ECE 423/523 Project Example

Student Name

1. **As a general rule, apply commonsense to clearly show what you have done.**
2. **Create your own material/drawings – there should be no copy/paste from this example found anywhere in your write up.**

1) Project Overview

LVS: Passed (if Failed, feel free to comment – just a sentence or two)
DRC: Passed (if Failed, feel free to comment – just a sentence or two)

Table 1: Specifications and Results

Name	Spec	Slow	Typical	Fast
Power Supply voltage	*VDD*	*2.25*	*2.5*	*2.75*
Output CM voltage	*VCM*	*1.0*		
Reference current	*Iref*	*25uA*		
Temperature [C]	*-*	*100*	*27*	*-40*
Loop Gain [dB]	>70	63.8*	76.2	76.1
Loop UGBW [MHz]	>80	109	177	225
Loop PM [Deg]	>60	62.8	92.6	97.5
CMFB PM [Deg]	>60			
CM Accuracy [mV]	<+/- 50		2.9	
Out Swing [$V_{pk\text{-}pk\text{-}diff}$]	>2		1.496*	
Power [mW]	<10		1.02	

This table is obviously not complete – yours should be complete with simulations results/plots to follow.

*** Highlight your failures in the table.**

2) Schematics

Very clearly show device sizes. Additional highlights (e.g. current in each branch) is always a good idea.

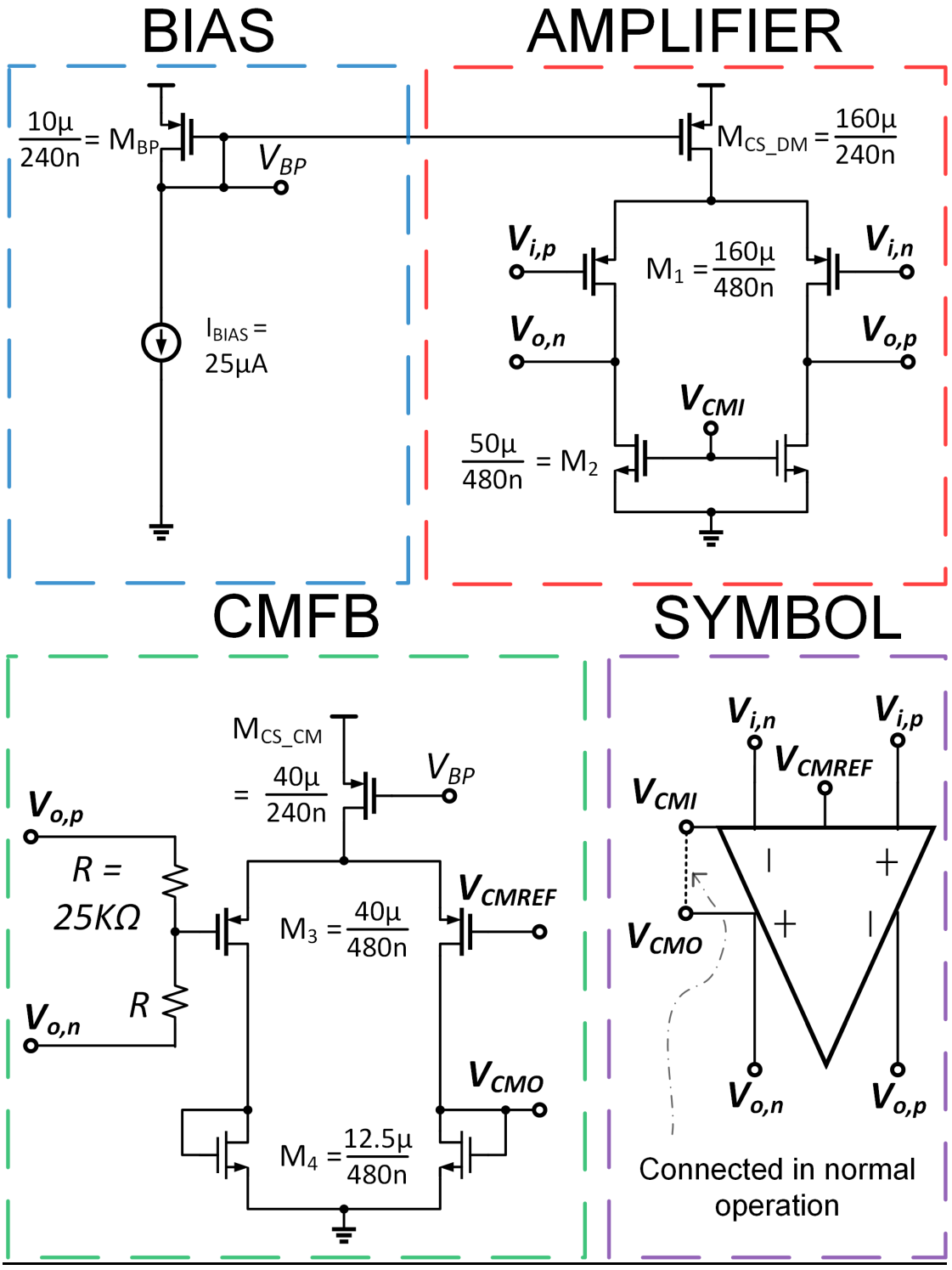

Figure 1: Example schematic that would never meet this projects requirements

3) Simulation Results

a. Differential Loop

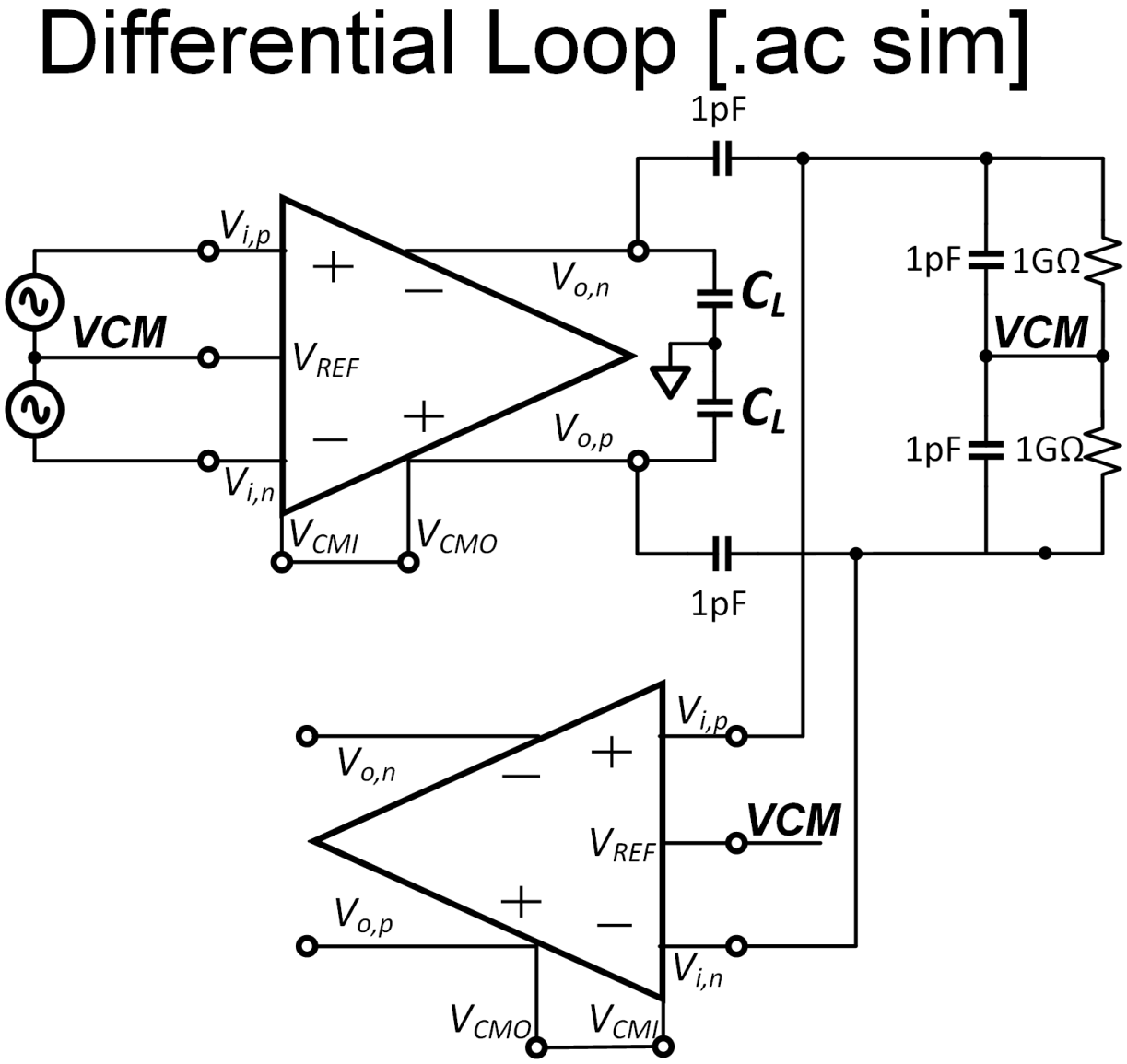

Figure 2: Differential Loop Testbench

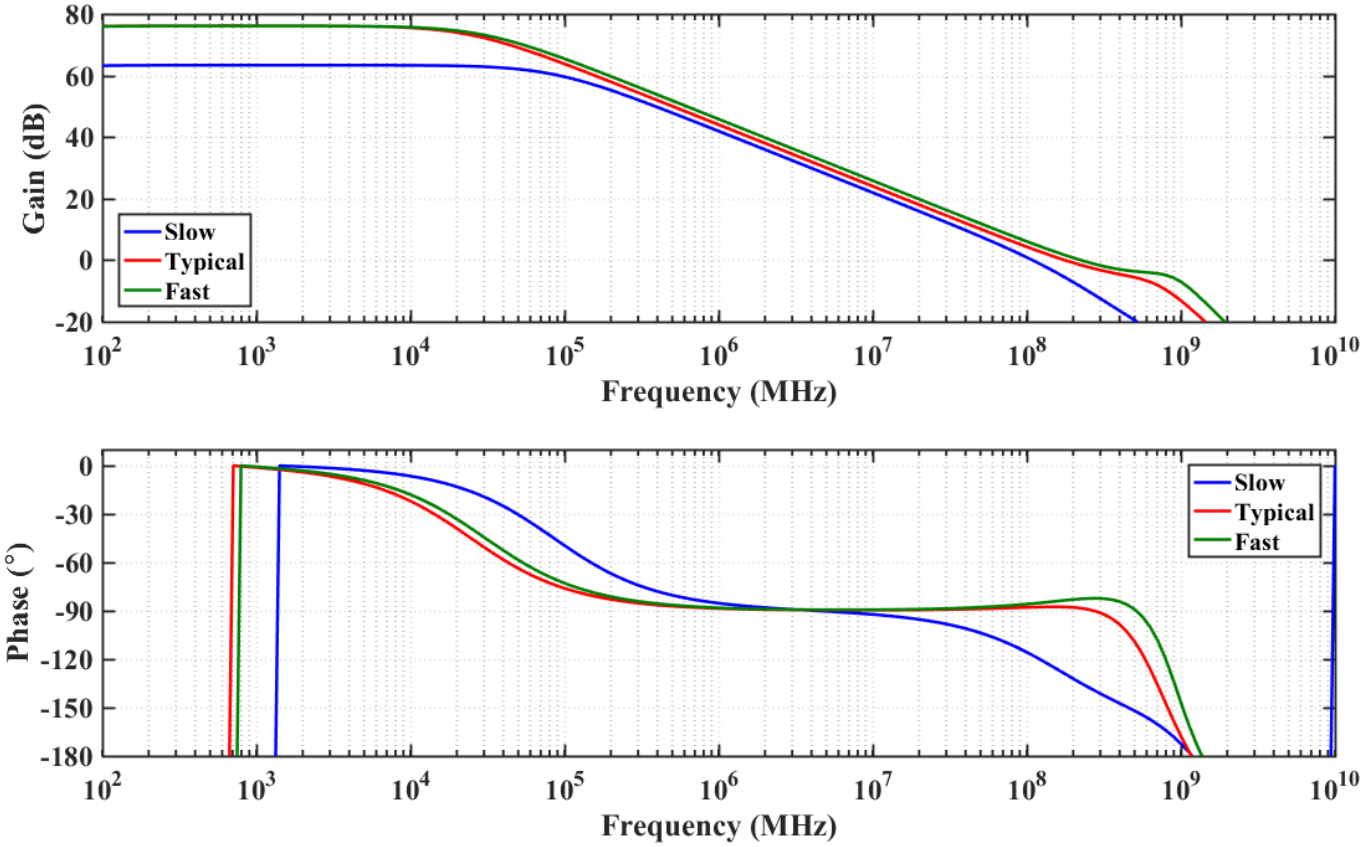

Figure 3: Bode-plot of loop-gain response of all three corners. **Highlight the measuring points/values (not shown here)** –hand written on the plot is acceptable.

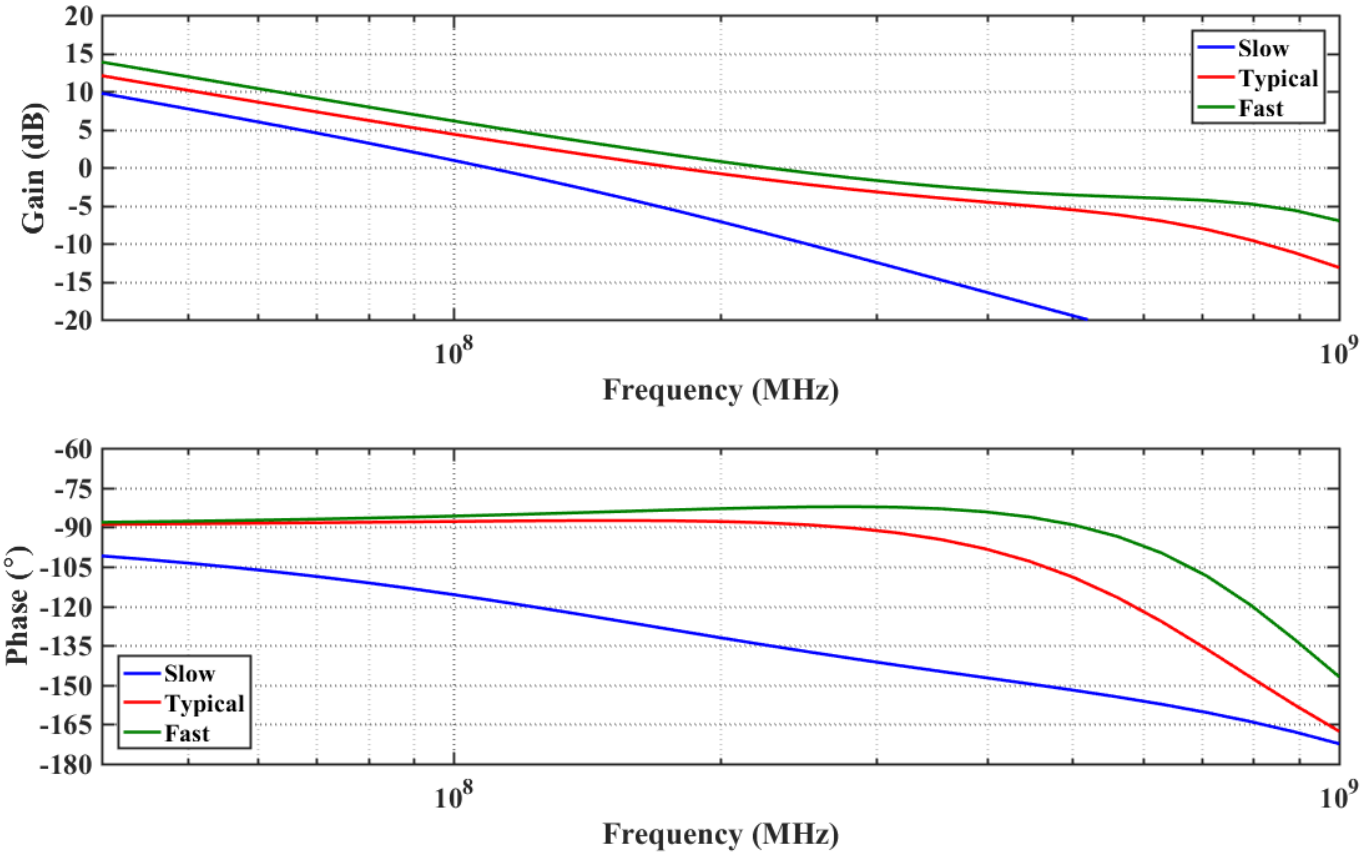

Figure 3: Bode-plot of loop-gain of all three corners zoomed in at UGBW

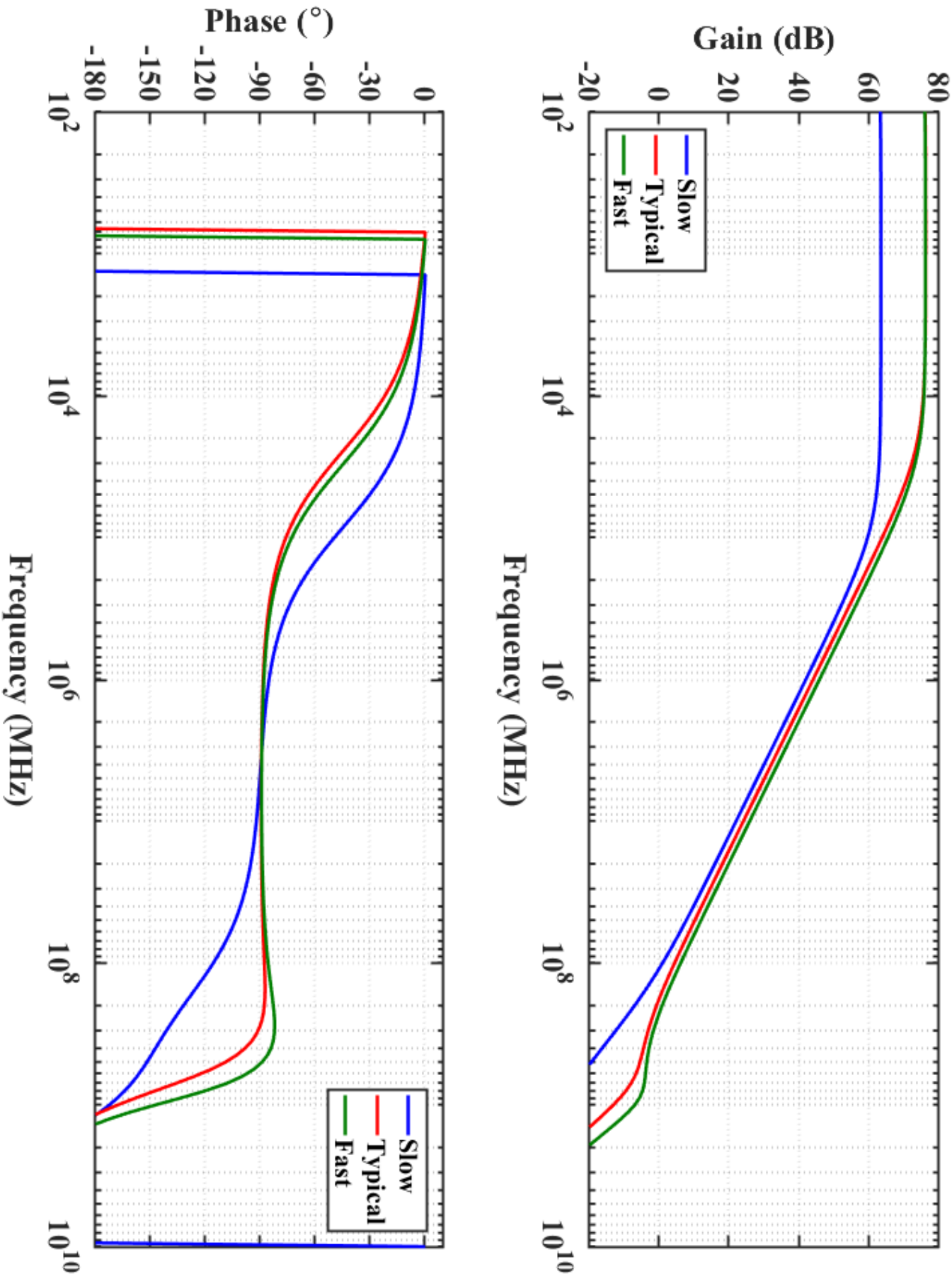

Figure 4: One graph landscape (this is fine)

b. CMFB Loop

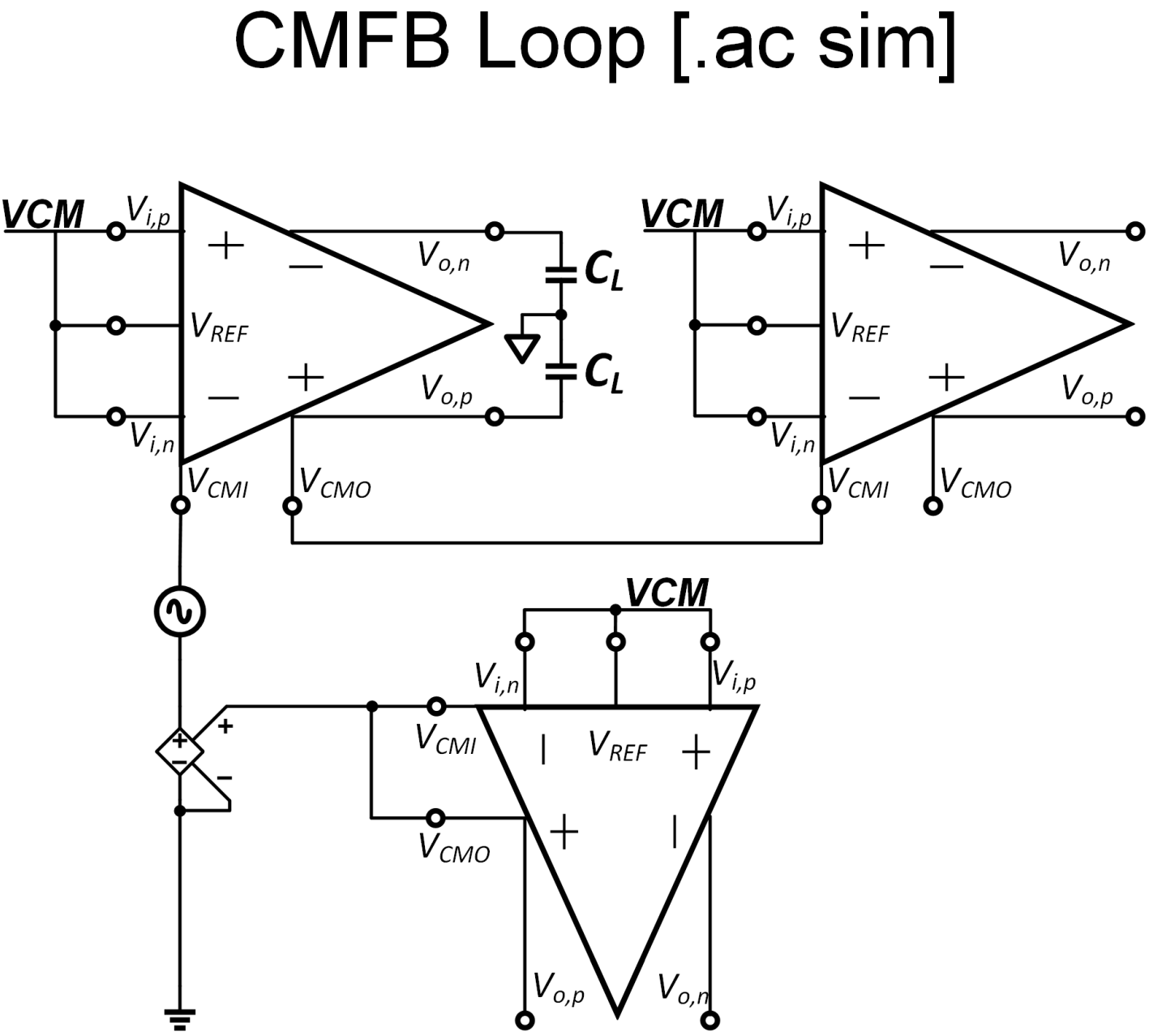

Figure 6: CMFB TestBench

See the plots in loop-gain section. They should look very similar

Figure 5: Bode-Plot of all three-cases

c. DC & Output Swing

Output Swing [.dc sim]

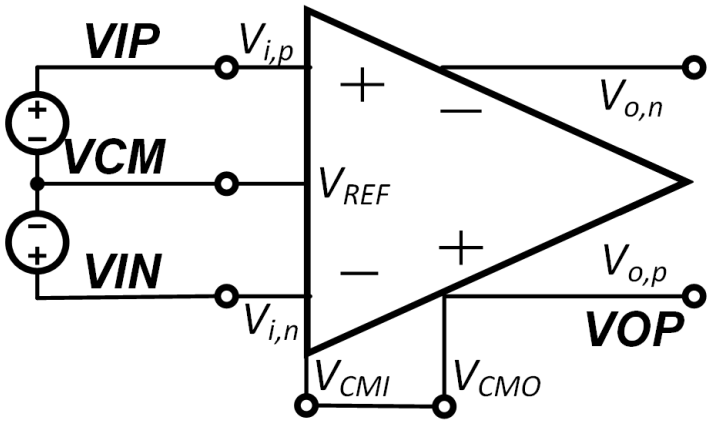

Figure 6: Output Swing TestBench

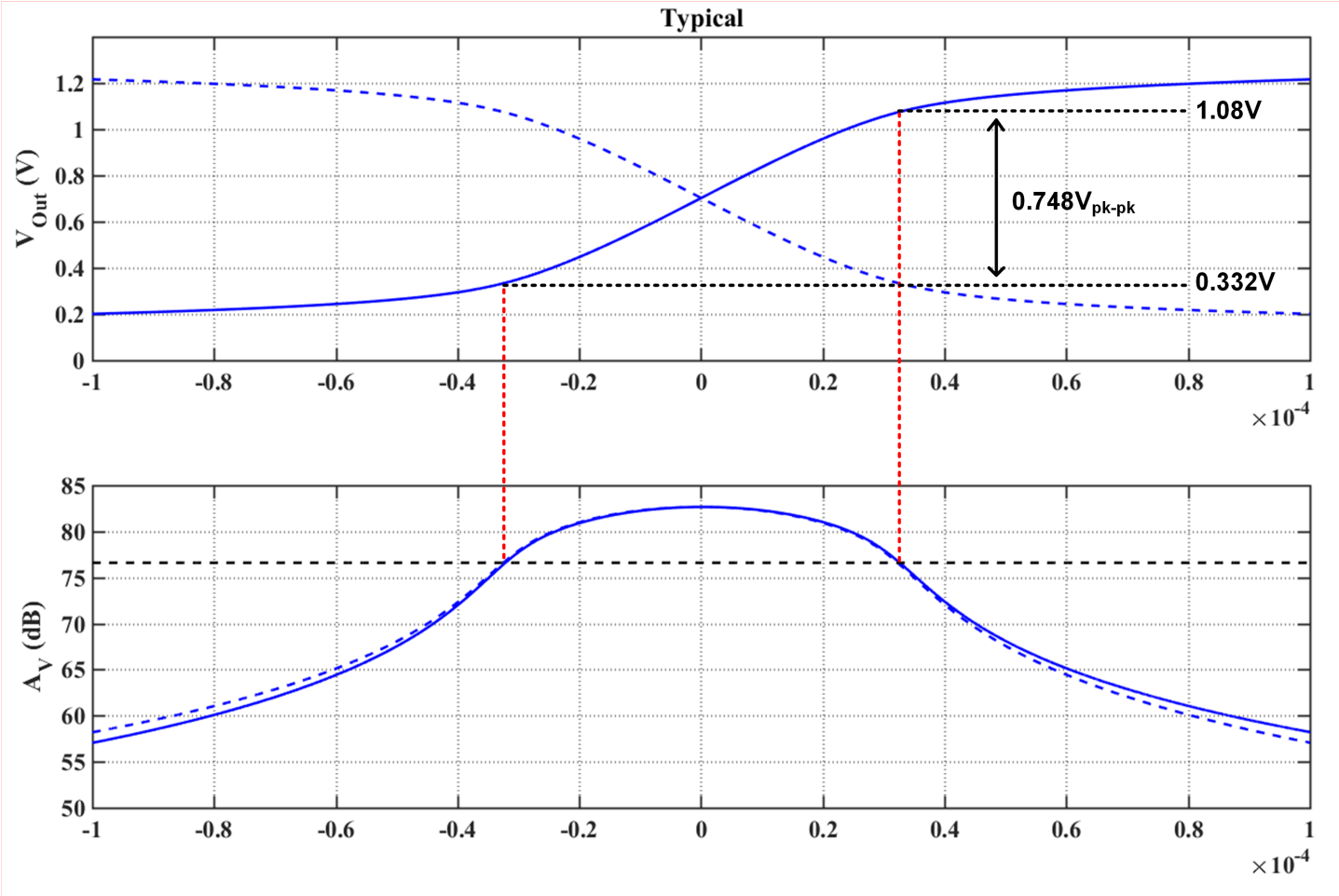

Figure 7: Output Swing

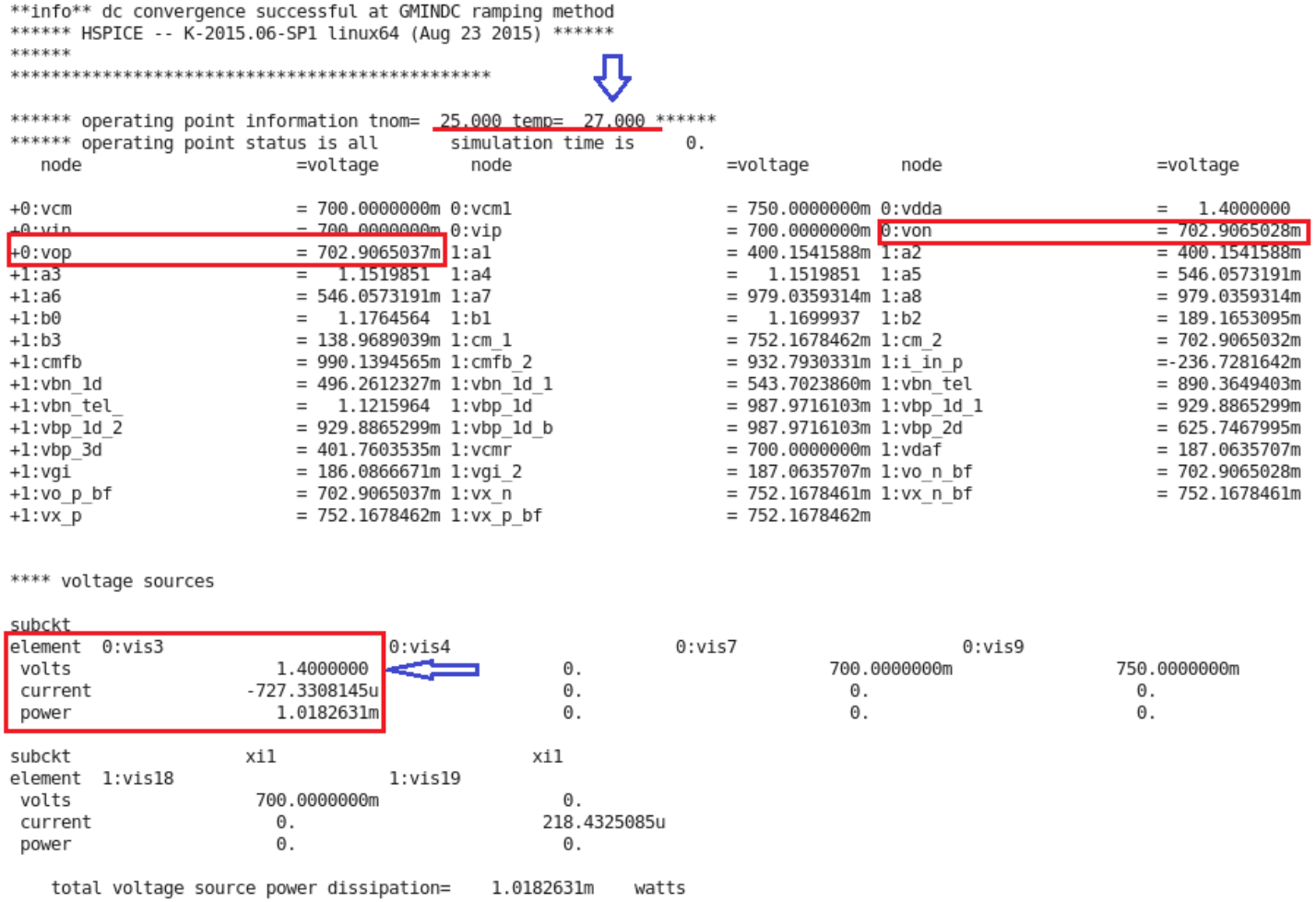

Figure 8: CM Accuracy and Power Consumption Screenshot.

Make sure the temperature and supply voltages match up with the corner you are highlighting (blue arrow).

4) Layout

Report whether or not you think you passed LVS and DRC. TA will check your database. Include a picture of your layout with the report (no black background).

DO NOT USE BLACK BACKGROUND SCREENSHOTS. INVERT YOUR COLORS AT LEAST! **This important point applies to any/all layout, schematics, plots...**

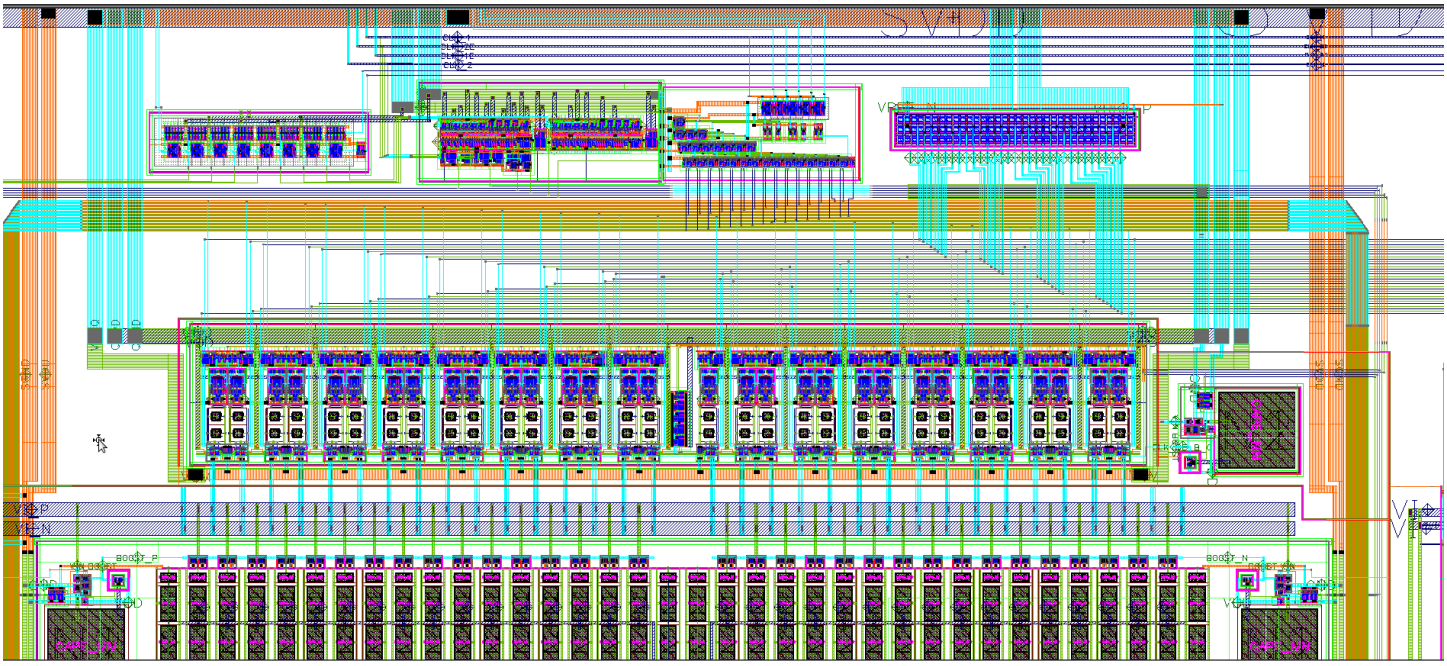

Figure 9: Layout Pics

5) ECE 523 Extras

There should be a section for the additional 523 project if you are a grad student. Follow the guidelines for the project.