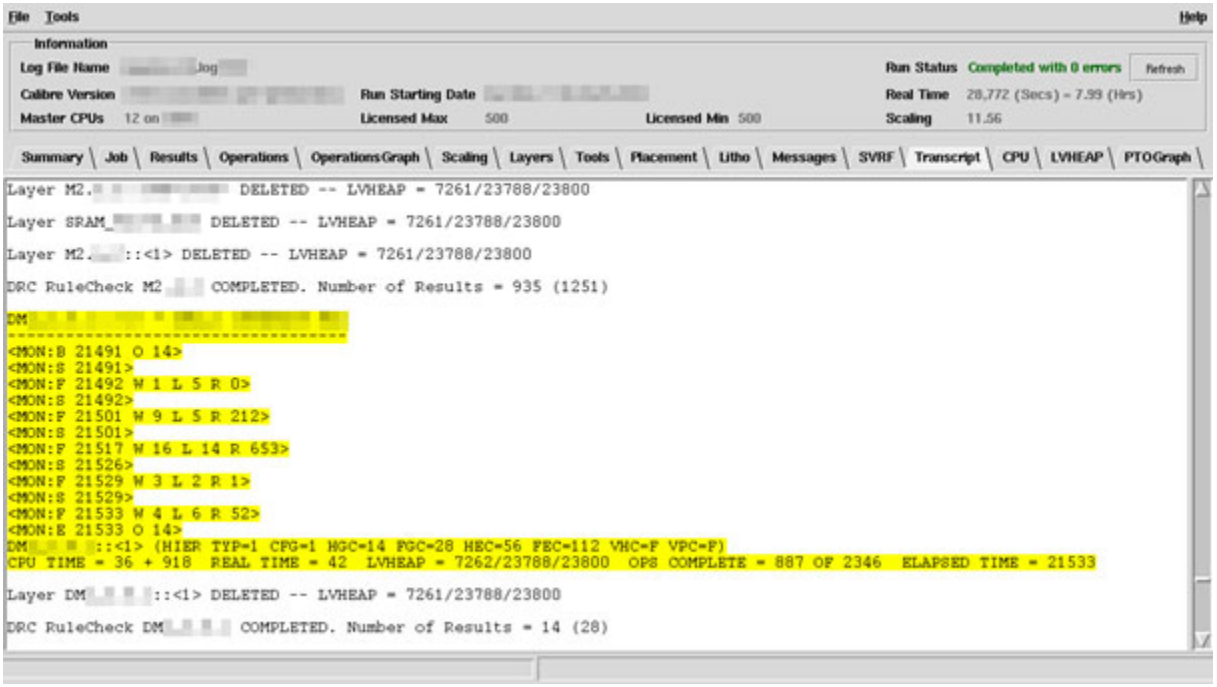


Table 4-5. Operations Pane Contents

Field (Column)	Description
Operation#	From: `CPU TIME = ... OPS COMPLETE = number OF ### ...`
Name	Layer name. From: `name (HIER TYP=# CFG=# HGC=# FGC=# HEC=# FEC=# VHC=# VPC=#)`
Operator	From: `layer = operation,` including the operator and operand layers.
Concurrent	Indicates there are multiple operations in one concurrent group, identified by one OPS COMPLETE line with the last operation number.
Start Time	Calculated from: <Elapsed Time> - <Real Time> for the operation.
Real Time	From: `CPU TIME = ... REAL TIME = Time ...`
Elapsed Time	From: `CPU TIME = ... ELAPSED TIME = Time`
CPU Master	From: `CPU TIME = Master + Remote REAL TIME = ...`

Table 4-5. Operations Pane Contents (cont.)

Field (Column)	Description
CPU Remote	From: `CPU TIME = Master + Remote REAL TIME = ...`
CPU Total	Calculated from <CPU Master>+<CPU Remote>
Scaling	Representative of the average number of cores processing the job during the operation. Calculated from <CPU Total> / <Real Time>
FGC	Flat Geometry Count. From: `name (HIER TYP=# CFG=# HGC=# FGC=# HEC=# FEC=# VHC=# VPC=#)`
HGC	Hierarchical Geometry Count. From: `name (HIER TYP=# CFG=# HGC=# FGC=# HEC=# FEC=# VHC=# VPC=#)`
FGC/HGC	Hierarchical Efficiency of Geometries (instances per shape). Calculated from FGC/HGC.
FEC	Flat Edge Count. From: `name (HIER TYP=# CFG=# HGC=# FGC=# HEC=# FEC=# VHC=# VPC=#)`
HEC	Hierarchical Edge Count. From: `name (HIER TYP=# CFG=# HGC=# FGC=# HEC=# FEC=# VHC=# VPC=#)`
FEC/HEC	Hierarchical Efficiency of Edges (instances per edge). Calculated from FEC/HEC.
FEC/FGC	Complexity of Flat Geometries (edges per shape). Calculated from FEC/FGC.
HEC/HGC	Complexity of Hierarchical Geometries (edges per shape). Calculated from HEC/HGC.
LVHEAP Curr	From: `CPU TIME = ... LVHEAP = Curr/Alloc/Max ... OPS COMPLETE = ...`
LVHEAP Alloc	From: `CPU TIME = ... LVHEAP = Curr/Alloc/Max ... OPS COMPLETE = ...`
LVHEAP Max	From: `CPU TIME = ... LVHEAP = Curr/Alloc/Max ... OPS COMPLETE = ...`

Table 4-5. Operations Pane Contents (cont.)

Field (Column)	Description
HDB	From: `Operation EXECUTING on HDB` *`number`* `...`

OperationsGraph Pane

To access: **OperationsGraph** tab

The OperationsGraph pane provides a graphical representation of the parameters by operation that are displayed on the Operations pane. Arrows located to the right of the graph can be used to hide or display options associated with the operations graph.

Table 4-6 provides information on each of the fields available on this pane.

Figure 4-6. OperationsGraph Control Panel Pane

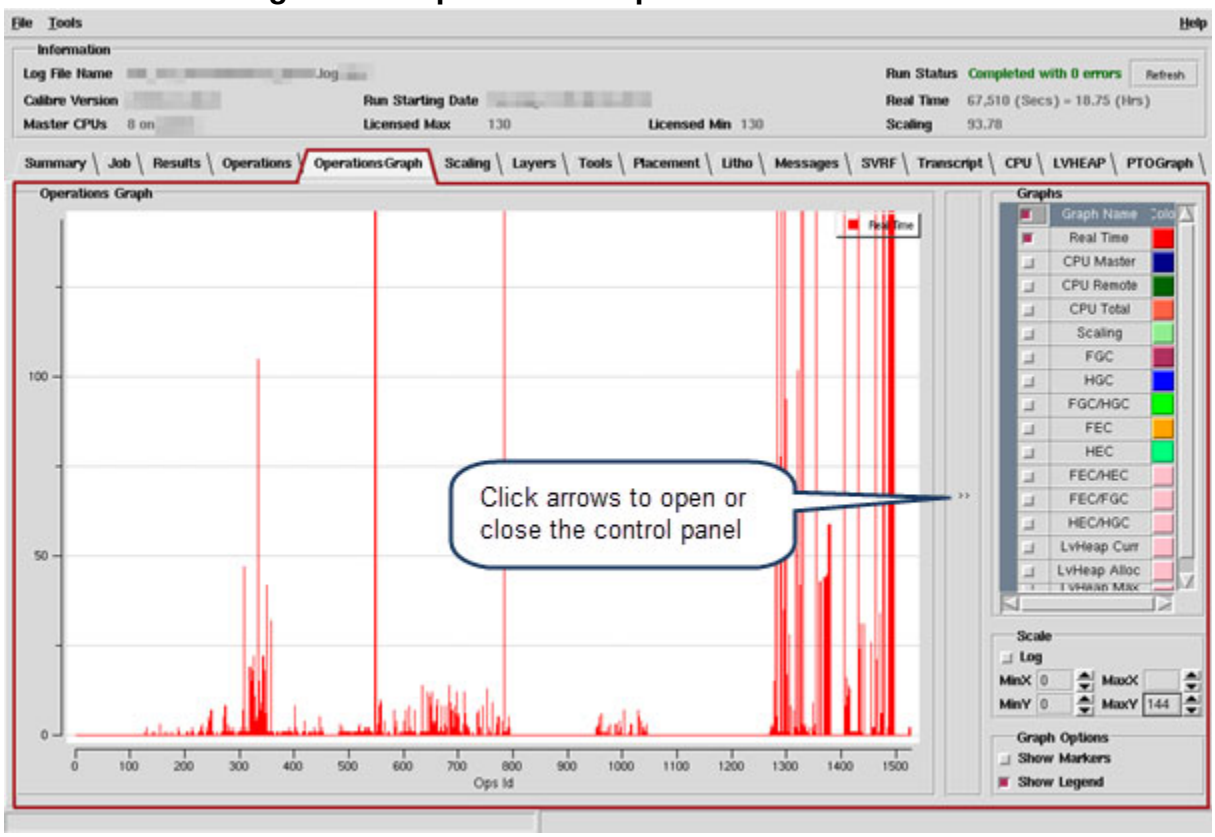


Table 4-6. OperationsGraph Control Panel Contents

Field	Description
Graphs	Select the parameters to hide or display them in the graph. You can click the colored boxes to display a palette and change the color for any parameter.

Table 4-6. OperationsGraph Control Panel Contents (cont.)

Field	Description
Scale — To change the scale factor, use the up or down arrows or type in a value and press Enter. A null value indicates the full range of the available data.	
Log	Sets the logarithmic scale for the Y axis.
MinX	Sets the minimum time (X) on the graph.
MaxX	Sets the maximum time (X) on the graph.
MinY	Sets the minimum number of processors (Y) on the graph.
MaxY	Sets the maximum number of processors (Y) on the graph.
Graph Options:	
Show Markers	Click to enable or disable the display of markers in the graph for the pre-executive modules.
Show Legend	Click to enable or disable the display of the legend in the graph.

The Operations Graph display supports the following mouse controls:

- Zoom in — Press and hold the right mouse button to drag a box from left to right.
- Zoom out — Press and hold the right mouse button to drag a box from right to left.
- Full view — Click the right mouse button in the display area.
- Middle click — Pan the mouse location to the center of the view.

When there are a large number of bars, it may be difficult to distinguish the detail in the graph. Some recommendations for controlling the viewing include:

- Using the zoom operations to see the detail in a reduced range.
- Using contrasting colors for the parameters you wish to view.
- Controlling the drawing order of the graph. Generally, the first selected parameter is drawn on top of previous selections. In cases where one parameter is always taller (for example FGC and HGC, or CPU and Real), select that parameter last. For an existing selection, it may help to toggle the taller parameter off, and then on.

Scaling Pane

To access: **Scaling** tab

The Scaling pane displays a graph of runtime and hardware utilization. The Scaling graph represents the activity on the cores over the course of the job. Arrows located to the right of the graph can be used to hide or display the graph control options. The graph control panel is hidden by default.

The graph control options and the mouse functions are identical to those on the OperationsGraph Pane pane.

Figure 4-7. Scaling Pane

Depending on job conditions, the available graph curves can include:

- Load — The number of active threads. Requires MONITOR REMOTE in the Calibre job, resulting in "<MON:L timestamp T ntc nts … >" records in the log file. The total of "cell" and "stripe" threads is indicated in the graph. Refer to the "MONITOR LOCAL LOAD Transcript" reference page in the *Calibre Administrator's Guide*.
- Queue — The number of tasks which are queued waiting for assignment to CPU cores. The value is the total of the "cell" and "stripe" values from the "<MON:L … Q nqc nqs …>" records in the log file.
- OP — The average scaling (total CPU time / Real time) for each operation. When Calibre hyperscaling is used, the OP scaling is stacked to represent the approximate average concurrent CPU activity.
- HDB0 — The CPU scaling activity for operations running on HDB0.
- MasterScaling — The scaling (CPU time / Real time) that occurred on the primary host.
- Ceiling — The allocated number of cores licensed for the job. For jobs with SMT Hyper-Threading enabled ("Remote Virtual CPUs" = "Yes"), a 2X Virtual Ceiling is shown.
- Virtual Ceiling — Represents the available number of sockets for load threads when Remote Virtual CPUs (Job pane) are recognized. In that case, the Virtual Ceiling will be

visible with a height 2X the Ceiling. Note that if not all remotes allow virtual threads, then this curve may over-estimate the available resources. The example shown here did not use virtual CPUs, so the Virtual Ceiling is absent.

- Connected — When dynamic CPU allocation is used (CalCM), the "<DCA" monitor indicates the connections. These are drawn as the Connected curve. This curve is like the ceiling, except the time points are generally more accurate. The example shown here did not use dynamic CPU allocation, so the Connected curve is absent.

The navigation controls are the same as the controls for the Operations Graph. Refer to Table 4-6 for descriptions of these controls. To enable or disable tooltips:

- Enable tooltips by left-clicking over segments of the green OP curve.
- Disable tooltips by left-clicking in any location of the graph area.

Layers Pane

To access: **Layers** tab

The Layers pane displays layer information for the Calibre job. The information displayed in this pane is extracted from the "LAYER READ SUMMARY" in the "CALIBRE LAYOUT DATA INPUT MODULE." You can sort any column on this pane in ascending or descending order by clicking on the column header.

Table 4-7 provides information on each of the fields available on this pane.

Figure 4-8. Layers Pane

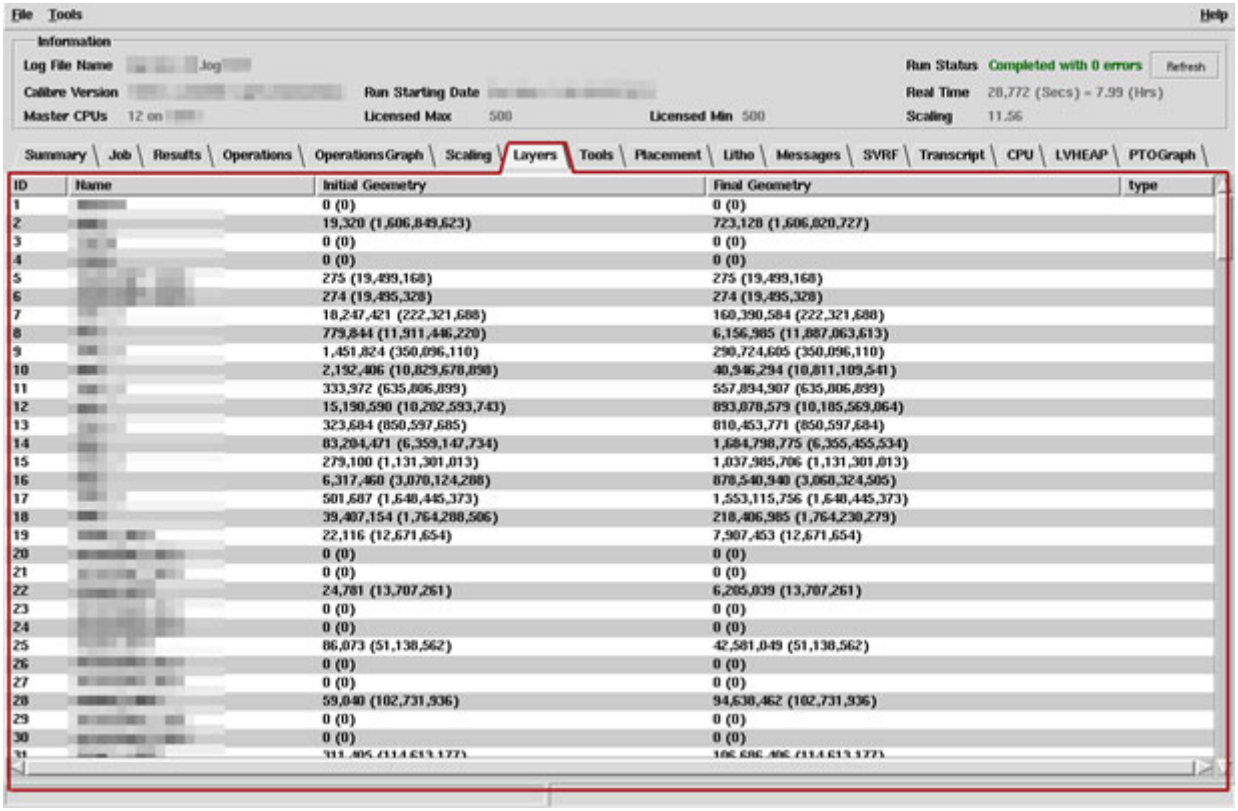


Table 4-7. Layers Pane Contents

Field	Description
ID	A unique identifier automatically assigned to the layer.
Name	The name of the input layer.
Initial Geometry	The counts of geometries before they are processed by Calibre. The hierarchical count is given first, followed by the flat count in parentheses.
Final Geometry	The counts of geometries after Calibre has processed the input data and constructed its internal database representation of that data. The hierarchical count is given first, followed by the flat count in parentheses.
type	An indication of base or top layer extracted from the SVRF specifications in the log file: LAYOUT BASE LAYER and LAYOUT TOP LAYER. For more information, see *Standard Verification Rule Format (SVRF) Manual*.

Tools Pane

To access: **Tools** tab

The Tools pane displays information about the SVRF operations performed on the Calibre job. The information displayed in this pane is extracted from the “Cumulative” section at the end of the job.

Table 4-8 provides information on each of the fields available on this pane.

Figure 4-9. Tools Pane

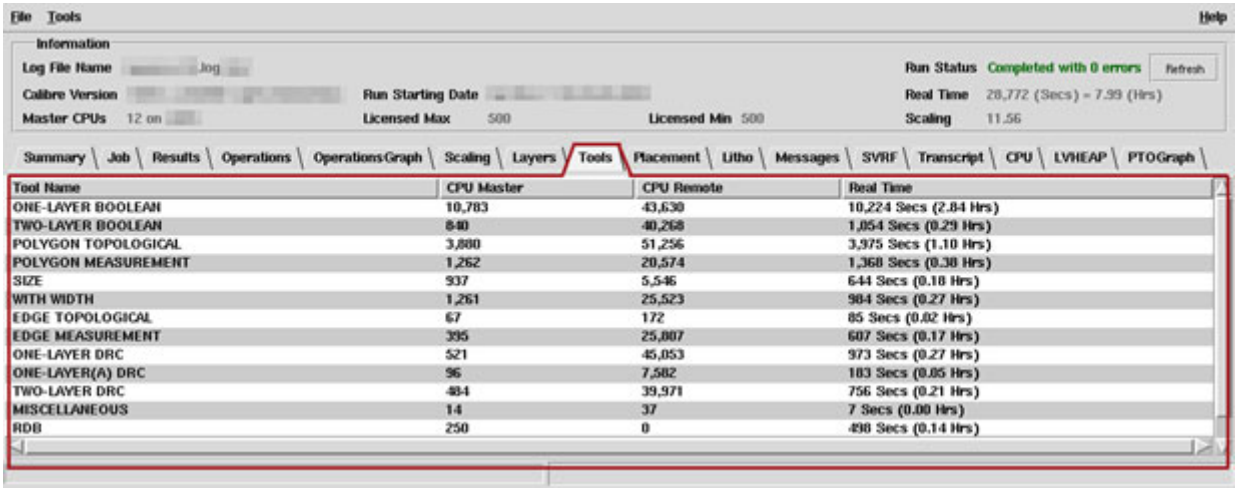


Table 4-8. Tools Pane Contents

Field	Description
Tool Name	Categories of the SVRF operations performed.
CPU Master	The amount of CPU time consumed by the primary host to perform the operations in the associated category.
CPU Remote	The amount of CPU time consumed by the remote hosts to perform the operations in the associated category.
Real Time	The total Real Time for operations in the associated category.

Placement Pane

To access: **Placement** tab

The Placement pane displays information the cells that are in the design. The information displayed in this pane is extracted from the “Cell and Placement Summary” section of the transcript.

Table 4-9 provides information on each of the fields available on this pane.

Figure 4-10. Placement Pane

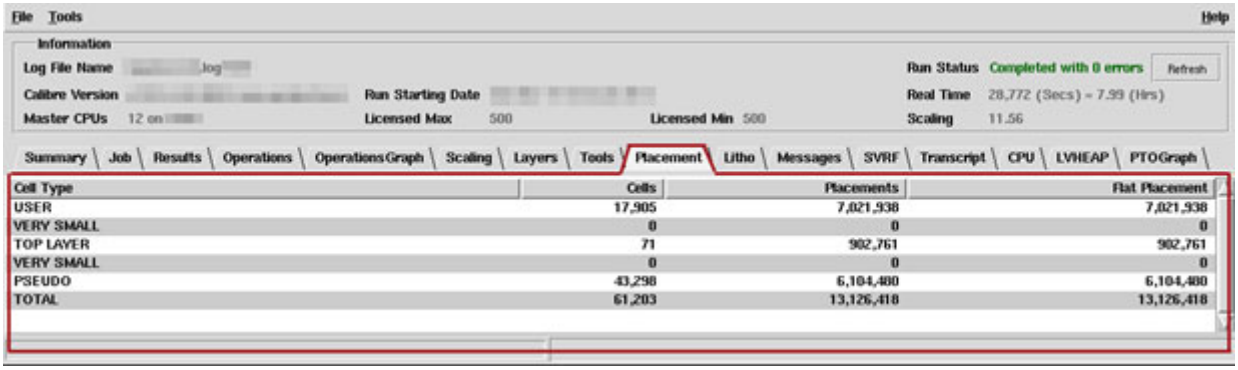


Table 4-9. Placement Pane Contents

Field	Description
Cell Type	Identifies the different types of cells based on how Calibre views them. User cells are in the original design. Pseudocells are cells that Calibre creates for hierarchy management.
Cells	Identifies the total number of each type of cell found in the design
Placements	Identifies the number of hierarchical placements of each cell type in the design.
Flat Placement	Identifies the number of flat placements of each cell type in the design.

Litho Pane

To access: **Litho** tab

The Litho pane displays information about the litho operations performed for the Calibre job.

Table 4-10 provides information on each of the fields available on this pane.

Figure 4-11. Litho Pane

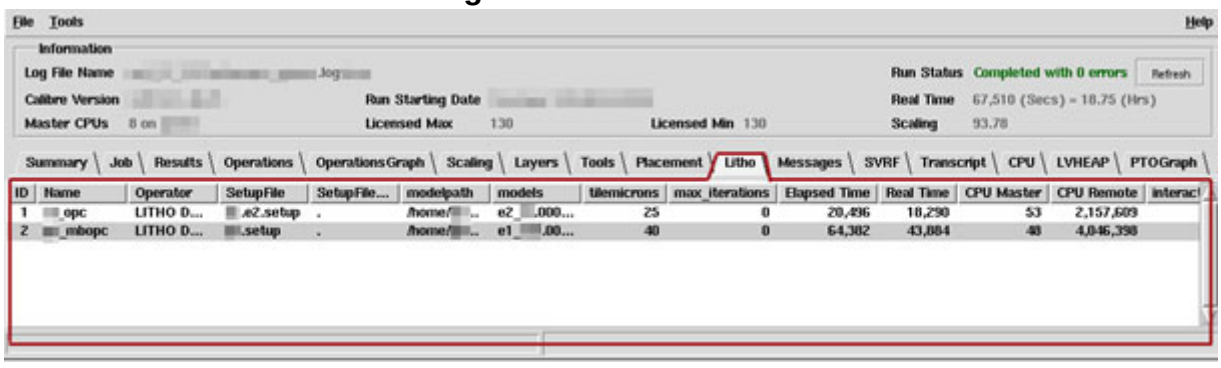


Table 4-10. Litho Pane Contents

Field	Description
ID	A unique identifier automatically assigned to the layer.
Name	The name of the input layer.
Operator	The litho operation performed.
SetupFile	The name of the setup file used for the job.
SetupFilePath	The path to the setup file.
modelpath	The path to the models.
models	The names of the models used for performing the simulations.
tilemicrons	The tiling size in microns used for the job.
max_iterations	The number of iterations of OPC or MPC movement performed on the design.
Elapsed Time	The accumulated real time from the beginning of the job to the end of the operation.
Real Time	The amount of time to perform the litho operations.
CPU Master	The CPU time used for the litho operations on the primary host.
CPU Remote	The total CPU time used for the litho operations on the remote cores.
interactiondistance	The interaction distance used in the litho simulations.
adjusted_tilemicrons	The adjusted size of the tilemicrons setting.
Edges	The number of edges processed during the litho operation.
Edges Finished %	The level of completion of this operation.
Tiles	The number of tiles processed during the litho operation.
Frames	The number of frames processed during the litho operation.

Messages Pane

To access: **Messages** tab

The Messages pane displays the errors, warnings, and DRC PRINT statements that were generated during the Calibre job. The information displayed in this pane is extracted from the various ERROR, WARNING messages, and DRC PRINT statements (layer and value) that appear throughout the log file.

Figure 4-12. Messages Pane

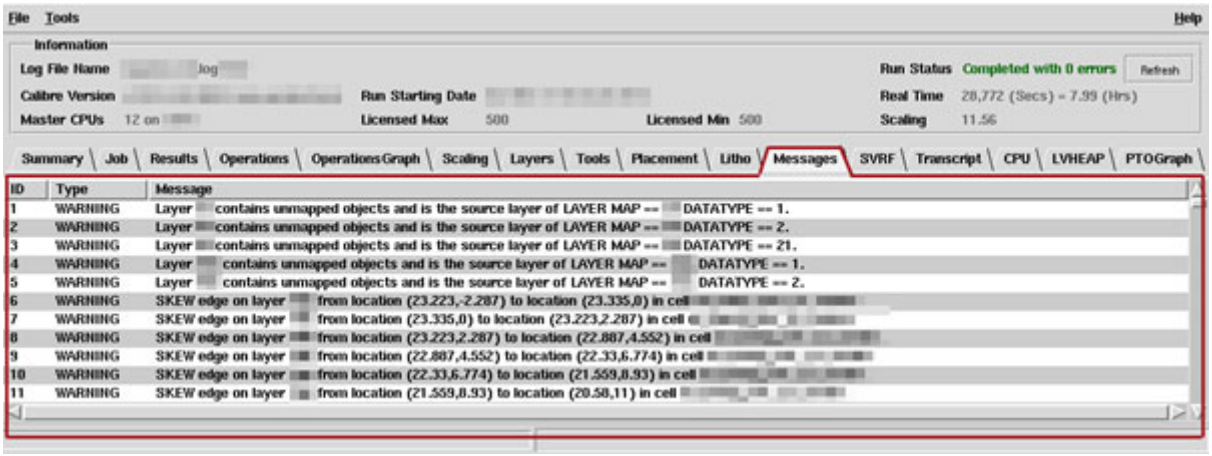


Table 4-11. Messages Pane Contents

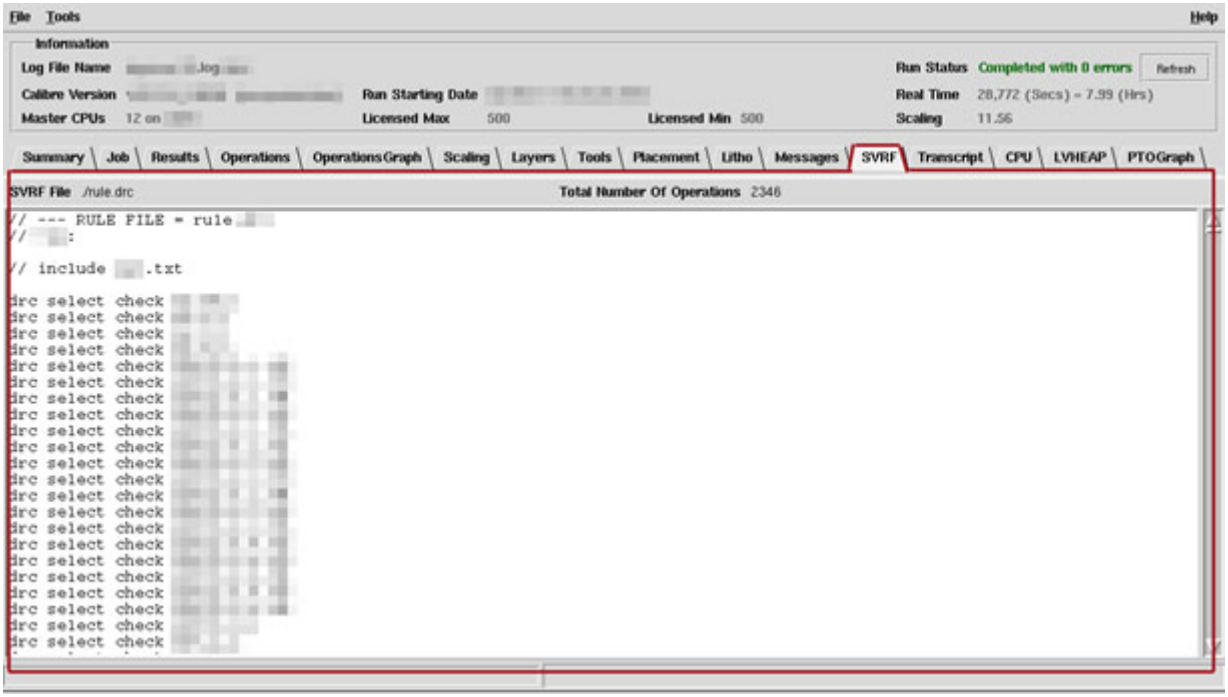
Field	Description
ID	The order in which the message or DRC PRINT statement appears with respect to other messages or DRC PRINT statements in the log file.
Type	The type (Error, Warning, or Note) of message or statement (DRC PRINT).
Message	The contents of the message or the DRC PRINT layer and value.

SVRF Pane

To access: **SVRF** tab

The SVRF pane displays the contents of the SVRF rule file used for the Calibre job. The information displayed in this pane is extracted from the “STANDARD VERIFICATION RULE FILE COMPILATION MODULE.”

Figure 4-13. SVRF Pane



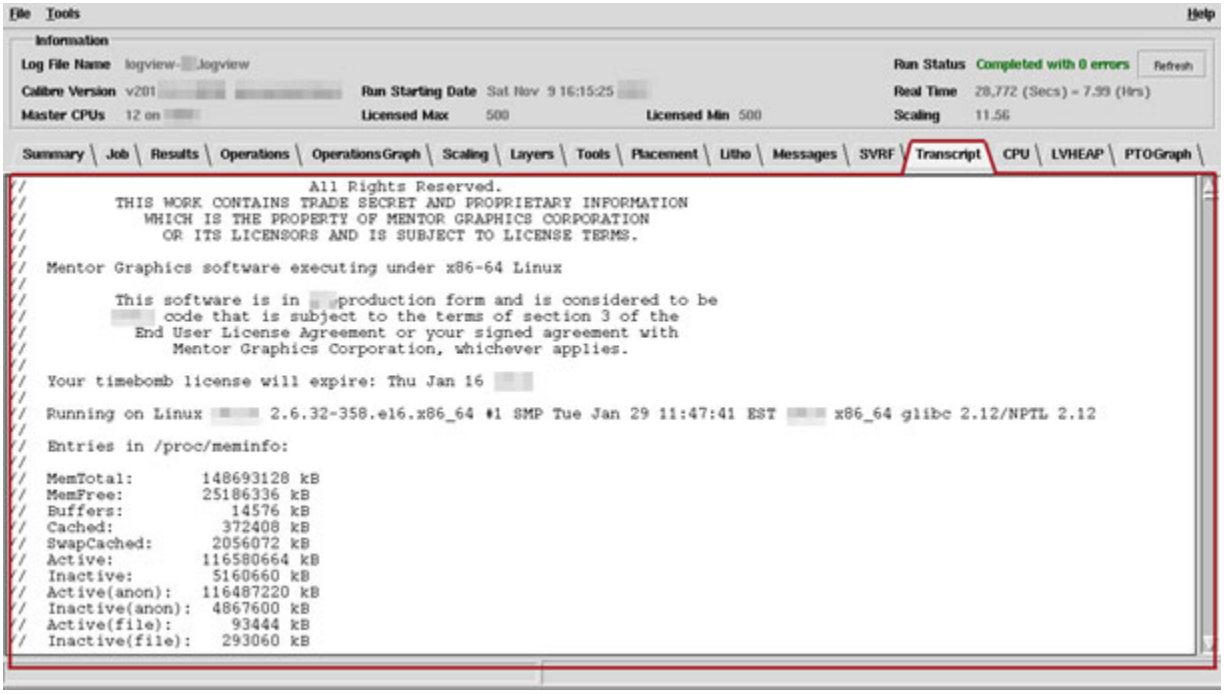
You can export the SVRF section to a file, using the **File > Export** menu option or from the command line. Both a CSV parameter file and an SVRF file are exported.

Transcript Pane

To access: **Transcript** tab

The Transcript pane displays the Calibre transcript file in its native format.

Figure 4-14. Transcript Pane



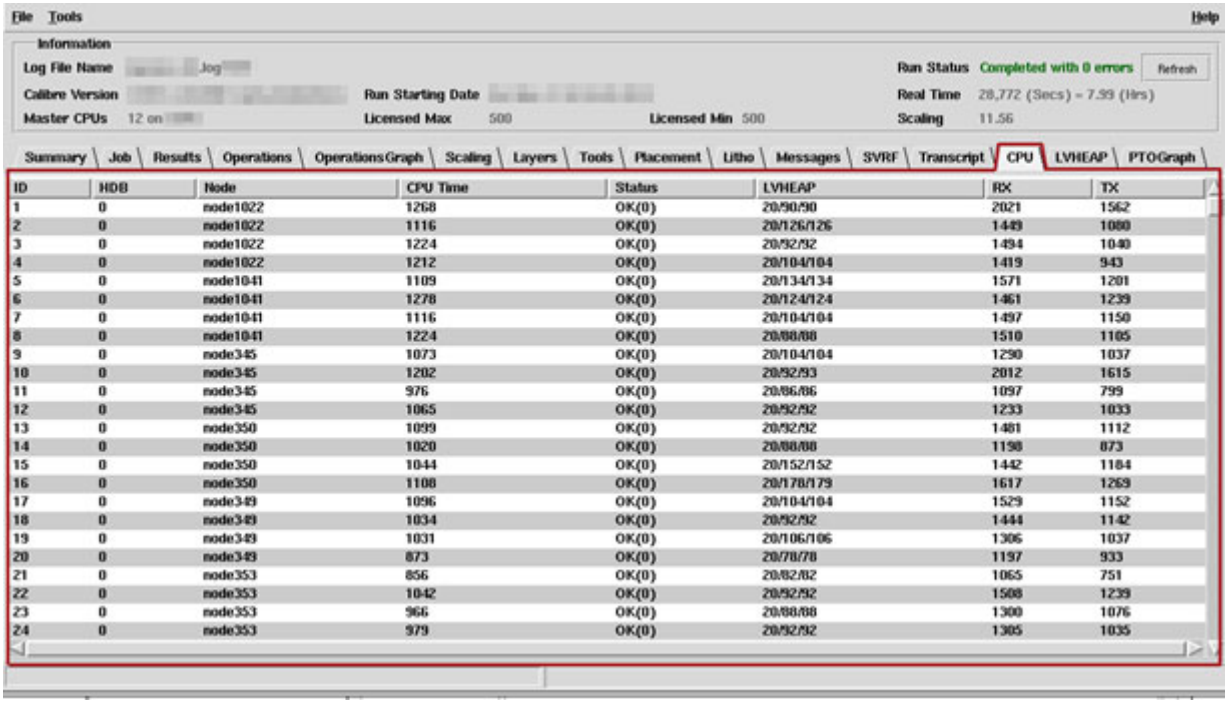
CPU Pane

To access: **CPU** tab

The CPU pane displays the CPU core information for the Calibre job remote hosts including time, status, memory data, and other CPU-specific statistics. You can sort columns containing numerical data on this pane in ascending or descending order by clicking on the column header.

Table 4-12 provides information on each of the fields available on this pane.

Figure 4-15. CPU Pane



ID	HDB	Node	CPU Time	Status	LVHEAP	RX	TX
1	0	node1022	1268	OK(0)	20/90/90	2021	1562
2	0	node1022	1116	OK(0)	20/126/126	1449	1080
3	0	node1022	1224	OK(0)	20/92/92	1494	1040
4	0	node1022	1212	OK(0)	20/104/104	1419	943
5	0	node1041	1109	OK(0)	20/134/134	1571	1201
6	0	node1041	1278	OK(0)	20/124/124	1461	1239
7	0	node1041	1116	OK(0)	20/104/104	1497	1150
8	0	node1041	1224	OK(0)	20/88/88	1510	1105
9	0	node345	1073	OK(0)	20/104/104	1290	1037
10	0	node345	1202	OK(0)	20/92/93	2012	1615
11	0	node345	976	OK(0)	20/86/86	1097	799
12	0	node345	1065	OK(0)	20/92/92	1233	1033
13	0	node350	1099	OK(0)	20/92/92	1481	1112
14	0	node350	1020	OK(0)	20/88/88	1198	873
15	0	node350	1044	OK(0)	20/152/152	1442	1184
16	0	node350	1108	OK(0)	20/178/179	1617	1269
17	0	node349	1096	OK(0)	20/104/104	1529	1152
18	0	node349	1034	OK(0)	20/92/92	1444	1142
19	0	node349	1031	OK(0)	20/106/106	1306	1037
20	0	node349	873	OK(0)	20/78/78	1197	933
21	0	node353	856	OK(0)	20/82/82	1065	751
22	0	node353	1042	OK(0)	20/92/92	1508	1239
23	0	node353	966	OK(0)	20/88/88	1300	1076
24	0	node353	979	OK(0)	20/92/92	1305	1035

Table 4-12. CPU Pane Contents

Field	Description
ID	The order in which the remote host appears in the transcript in the Remote Host Summary information (based on the order of the remote host configuration file).
HDB	The Hierarchical Database containing the design data in memory that is connected to the remote host.
Node	The unique remote host node identifier.
CPU Time	The remote host CPU time (in CPU seconds) for the Calibre job.
Status	The remote host CPU status during the Calibre job.
LVHEAP	The LVHEAP memory statistics used by the Calibre remote processes defined as follows: LVHEAP = memory currently used / memory allocated / maximum memory allocated
RX	The CPU-specific statistic that reports (in millions) the number of received bytes during the Calibre job.
TX	The CPU-specific statistic that reports (in millions) the number of transmitted bytes during the Calibre job.

LVHEAP Pane

To access: **LVHEAP** tab

The LVHEAP pane displays memory usage for a remote host node in MBytes for the Calibre remote processes. The information displayed in this pane is extracted from the Remote Host Summary that appears near the end of the transcript.You can sort any column on this pane in ascending or descending order by clicking on the column header.

Table 4-13 provides information on each of the fields available on this pane.

Figure 4-16. LVHEAP Pane

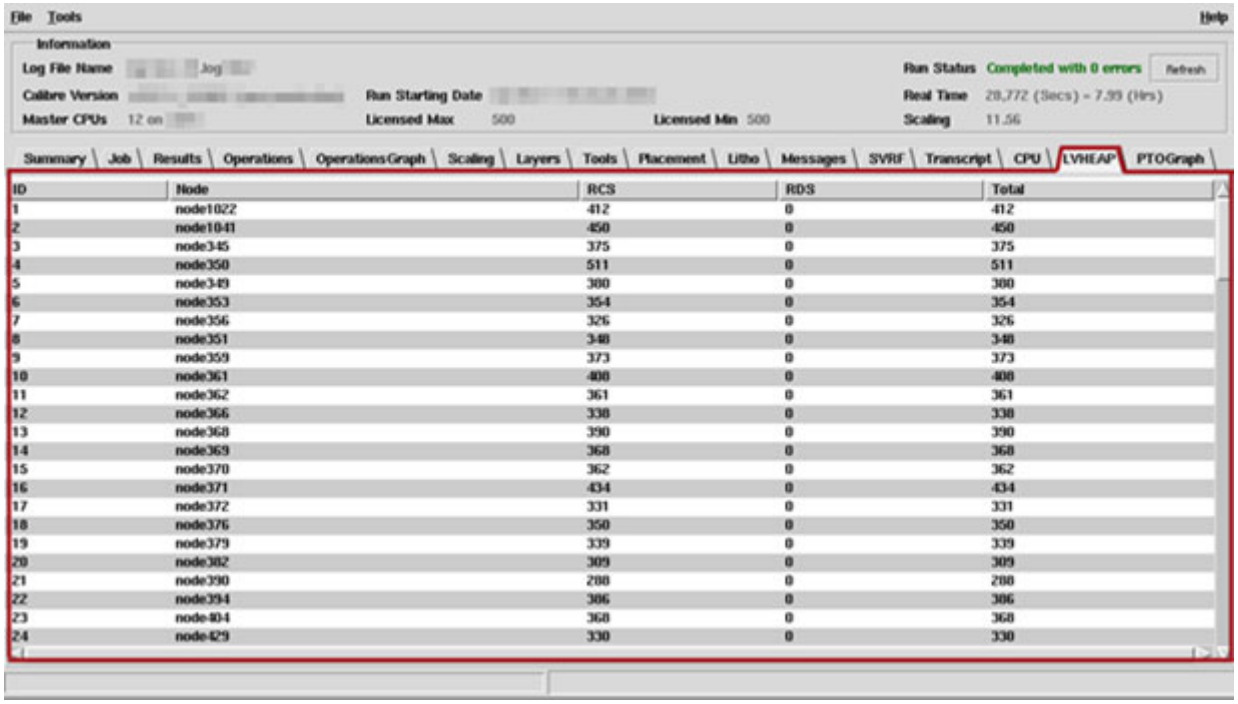


Table 4-13. LVHEAP Pane Contents

Field	Description
ID	The order in which the remote host appears in the transcript in the Remote Host Summary information (based on the order of the remote host configuration file).
Node	The unique remote host node identifier.
RCS	The LVHEAP memory used by the Calibre Remote Compute Server (RCS) processes.
RDS	The LVHEAP memory used by Calibre Remote Data Server (RDS) processes.
Total	The total LVHEAP memory used for the remote processes.

PTOGraph Pane

To access: **PTOGraph** tab

The PTOGraph pane displays a graphical representation of memory and time information for Calibre® FullScale™ jobs only. Arrows located to the right of the graph can be used to hide or display options associated with the PTOGraph pane.

Note

The Layers, Tools, and Placement tabs are hidden when a PTO transcript is loaded.

See "Calibre FullScale Platform" and "FullScale Sections" in the *Calibre Post-Tapeout Flow User's Manual* for more information about the PTO flow.

Refer to Table 4-6 for descriptions of the controls and options on the control panel of this pane.

Figure 4-17. PTOGraph Pane

Appendix A
Supported Products

In the context of Calibre LogView, supported products are defined as tools that are executed using the **calibre** command line executable and generate a transcript as a result of the Calibre run. Transcripts from other executables are not supported.

Supported Products

This section identifies the products whose transcripts are supported for use with Calibre LogView.

- Resolution Enhancement Technology
  - Calibre® nmBIAS™
  - Calibre® nmOPC™
  - Calibre® nmSRAF™
  - Calibre® OPCpro™
  - Calibre® OPCsbar™
  - Calibre® OPCverify™
  - Calibre® ORC™
  - Calibre® PRINTimage™
- Mask Data Preparation
  - Calibre® FRACTURE tools
  - Calibre® MDP EMBED
  - Calibre® MDPmerge™
  - Calibre® MPCpro™
  - Calibre® nmMPC™
- Physical Verification

    - Calibre® nmDRC™ and Calibre® nmDRC-H™
- Distributed Calibre
    - Calibre® Cluster Manager (CalCM)
    - Calibre® MTflex™

Unsupported Products

This section identifies the products whose transcripts are not supported for use with Calibre LogView.

- Physical Verification
    - Calibre® nmLVS™ and Calibre® nmLVS-H
    - Calibre® Pattern Matching
    - Calibre® PERC™
    - Calibre® 3DSTACK
- Design for Manufacturability:
    - Calibre® CMPanalyzer
    - Calibre® LFD™
    - Calibre® YieldAnalyzer
    - Calibre® YieldEnhancer
- Parasitic Extraction:
    - Calibre® xACT™ 3D
    - Calibre® xACT™ 3D Reference
    - Calibre® xACT™ SOC
    - Calibre® xL
    - Calibre® xRC™
- Tools not invoked by the **calibre** command:
    - Calibre Viewers and Interfaces
    - Calibre® InRoute™
    - Calibre® SVRFencrypt and encrypted rule files

- Calibre® TVFencrypt
- xCalibrate™

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Third-Party Information

Details on open source and third-party software that may be included with this product are available in the *<your_software_installation_location>/legal* directory.