Notes on Running 2 Instances of SYNOPSYS™

- Multicore

- Default files for Lens Library

- Recent File list

Starting from March 2023, you can run two concurrent instances with the UP version of SYNOPSYS™. We are proud to provide this feature to our users to further improve their productivities with SYNOPSYS™. We have tried our best to test this implementation; however, because of the complexity of SYNOPSYS™, there may be scenarios that we have missed in the testing. If you find any anormal behavior with the 2-instance execution, please send us a note and we will look into fixing it.

Running Multicore concurrently with 2-instances:

You can run multicore automatic search features (for example, DSEARCH, GSEARCH, ZSEARCH...) concurrently with the two instances. However, we will recommend that the total threads you request via the CORE command will not exceed the hyper-threads provided by your computer. For example, if your PC runs an 8 core Intel CPU, the total number of hyper-threads usually is 16, twice of the number of the physical cores. Even though you can enter CORE 32 for each instance for a total of 64 threads for the two instances, however, you don't really gain much in terms of speed because SYNOPSYS™ will fold the excessive threads into the available hyper-threads (16 in this example) during execution.
Also, when SYNOPSYS™ is running multicore operation for automatic search process, each thread will create several auxiliary files for data exchange purpose. When you request a large number of threads, the number of auxiliary files will also multiply and may overwhelm the Windows file management system and causes instability in the software. Therefore, for this example, it will be more optimal to have CORE 8 (or at most CORE 16) for each instance.

Lens Library

When you first launch SYNOPSYS™, you will notice the print-out of the contents of the Lens Library in the Command Window.

The Lens Library in SYNOPSYS™ can store up to ten lens descriptions and it provides a convenient place for the users to access files that they may want to use actively during the session. The lenses in the library are actually just lens files saved in the same format as any other RLE file, given the special names LENSLIB01.RLE up to LENSLIB10.RLE.

```
CONTENTS OF THE LENS LIBRARY
_____
  LOCATION   LENS ID                               LOG   MERIT FUNCTION
_____
     1       ID NEW LENS                             1    0.139819E+02
     2       ID DSEARCH SAMPLE                      21    0.977408E-02
     3       ID                                     43    0.525087E-01
     4       ID RELAY FLAT                         141    0.000000E+00
     5       ID TEST DSEARCH EYEPIECE                7    0.207512E-03
     6       ID TRIPLET START                     5721    0.000000E+00
     7       ID SINGLE CORE DS5                    380    0.341022E+02
     8       ID IATTEL EYEPIECE                  28273    0.000000E+00
     9       ID START FROM FLAT                  28352    0.000000E+00
    10       ID TRIPLET START                      11    0.000000E+00
```

We always provides a default set of lenses for the library (as shown in the screenshot above) in the SYNOPSYS™ installer. In the 2-instance implementation, SYNOPSYS™ will create a default set for each instance and rename them as LENSLIBxx_1.RLE and LENSLIBxx_2.RLE when it cannot find those files in the selected working directory. If you select an existing working directory that already have your own set of library files (LENSLIBxx.RLE), you can easily rename those files as LENSLIBxx_1.RLE or LENSLIBxx_2.RLE to overwrite the default files and recover your own lens library content. See User Manual **3.7.1 The Lens Library** to learn more about how to assign files to the library.

Some other useful information regarding the lens library:
*   By default, library location 10 is for automatic storage of the lens currently being designed unless you disable this feature by turning off the switch 42 (with the command OFF 42).
*   For automatic search features such as DSEARCH, SYNOPSYS™ will load the best candidate to a specific library location declared in the `DSEARCH LLIB` command. It's recommended not to use library #10 for the reason stated in the last bullet point.
*   The locations (1-9) are open for you to store and get lenses. Nonetheless, you can always retrieve and save the lens data files directly without utilizing this Lens Library construct.   Therefore, if you haven't been in the habit of using the library to access your lens files, you are totally fine and no need to worry about the default lens series we discuss here.

Recent File list in the File Menu:

In the 2-instance implementation, the 'Recent File' list will not keep the file list for each instance but only keep the memory of the recent files of the instance that is closed the last.

For example, at the end of the 2-instance session, you close down instance 1 first and then instance 2. When you launch SYNOPSYS™ the next time, both instances will be showing the 'Recent File' list pertaining to instance 2 that was run last time.