



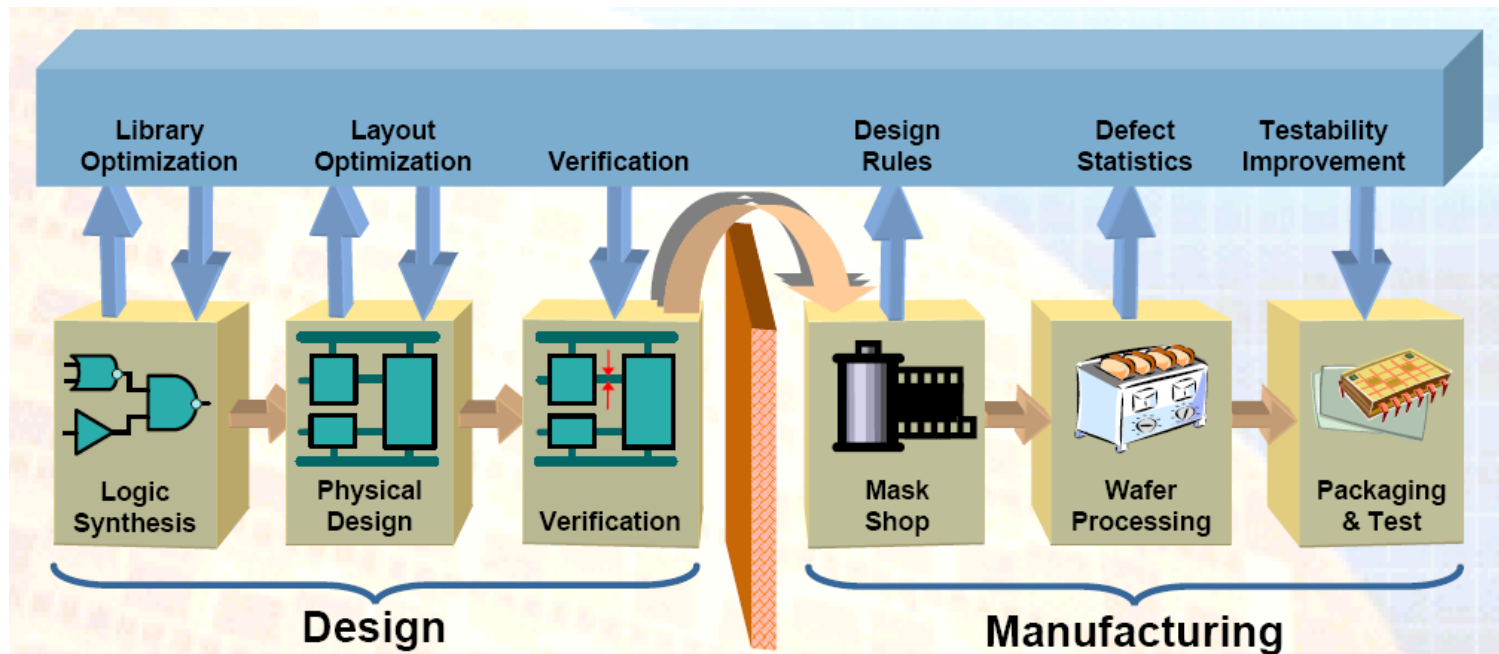
Workshop – Problem Statement

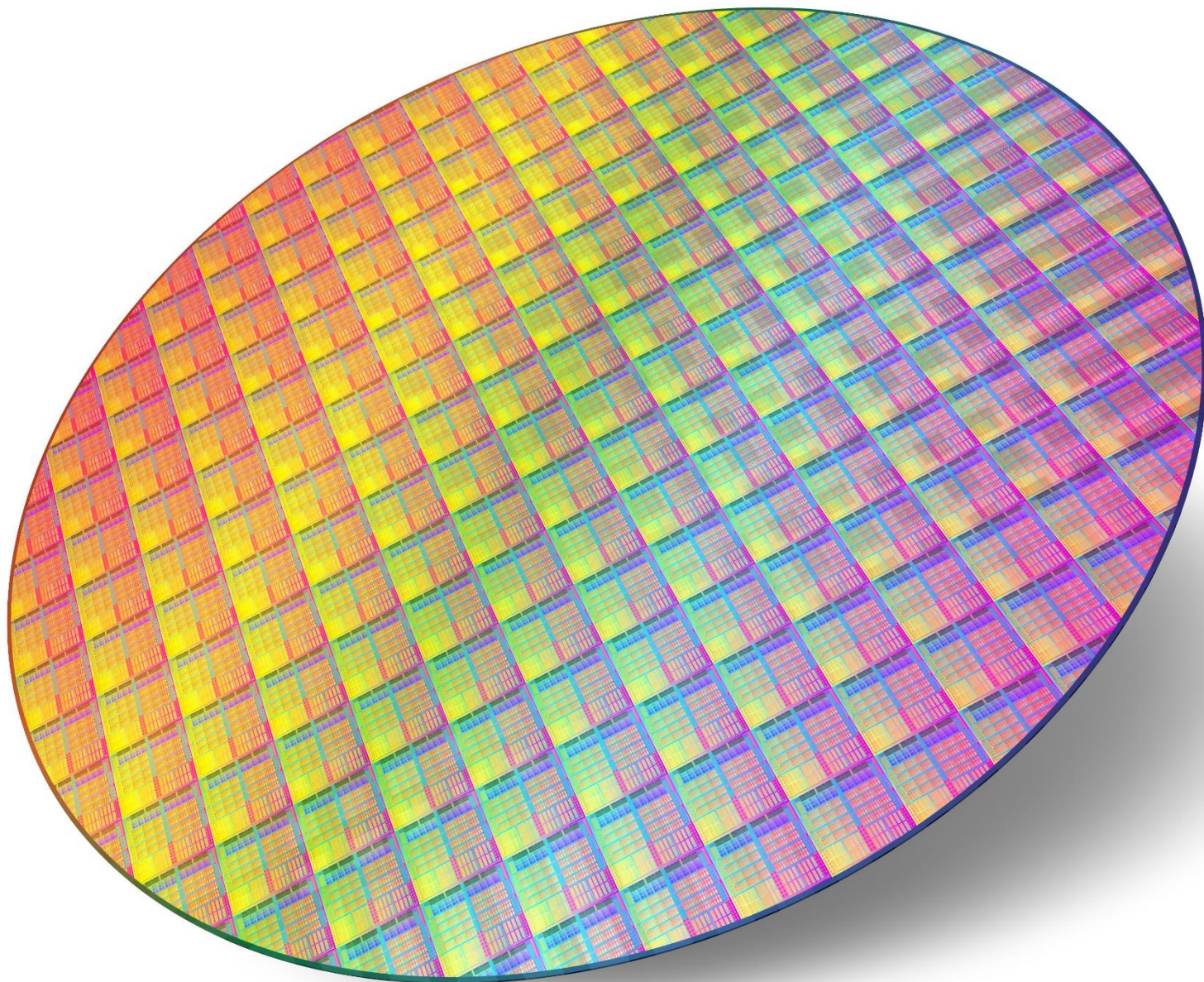
01/04/2017

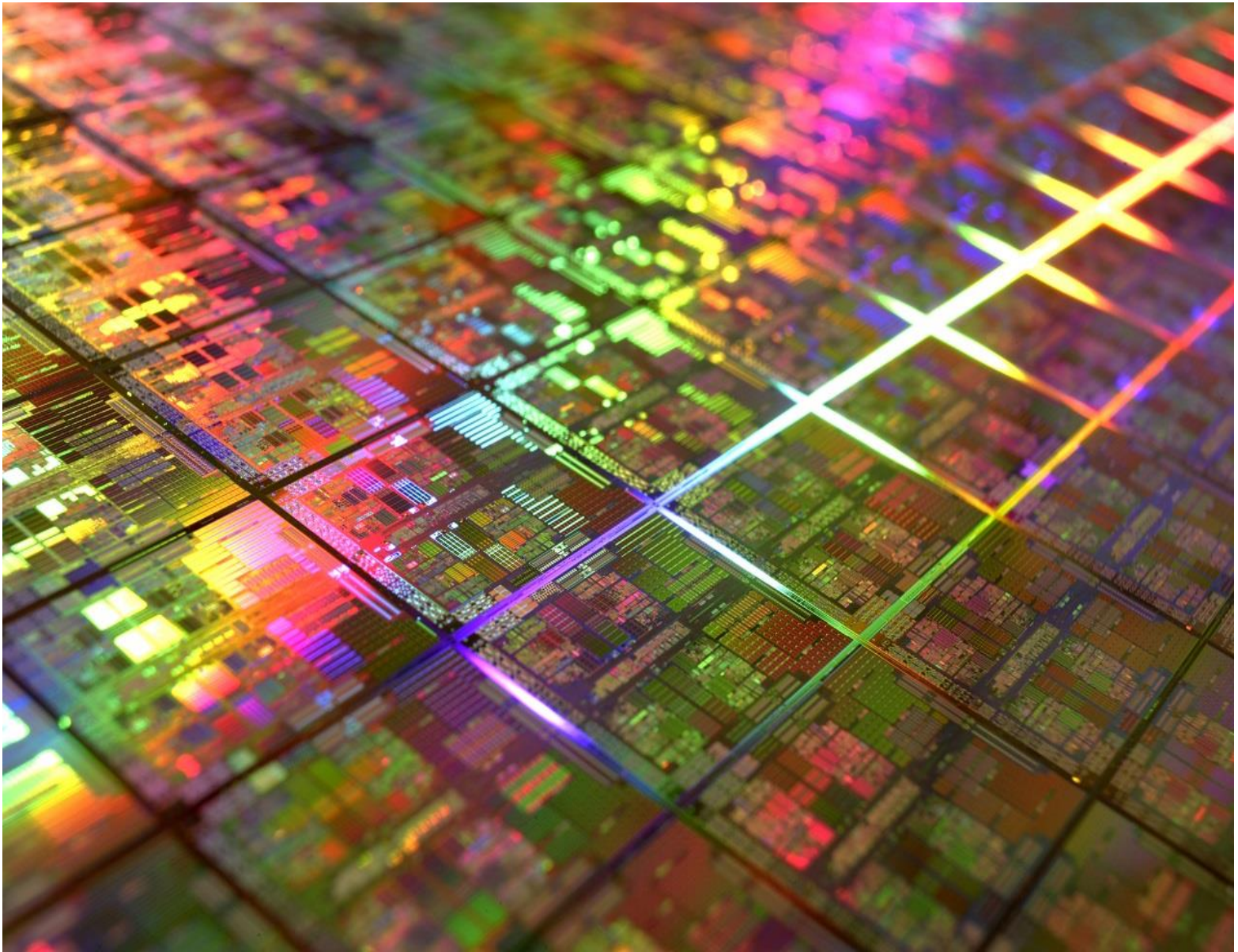




From Design to Finished Product

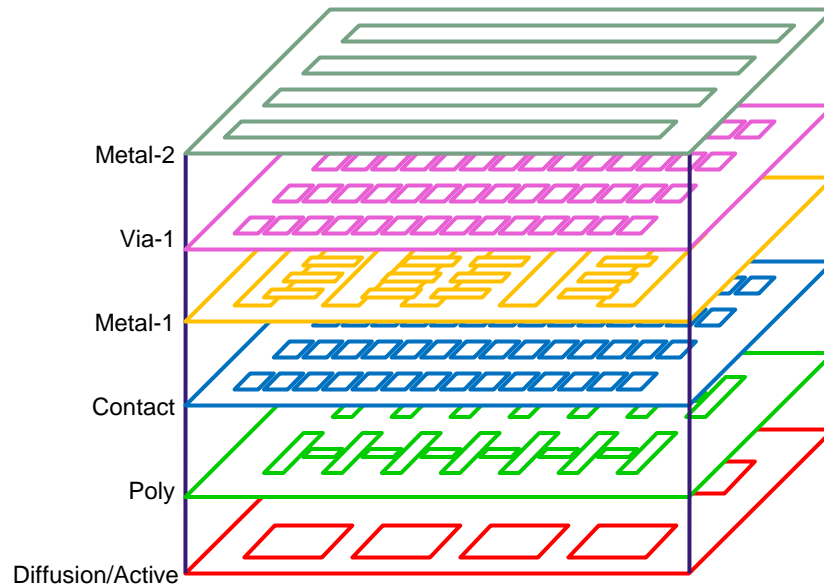




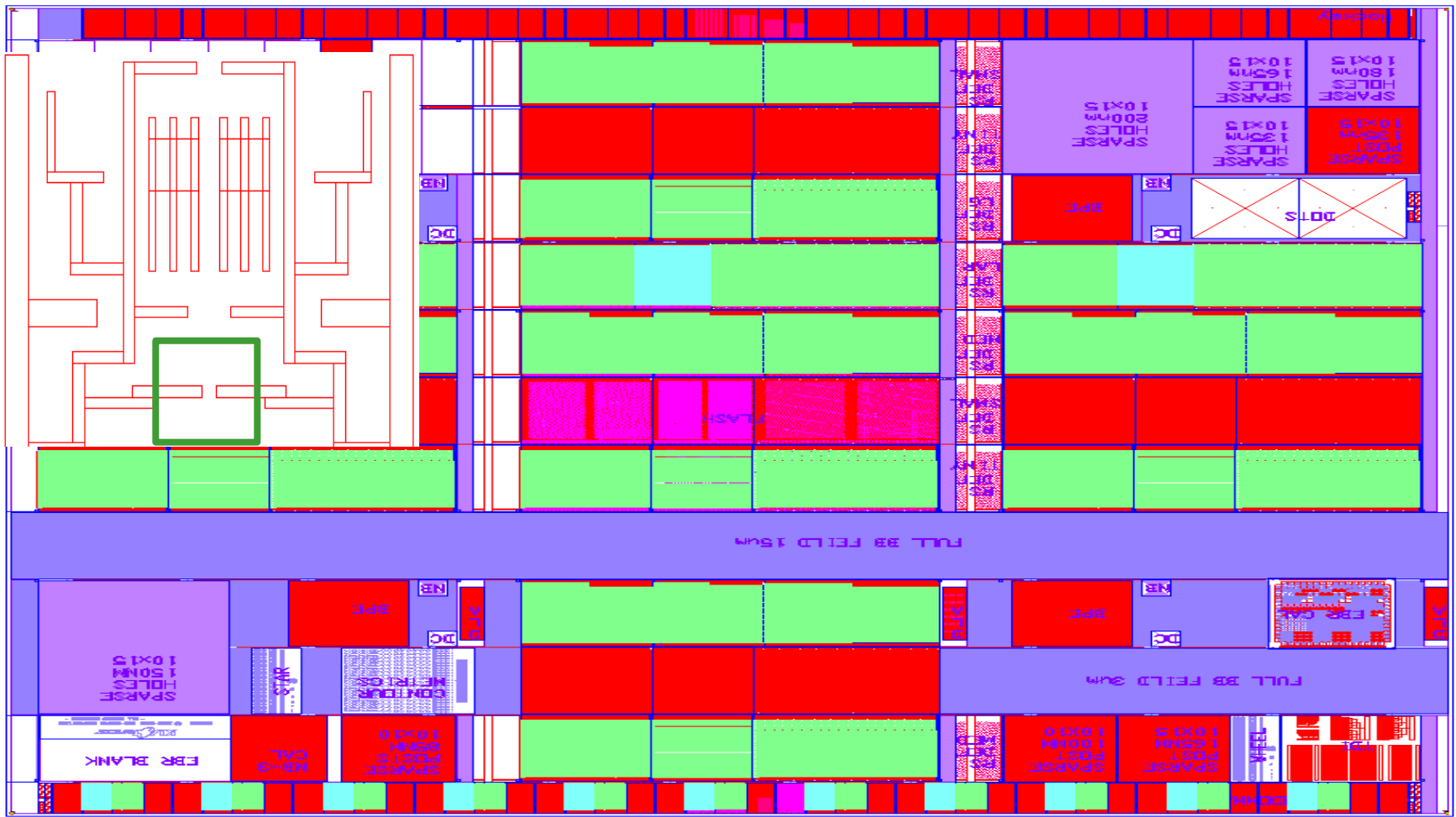


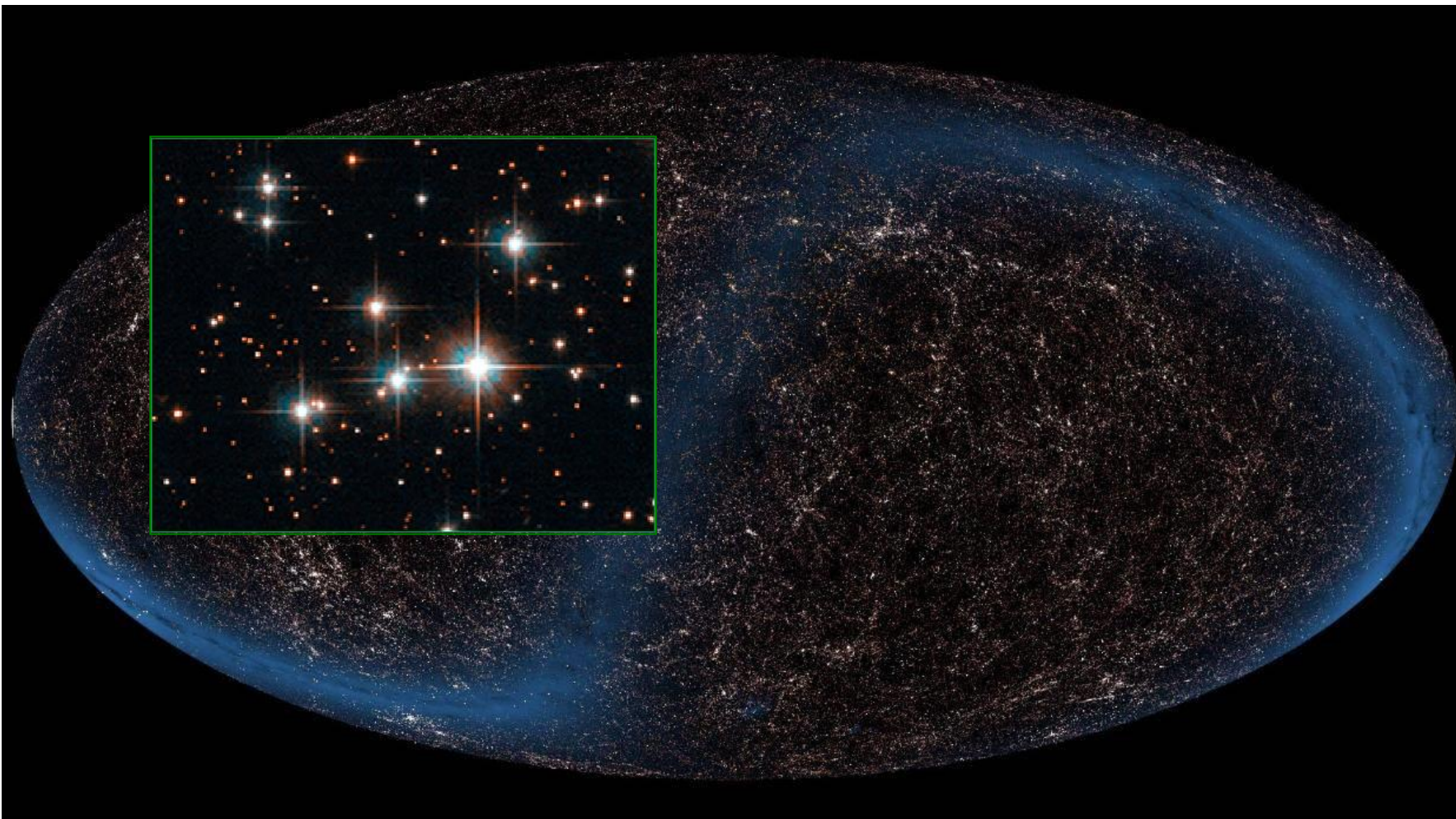
Chip Design

One mask or reticle per “process layer”



Weak Spot

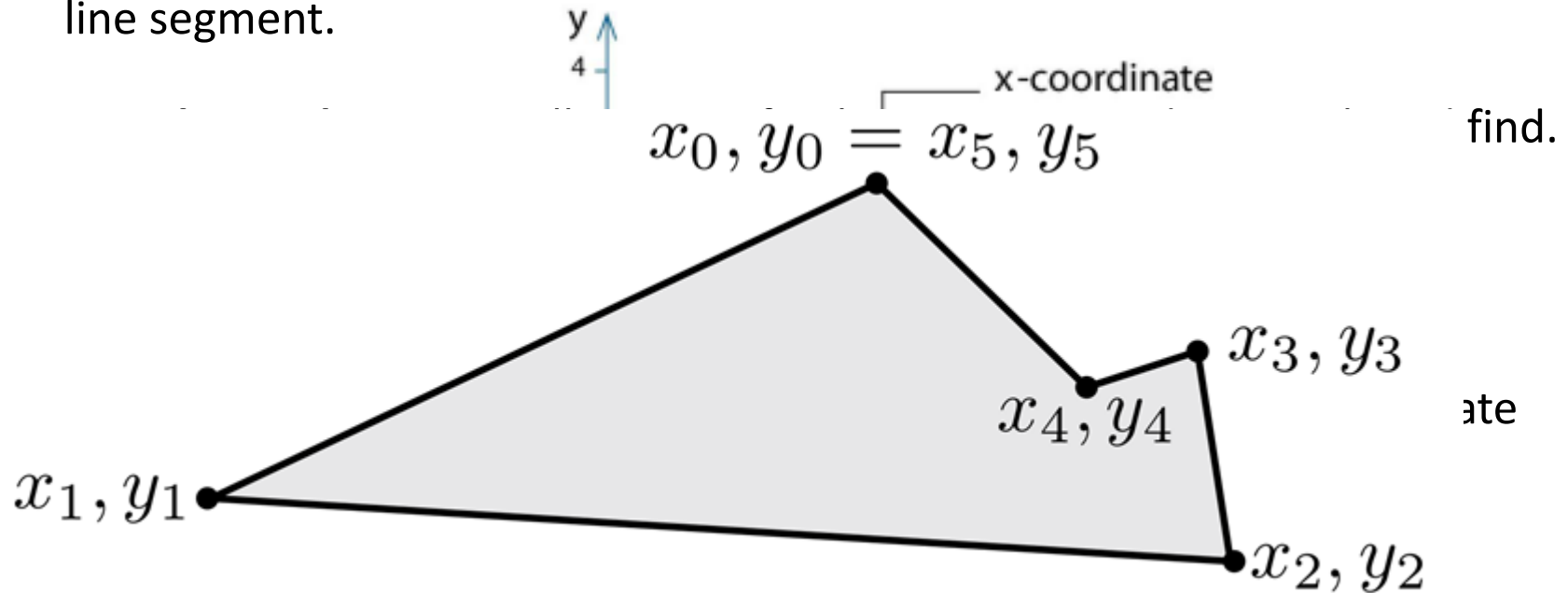




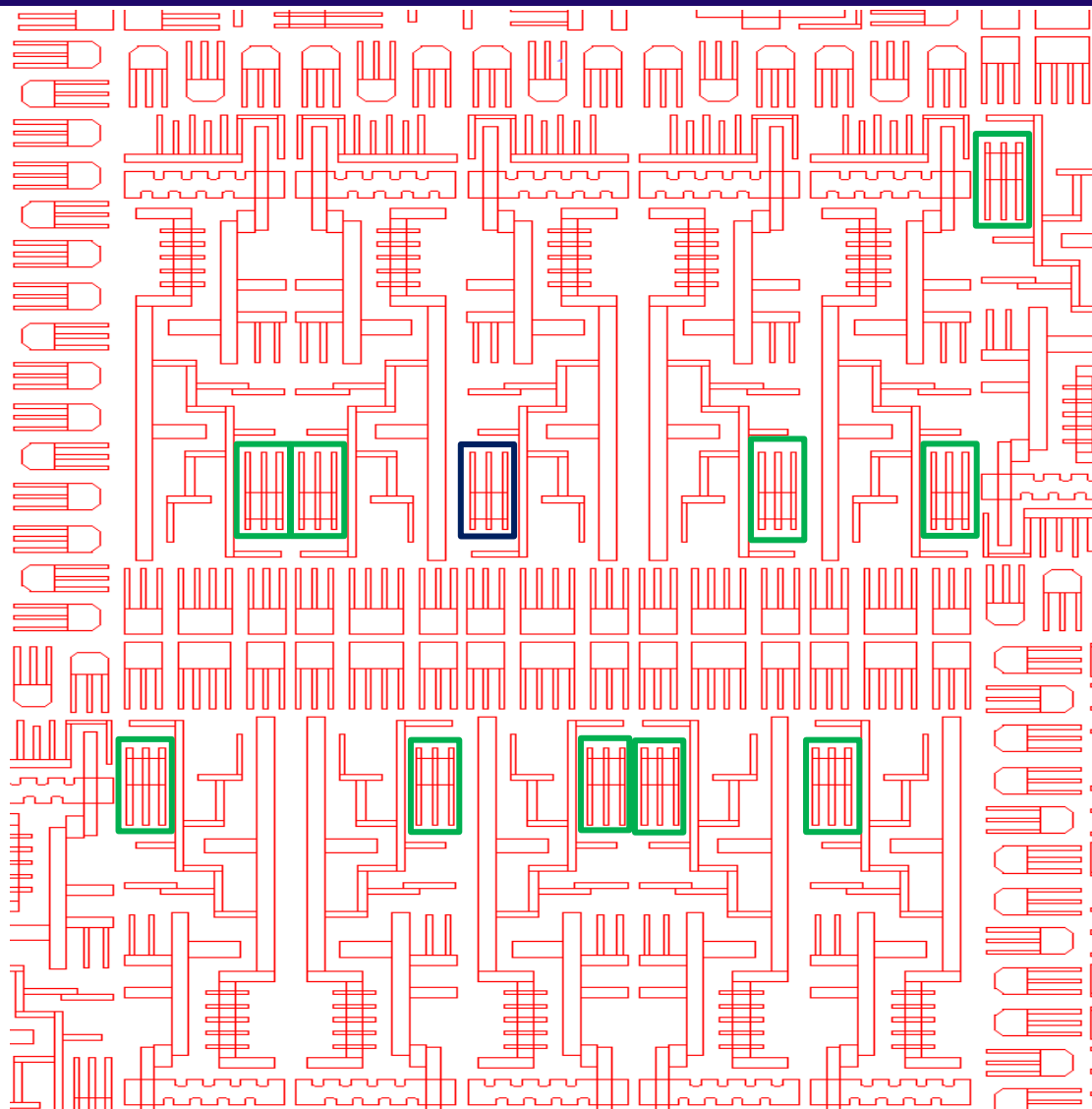
Pattern Of Interest

Terminologies

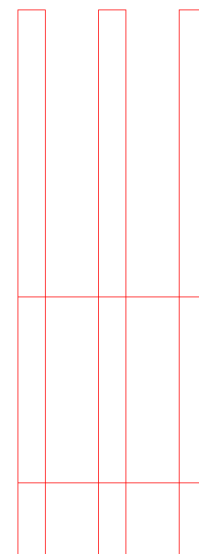
- **Point** – A point is a (x, y) location in a two dimensional plane.
- **Polygon** – A polygon is a series of vertices that are inter-connected through line segment.



Search Area

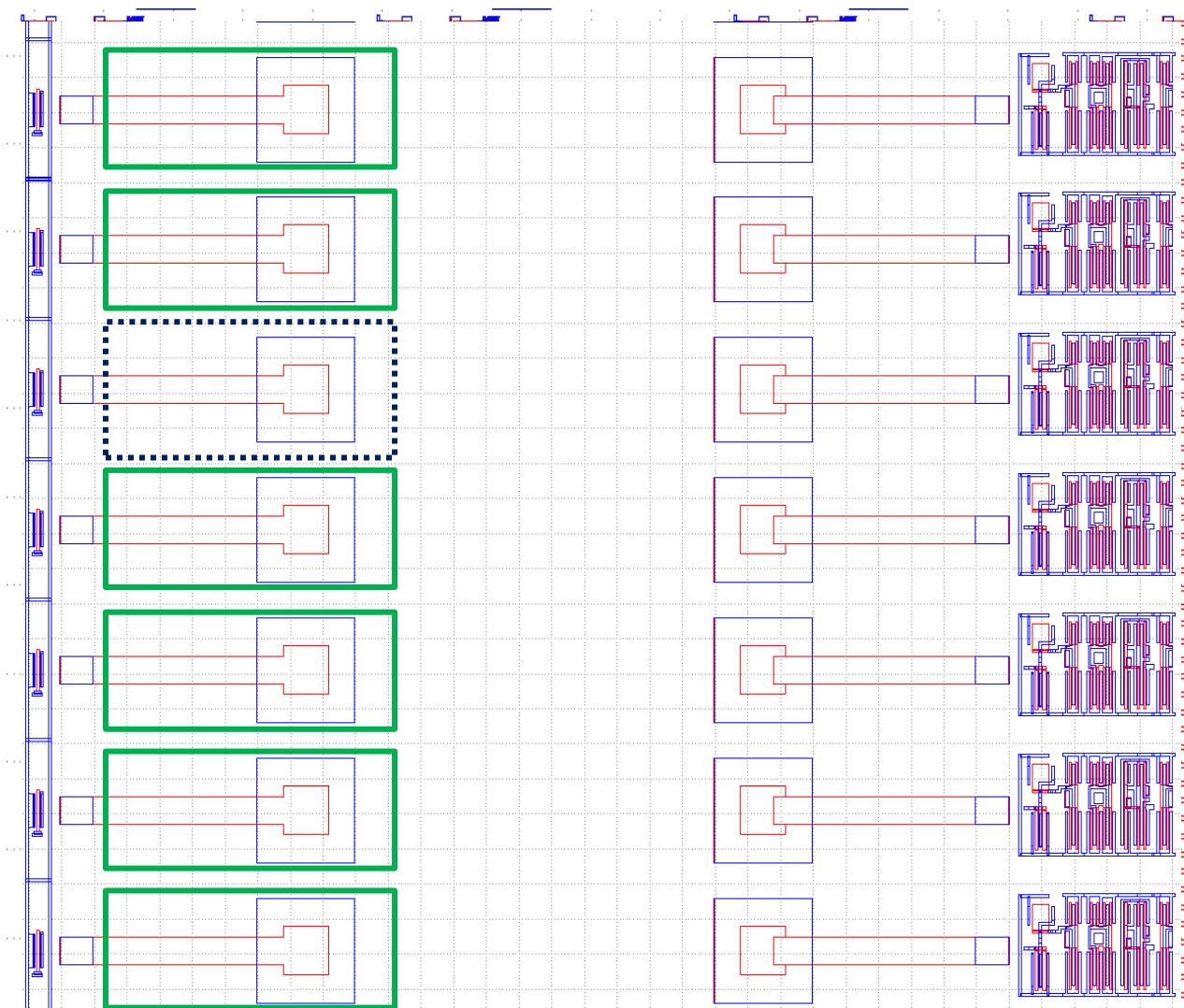


Template Polygons

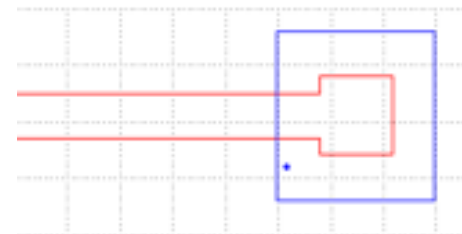


Matched Polygons

Search Area



Template Polygons



Matched Polygons

File Format

```
boundary
  layer 255
  datatype 0
  xy 5 0 0 22800000 0 22800000 22800000 0
22800000
0 0
endel
```

```
boundary
  layer 2
  datatype 0
  xy 15 525270 8663518 525400 8663518 525400 8664818
525660 8664818 525660 8663518 525790 8663518 525790 8664818
526050 8664818 526050 8663518 526180 8663518 526180 8665398
525980 8665598 525470 8665598 525270 8665398 525270 8663518
endel
boundary
  layer 2
  datatype 0
  xy 15 526630 8624728 526760 8624728 526760 8626028
527020 8626028 527020 8624728 527150 8624728 527150 8626028
527410 8626028 527410 8624728 527540 8624728 527540 8626608
```

One Polygon

Layer

Indices

Ignore datatype
field

32 bit signed
integers

Same format should be used for search, template polygon(s) and result files.

Requirements

Core Functionality

Process search area and
Find template polygon(s)

Performance

Find POI within 3.5 million
polygons in less than or equal
to 4 minutes

Nice to Have

Display polygons layer wise

Input and Output

Inputs

Search area (List of polygons)

Template polygons (To be searched)

Result template

Output

Design approach

Working solution

Result file (Similar to template shared)

Duration

Duration 8hrs of Daytime and a whole night !

Present Solution Approach	16:00, 01-Apr
Presentation & Review	13:30, 02-Apr
Solution Debrief	15:30, 02-Apr

Instructions

- **Open Book format, welcome to use internet resources**
- **Prize will be awarded based on the following**
 - **First day review of your design approach**
 - **Second day demo of the working solution & presentation**
 - **Solution completeness and performance**
 - **Original code contribution (vs. Library used)**
- **Participants are encouraged to work individually and refrain from helping other participants**
- **You are welcome to volunteer if you find the problem interesting and will be considered for prize**
- **Participants actively engaged and present through out two day workshop will be awarded certificates of participation**

Supported Formats

```
boundaryCRLF
layer 2CRLF
datatype 0CRLF
xy 13 548920 12289340 549830 12289340 549830 12291620 549700 12291620CRLF
549700 12290240 549440 12290240 549440 12291620 549310 12291620CRLF
549310 12290240 549050 12290240 549050 12291620 548920 12291620CRLF
548920 12289340CRLF
endelCRLF
```

```
boundary layer 2 datatype 0 xy 13 548920 12289340 549830 12289340 549830 12291620 549700 12291620 549700 12290240
549440 12290240 549440 12291620 549310 12291620 549310 12290240 549050 12290240 549050 12291620 548920 12291620
548920 12289340 endelCRLF
```

```
boundary layer 2 datatype 0 xy 13 548920 12289340 549830 12289340 549830
12291620 549700 12291620 549700 12290240 549440 12290240 549440 12291620 549310
12291620 549310 12290240 549050 12290240 549050 12291620 548920 12291620
548920 12289340 endelCRLF
```

Datasets

Search Area Input File	File Size
source1.txt	38 MB
100K_Source.txt	38 MB
1_8_Million_source.txt	696 MB
3_6_Million_source.txt	1.4 GB
3_8_Million_source.txt	3 GB

