018/016 Assura LVS/LPE Deck Usage

PDKD/TSMC

Contents

- Variable and Switch Setting
- Assura LVS/LPE Flow
- Assura LVS/LPE GUI Flow

Switch and Variable Setting

Assura Switches(I)

- ?set (“ZERO_NRDS”)
  - Turn on this switch to force NRS=NRD=0.
- ?set (“extract_dnwdio”)
  - Turn on this switch to extract PW/DNW and DNW/PSUB diodes.
- ?set (“NW_RING”)
  - Turn on this switch to enable NW ring to separate the node from BULK.
- ?set (“spice_extraction”)
  - Turn on this switch to omit savePropery about model name for spice extraction.
- ?set (“Skip_Soft_Connect_Checks”)
  - Turn on this switch to skip soft-connect check.
- ?set (“CAP_1P5”) / ?set (“CAP_2P0”)
  - Select which capacitance will be extracted. Default is 1.0fF MIM capacitor.
- ?set (“CDL_input”)
  - Switch for running GDS mode.

Assura Variables

- **scale**
  - For 0.18 process, scale = 1.0 ; for 0.16 process, scale = 0.9. Scale factor can be found from spice model card.
  - Scale variable relates to the scale factor in shrink process. Please do not change the default value.

Assura LVS/LPE Flow

Assura LVS Flow

- **Run LVS :**
  - Include “source.added” file in your source netlist for subcircuits.
    - .include source.added
  - Prepare a LVS.rsf file for Assura LVS run in batch mode.
    - avParameters(

```
?inputLayout ( "GDS2" “top_cell.gds" )      ; specify full path gds name
?cellName  “top_cell"                       ; specify top cell name
?rulesFile "./1p6m/extract.rul“             ; specify assura deck
?runName   “top_cell"                       ; specify run name
?workingDirectory "./rundir"                ; specify run directory
)                                           ; end of avParameters
load( "./1p6m/compare.rul" )                ;  load compare.rul
avLVS()
```

  - Run Assura
    - **% assura LVS.rsf**
    - Files top_cell.cls, top_cell.err and top_cell.csm are LVS result and path check report.

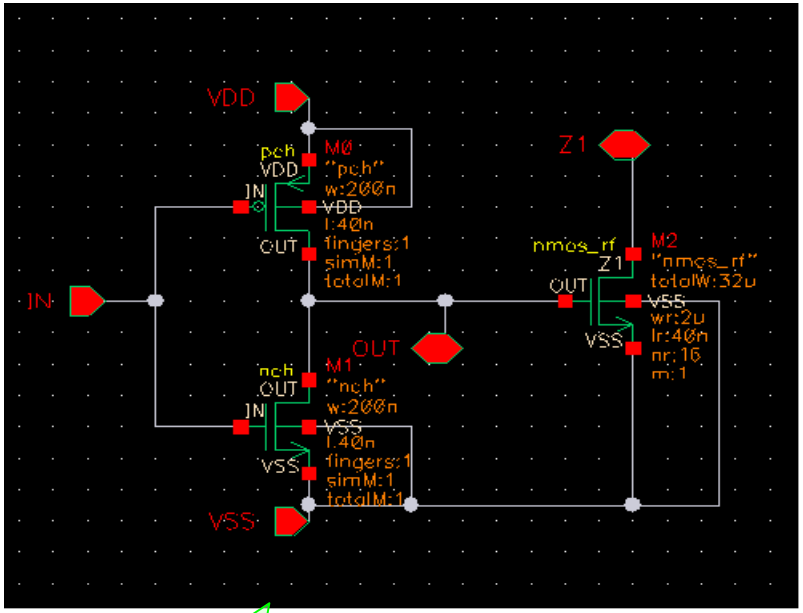
Assura LPE Flow

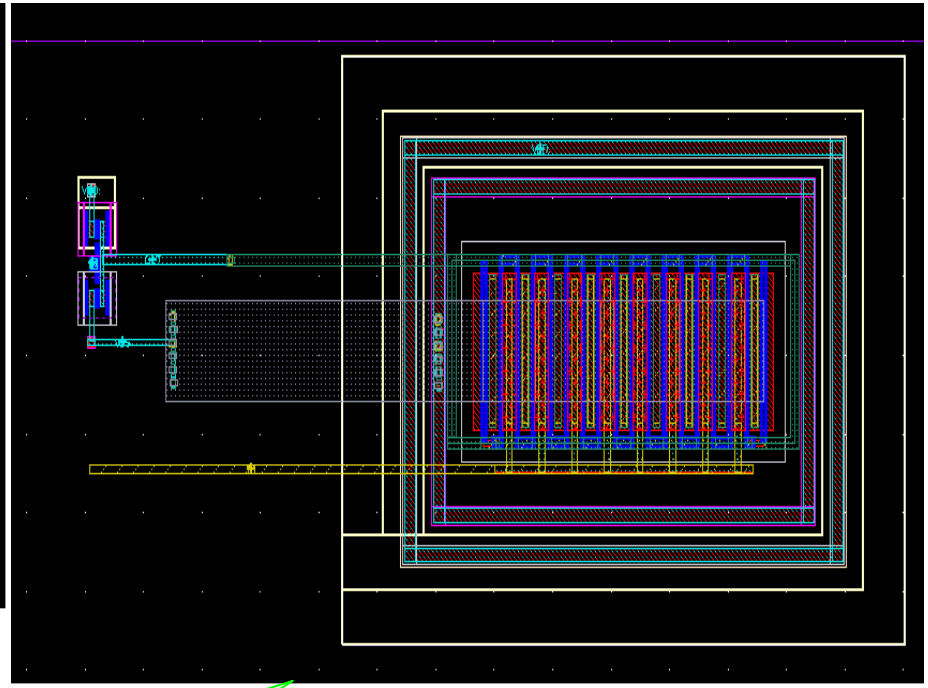
- **Run LPE:**
  - Prepare a rcx.rsf file For Assura LPE Flow in batch mode.
    - avParameters(
      ?workingDirectory "./rundir" ; specify run directory
      ?runName "<run_name>" ; specify run name
      ?inputLayout ("GDS2" "<gds_name>") ; specify gds name
      ?cellName "<cell_name>" ; specify top cell name
      ?viewName "layout"
)
      rcxParameters(
      ?rcxSetupDir "."
      ?outputFormat "spice"
      ?output "<output_name>" ; specify output name
      ?runName "<run_name>" ; specify run name
      .
      . ; customize RC extraction setting
)
      avRCX()
  - Run LPE
    - Download (and un-tar) the LPE tech files.
    - Create lvsfile under LPE techdir.
    - For Assura LVS/LPE flow, run Assura LVS and copy the runname.xcn file to the LPE techdir and call it lvsfile.
    - **% capgen.cmd**
    - **% assura rcx.rsf**

Assura LVS/LPE GUI Flow

Data Preparation

- The library includes schematic view and layout view.
- There are two logic mos devices and one rf device.



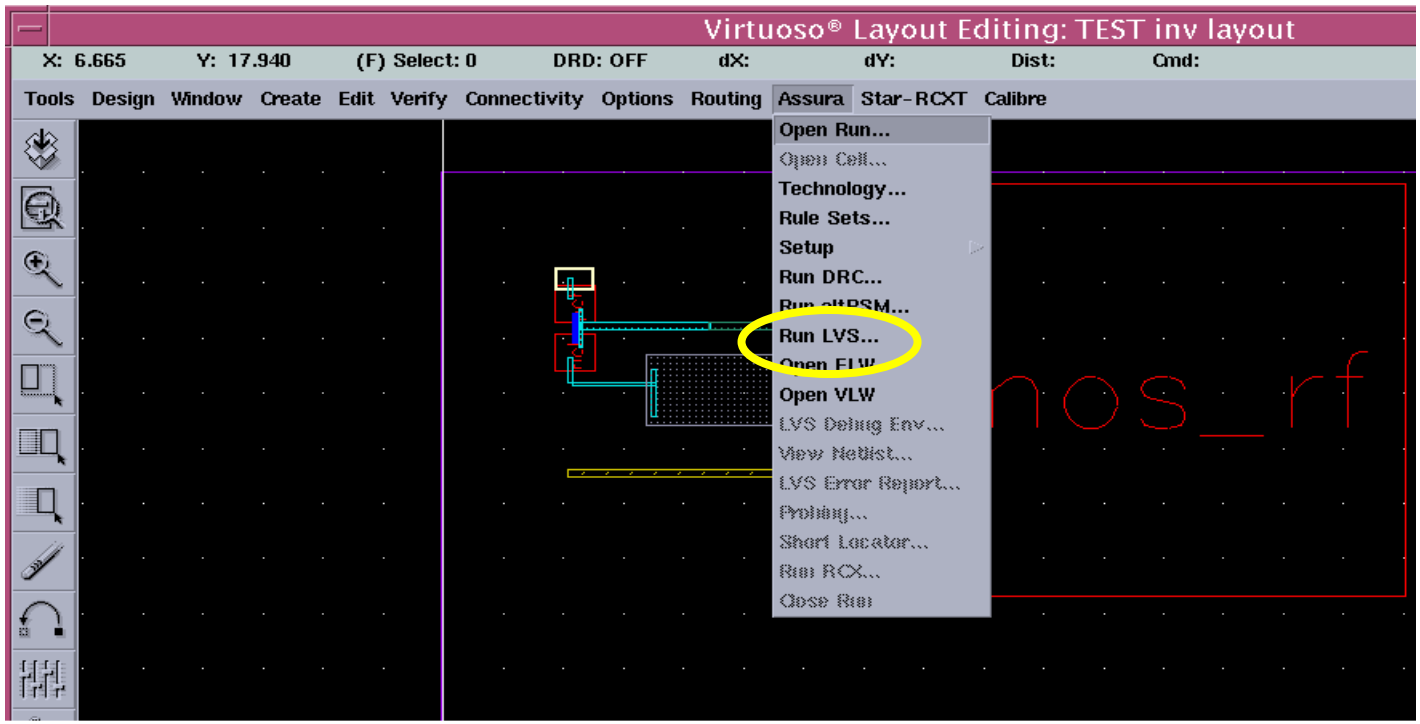


Schematic view

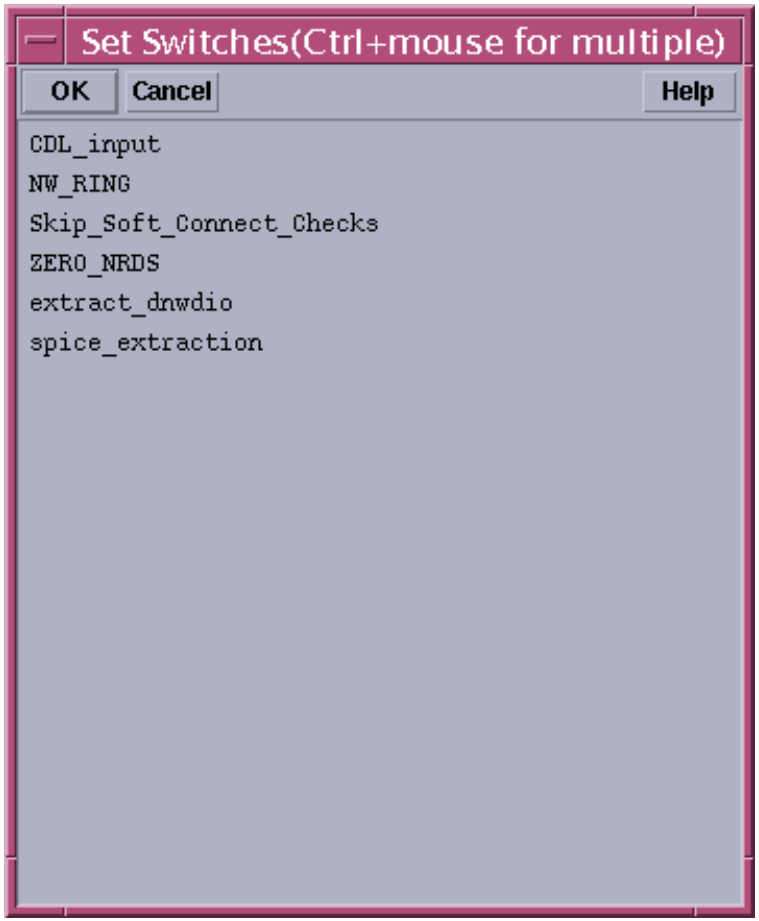
Layout view

Assura LVS GUI Flow(I)

- Trigger the “Run LVS” in the Assura pull down manual.

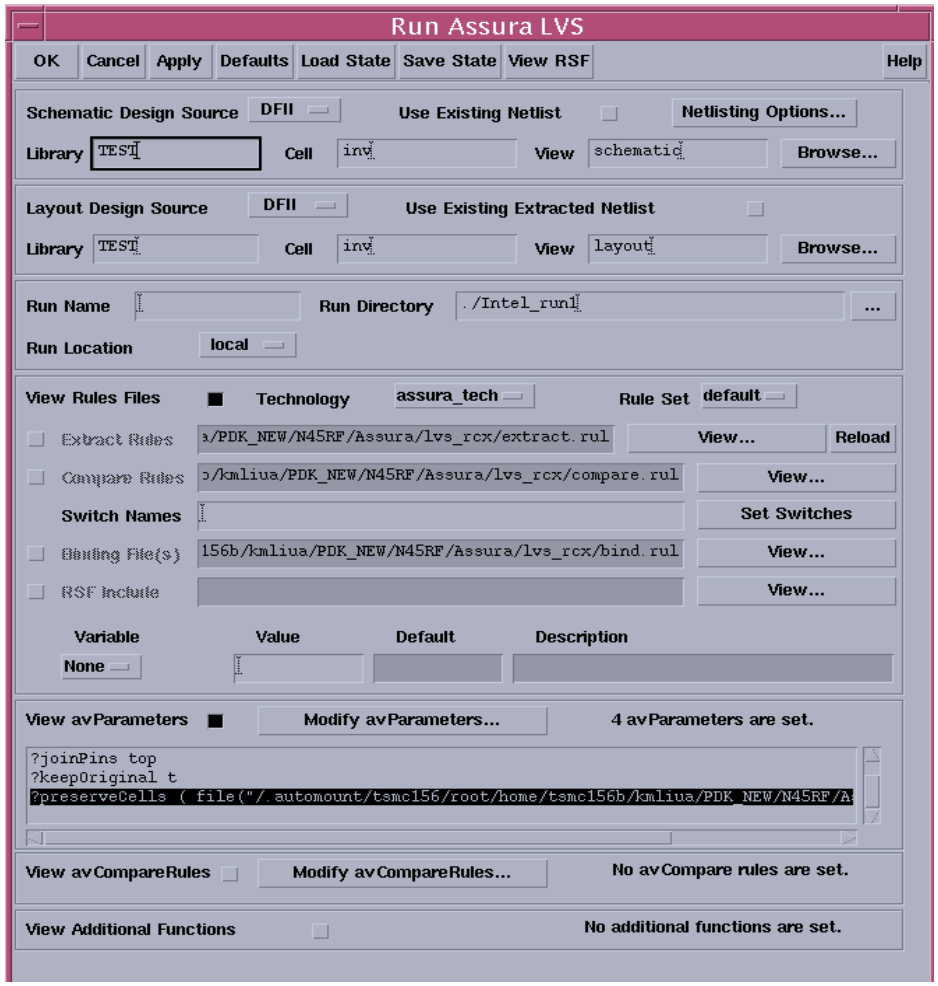


Assura LVS GUI Flow(II)



- There is a pop-up manual when the “set Switches” is triggered.
- Switch description
  - NW_RING: The NWELL ring could isolate the psub.
  - Skip_Soft_Connect_Checks: It will not do the soft-connect check.
  - ZERO_NRDS: The NRS/NRD will set to zero which it will take care by the RC extraction.
  - extract_dnwdio: Extract PW/DNW, DNW/PSUB diode.
  - spice_extraction: When do the spice extraction, this option has to turn on.
  - CDL_input: Switch for running GDS mode.

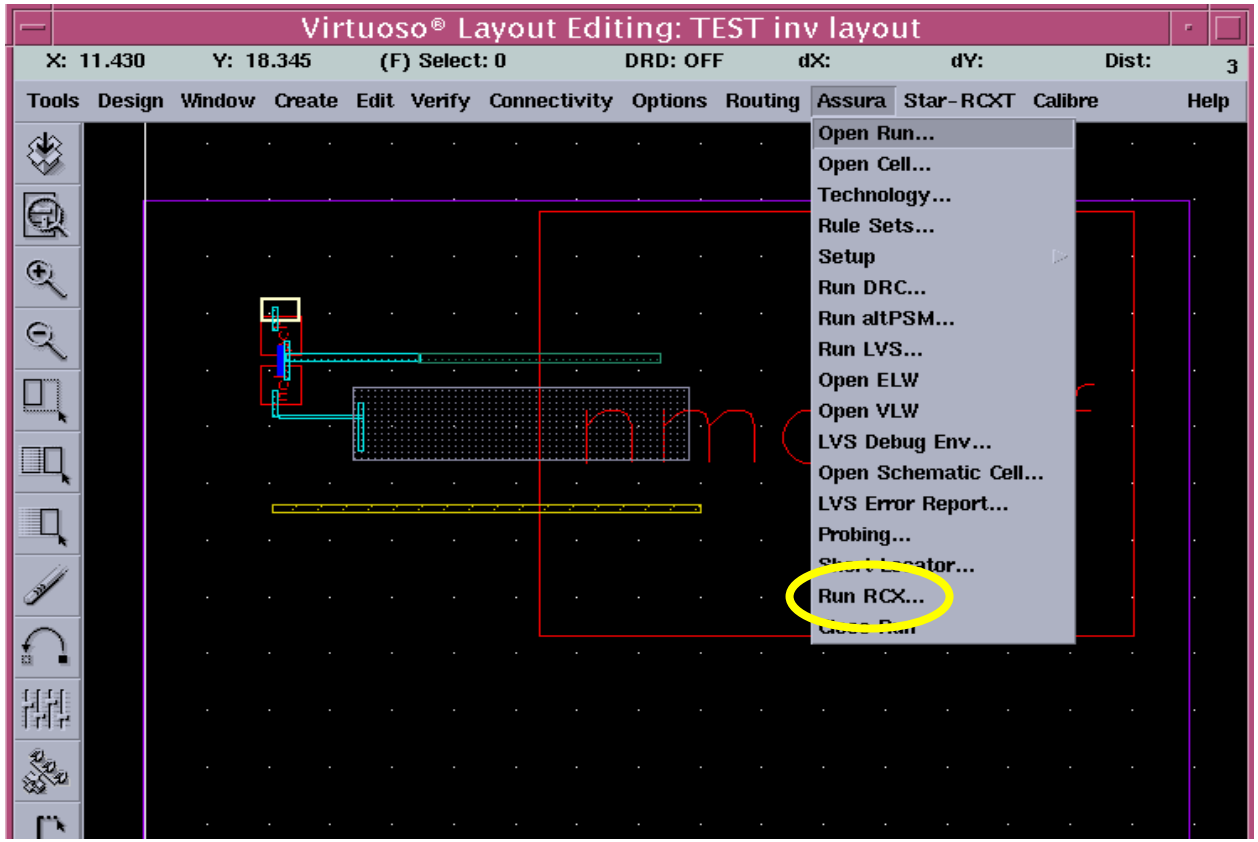
Assura LVS GUI Flow(III)



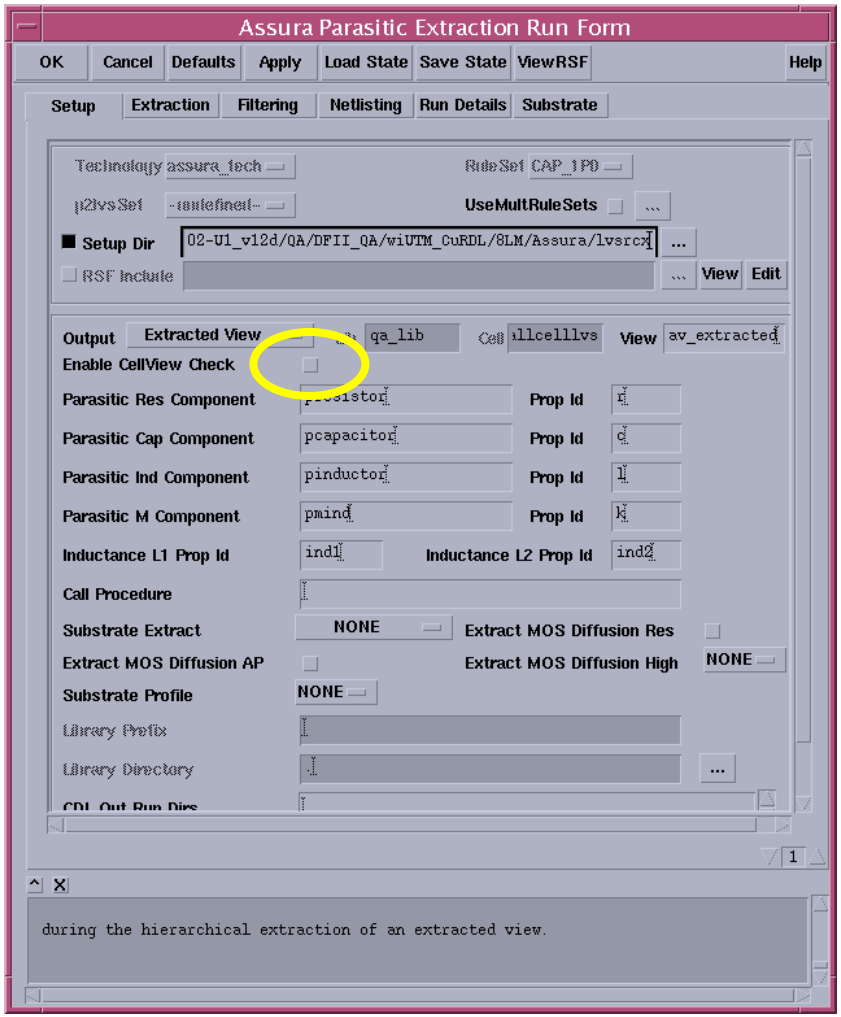
- Turn on “Modify avParameters”.
- The option “?joinPins” means to turn on virtual connect.
- Please check “run_name.cls”, “run_name.err”, and “run_name.csm” files after the LVS check.

Assura LPE GUI Flow(I)

- Trigger the “Run RCX” in the Assura pull down manual.

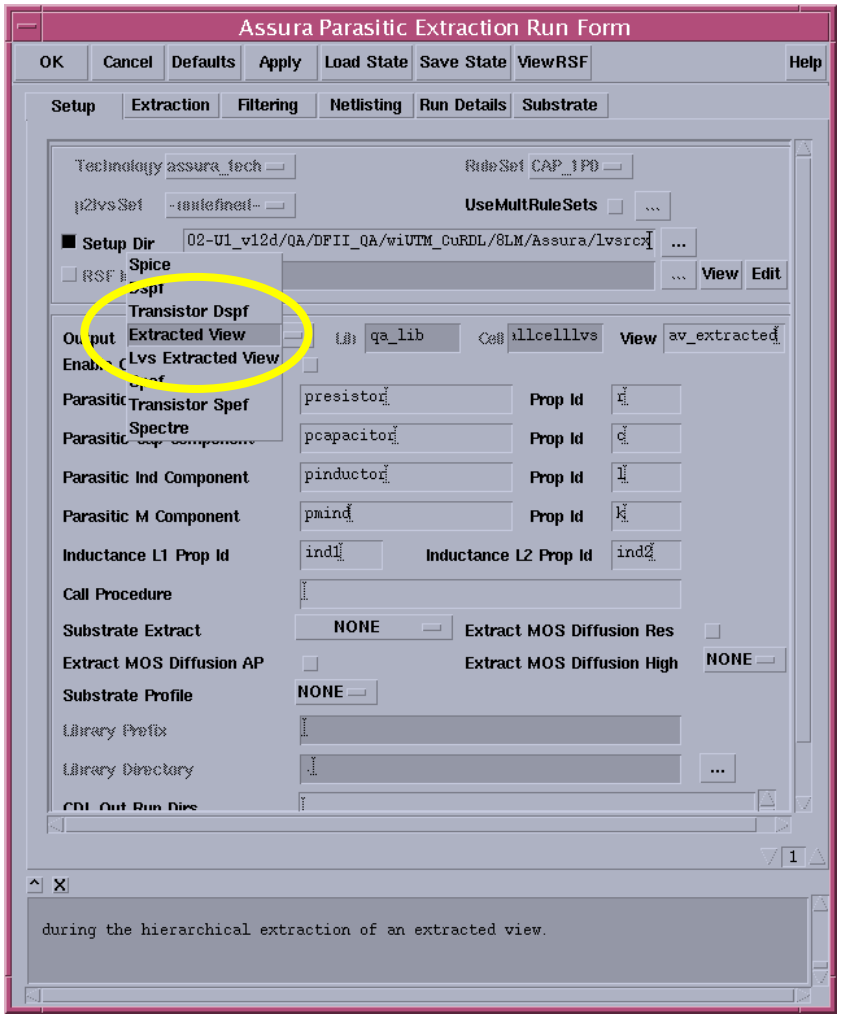


Assura LPE GUI Flow(II)



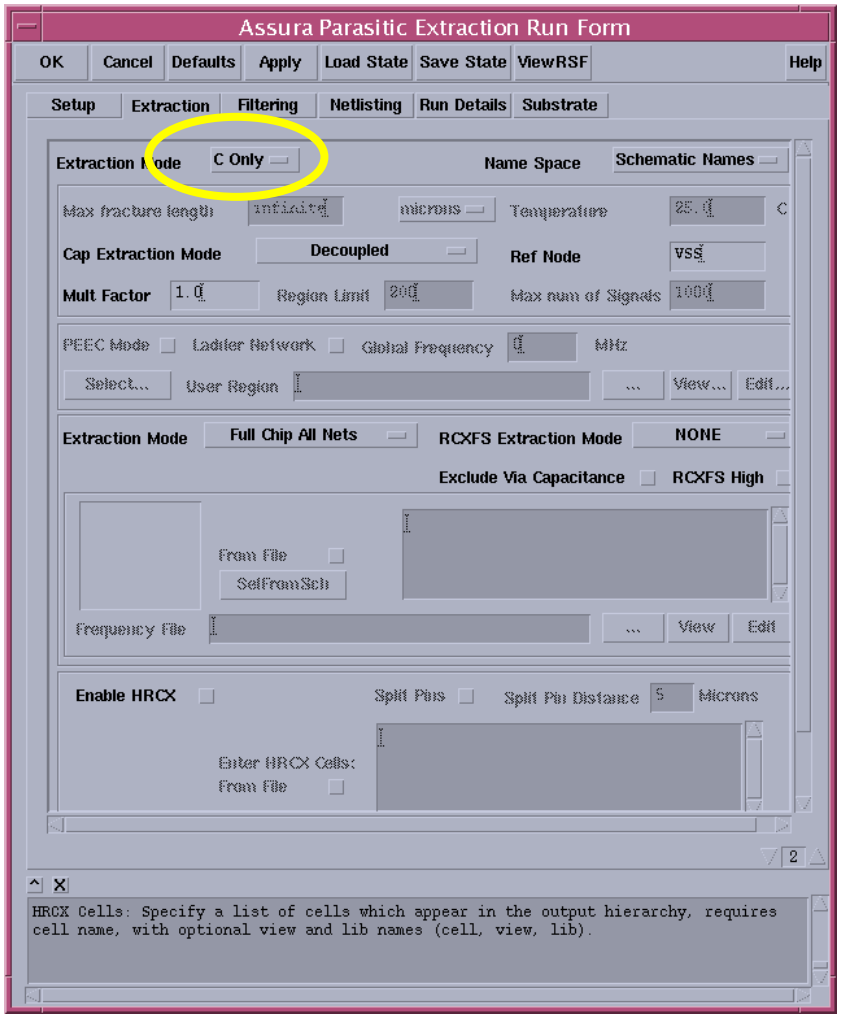
- Please turn off the “enable CellView Check” when do the LPE extraction in the “setup” folder.

Assura LPE GUI Flow(III)



- Select “Output” to “Extracted View” in “setup” folder of Assura Parasitic Extraction window to output extract result to “av_extracted” view.

Assura LPE GUI Flow(IV)



- **Please specify the extraction mode in the Extraction folder.**

Assura av_extract view

- RC av_extract view in the library.