

## DDLab pj 11

Several screenshots of the selected designs in various design stages

### Design 1 - dynamic node

#### 3\_place

The screenshot shows the OpenROAD GUI for Design 1 - dynamic node in the 3\_place stage. The main window displays a top-down view of the layout, which is a grid of blue squares representing the placement of components. The left sidebar shows the 'Layers' list with 10 layers (metal1 to metal10) and 9 vias (via1 to via9). The 'Timing Report' panel on the right shows 'Paths: 100' and 'Update' button. The 'Scripting' panel at the bottom shows the log of the design process, including the creation of 135 library cells, 693 pins, 11697 components, and 63347 component-terminals. The status bar at the bottom right shows coordinates -99.8265, 315.9460.

OpenROAD

File View Tools Windows Options Help

Fit Find Inspect Timing

Display Control

Layers

- metal1
- via1
- metal2
- via2
- metal3
- via3
- metal4
- via4
- metal5
- via5
- metal6
- via6
- metal7
- via7
- metal8
- via8
- metal9
- via9
- metal10

Nets

Scripting

```
[INFO ODB-0225] Created 135 library cells
[INFO ODB-0226] Finished LEF file: ./platforms/nangate45/lef/NangateOpenCellLibrary.macro.mod.lef
[INFO ODB-0127] Reading DEF file: ./results/nangate45/dynamic_node/base/3_place.def
[INFO ODB-0128] Design: dynamic_node_top_wrap
[INFO ODB-0130] Created 693 pins.
[INFO ODB-0131] Created 11697 components and 63347 component-terminals.
[INFO ODB-0132] Created 2 special nets and 23394 connections.
[INFO ODB-0133] Created 13428 nets and 39953 connections.
[INFO ODB-0134] Finished DEF file: ./results/nangate45/dynamic_node/base/3_place.def
Estimating parasitics
```

Idle TCL commands

Timing Report

Paths: 100 Update

Setup Hold

Capture Cloc Required Arrival Slack Start

Path Details

Find Pin or Net Path: 0 Expand clock

Data Capture

Inspector Timing Report

-99.8265, 315.9460

#### 5\_route

The screenshot shows the OpenROAD GUI for Design 1 - dynamic node in the 5\_route stage. The main window displays a top-down view of the layout, which is a complex grid of colored lines representing the routing of components. The left sidebar shows the 'Layers' list with 10 layers (metal1 to metal10) and 9 vias (via1 to via9). The 'Inspector' panel on the right shows the details of the selected net, 'net53', which is a routed signal with 5 terms. The 'Scripting' panel at the bottom shows the log of the design process, including the creation of 135 library cells, 693 pins, 57807 components, and 115614 connections. The status bar at the bottom right shows coordinates 340.3370, 176.7235.

OpenROAD

File View Tools Windows Options Help

Fit Find Inspect Timing

Display Control

Layers

- metal1
- via1
- metal2
- via2
- metal3
- via3
- metal4
- via4
- metal5
- via5
- metal6
- via6
- metal7
- via7
- metal8
- via8
- metal9
- via9
- metal10

Nets

Scripting

```
[INFO ODB-0225] Created 135 library cells
[INFO ODB-0226] Finished LEF file: ./platforms/nangate45/lef/NangateOpenCellLibrary.macro.mod.lef
[INFO ODB-0127] Reading DEF file: ./results/nangate45/dynamic_node/base/5_route.def
[INFO ODB-0128] Design: dynamic_node_top_wrap
[INFO ODB-0130] Created 693 pins.
[INFO ODB-0131] Created 57807 components and 115614 connections.
[INFO ODB-0132] Created 2 special nets and 115614 connections.
[INFO ODB-0133] Created 13521 nets and 40139 connections.
[INFO ODB-0134] Finished DEF file: ./results/nangate45/dynamic_node/base/5_route.def
Estimating parasitics
```

Idle TCL commands

Inspector

Name Value

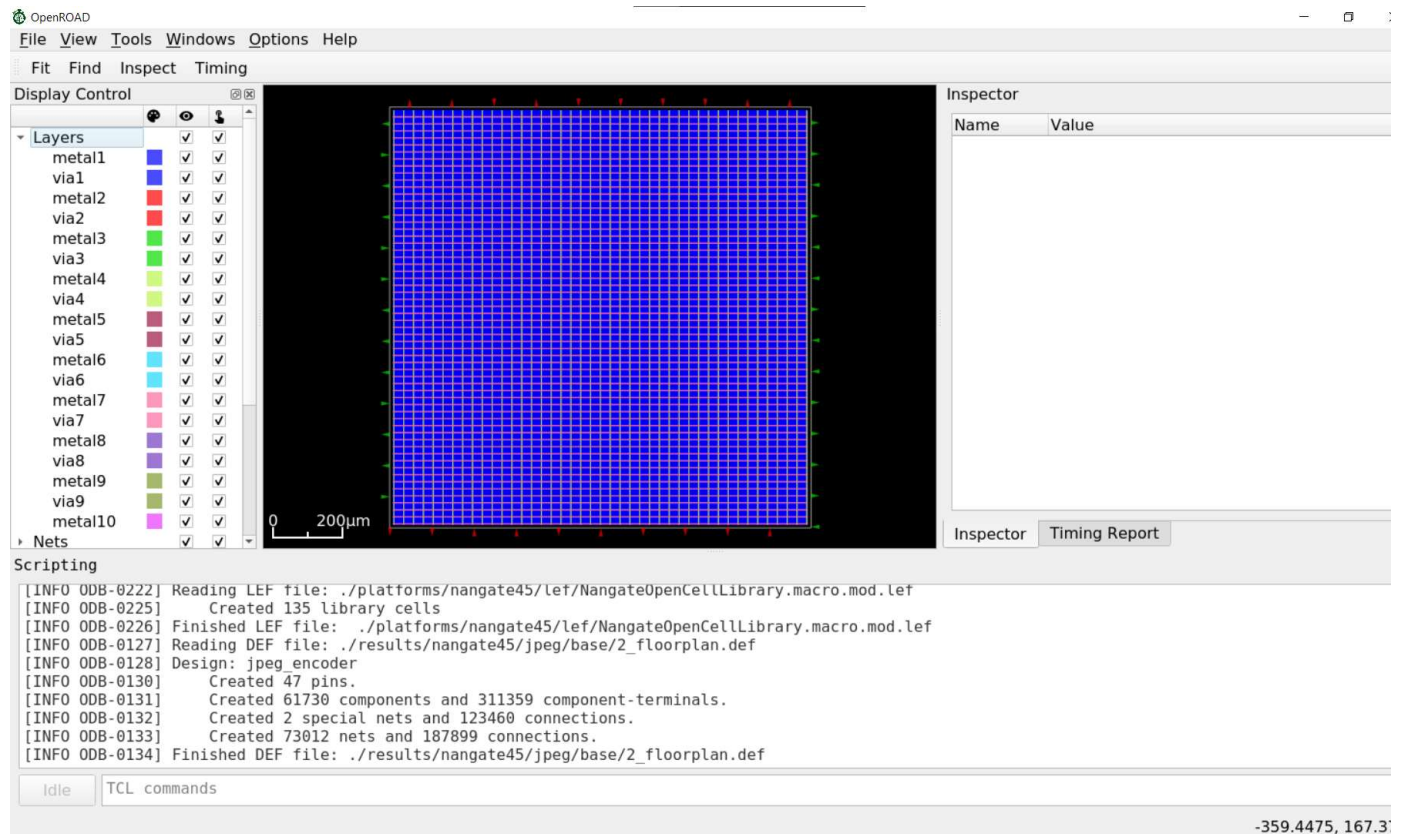
Type	Net
Name	net53
Signal t...	SIGNAL
Source t...	NONE
Wire type	ROUTED
Special	False
ITerms	5 items
1	_15648 /A
2	_17880 /A
3	_17952 /A
4	_18024 /A
5	input53/Z
BTerms	0 items
BBox	(338.9850,174.0200), (439.6000,182.7000)

Inspector Timing Report

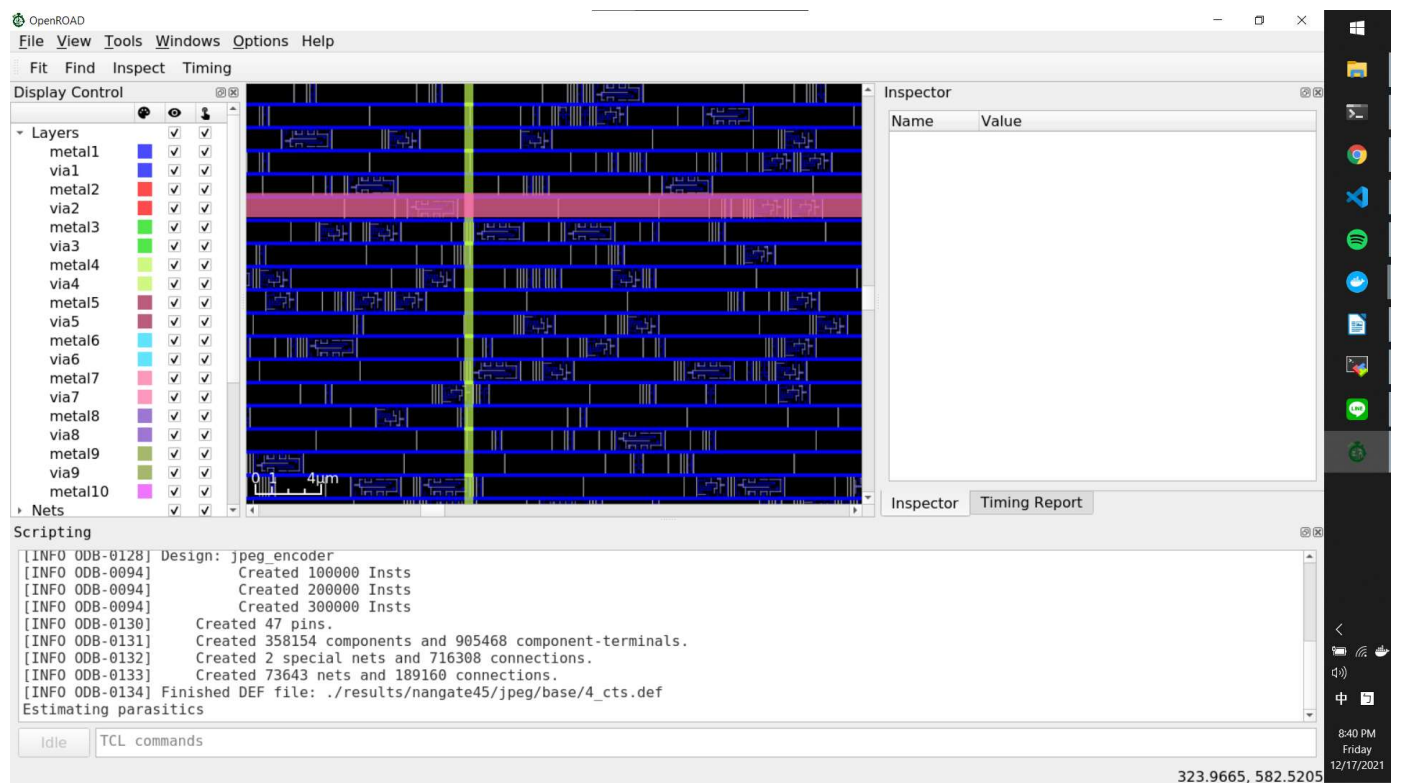
340.3370, 176.7235

## Design 2 - jpeg

### 2\_floorplan



### 4\_cts



Compare and discuss 2 Verilog files generated from consecutive steps.

在第二步 floorplan 中，會把一些原本接到 wire 的邏輯閘改接到 IO 腳位。

Compare and discuss 2 DEF files generated from consecutive steps.

步驟 5 route 會開始規劃訊號線及時脈線的 layout。

Overall discussion and comments about the EDA tool

我覺得使用起來很流暢，每個步驟都有對應的輸出可以用軟體檢視，非常清楚，對製程中各步驟的分工可以有更清楚的認識。