Design of Low Voltage Dropout Regulator

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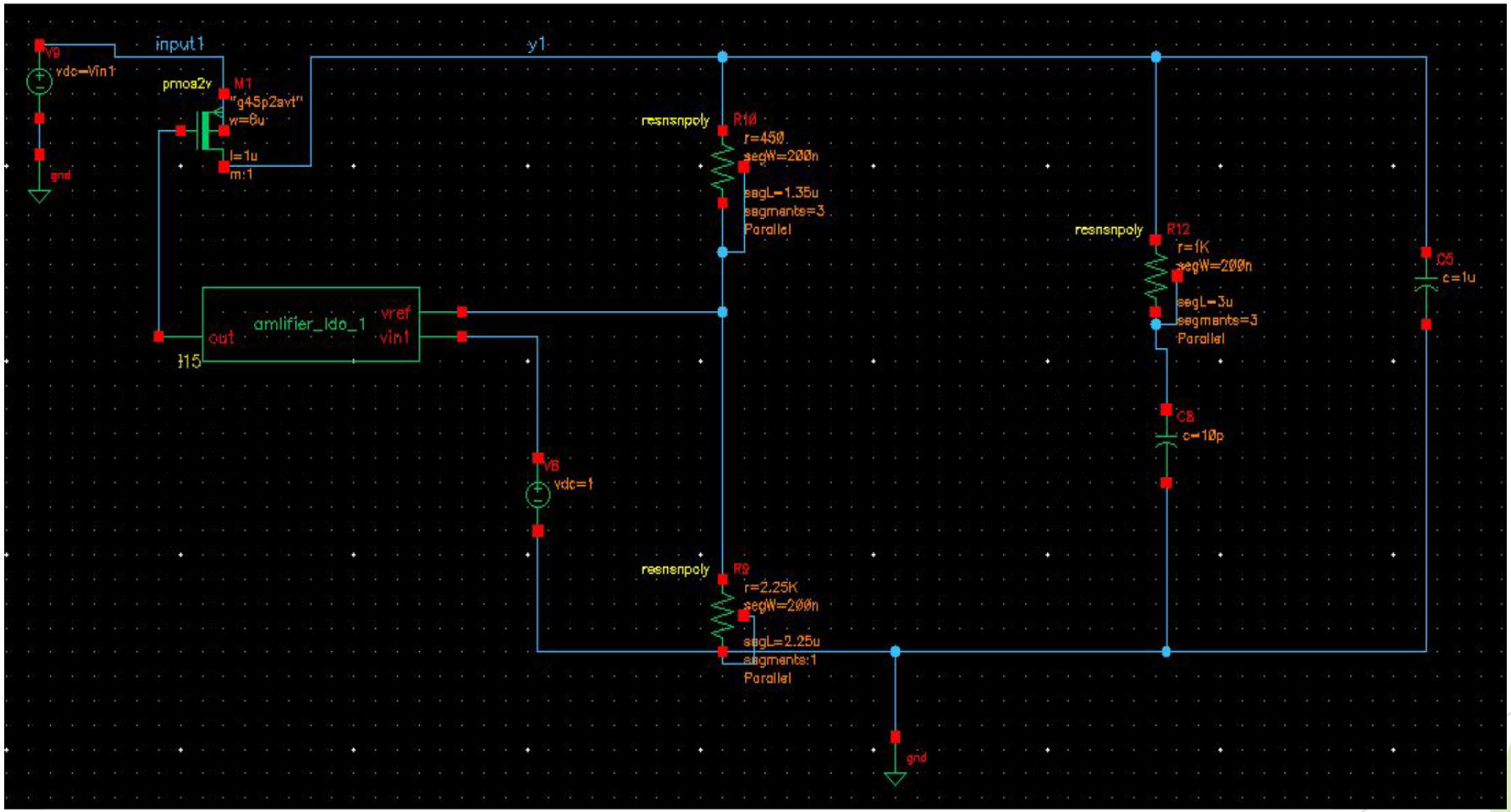
Agenda

- Specification
- Schematic
- Design parameter of an error amplifier
- Output waveform
- Outcome

Specifications

Parameter	Value
Supply Voltage	1.7 – 3.6 V
Output Desired Voltage	1.2 V

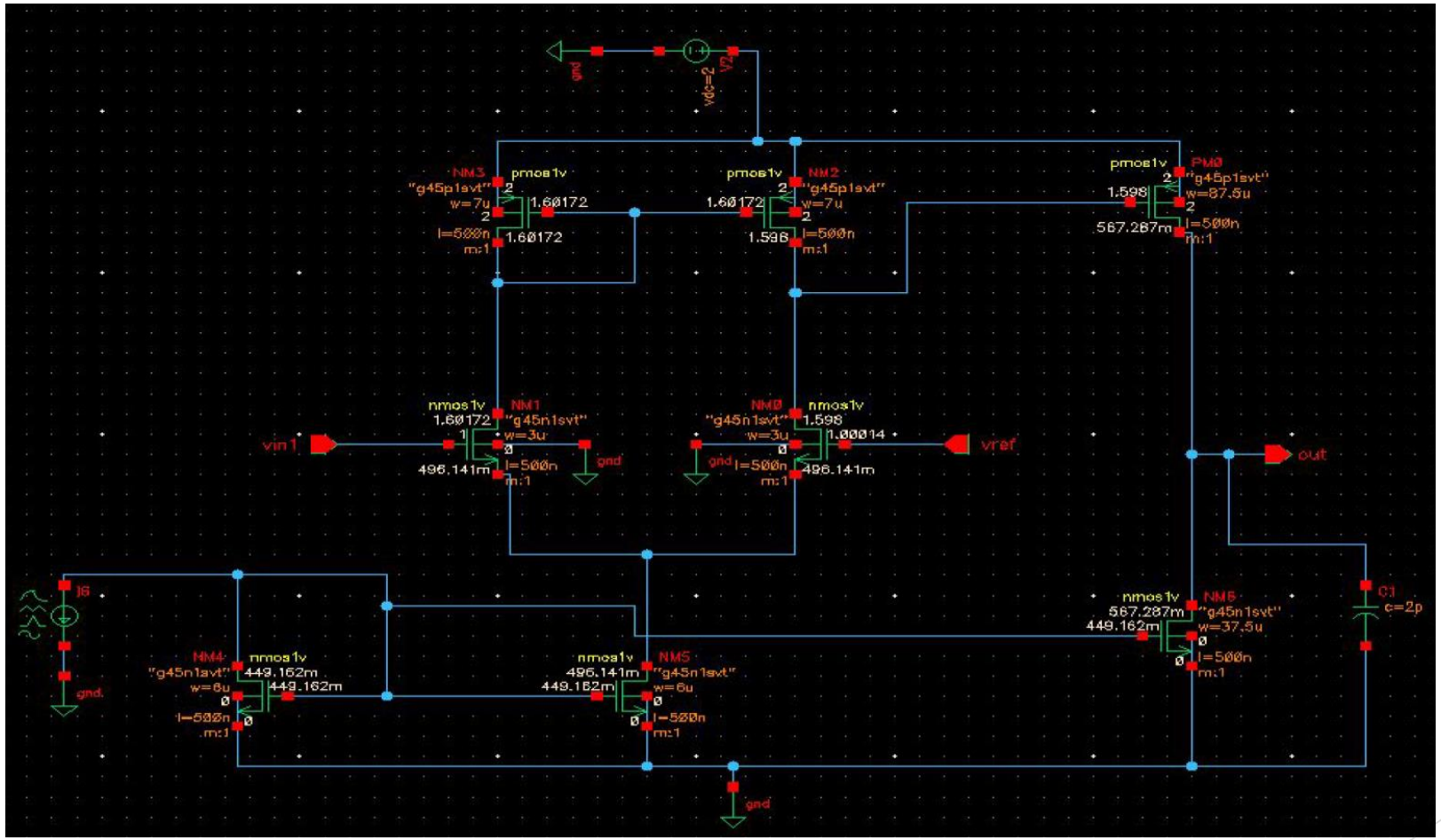
Schematic of LDO



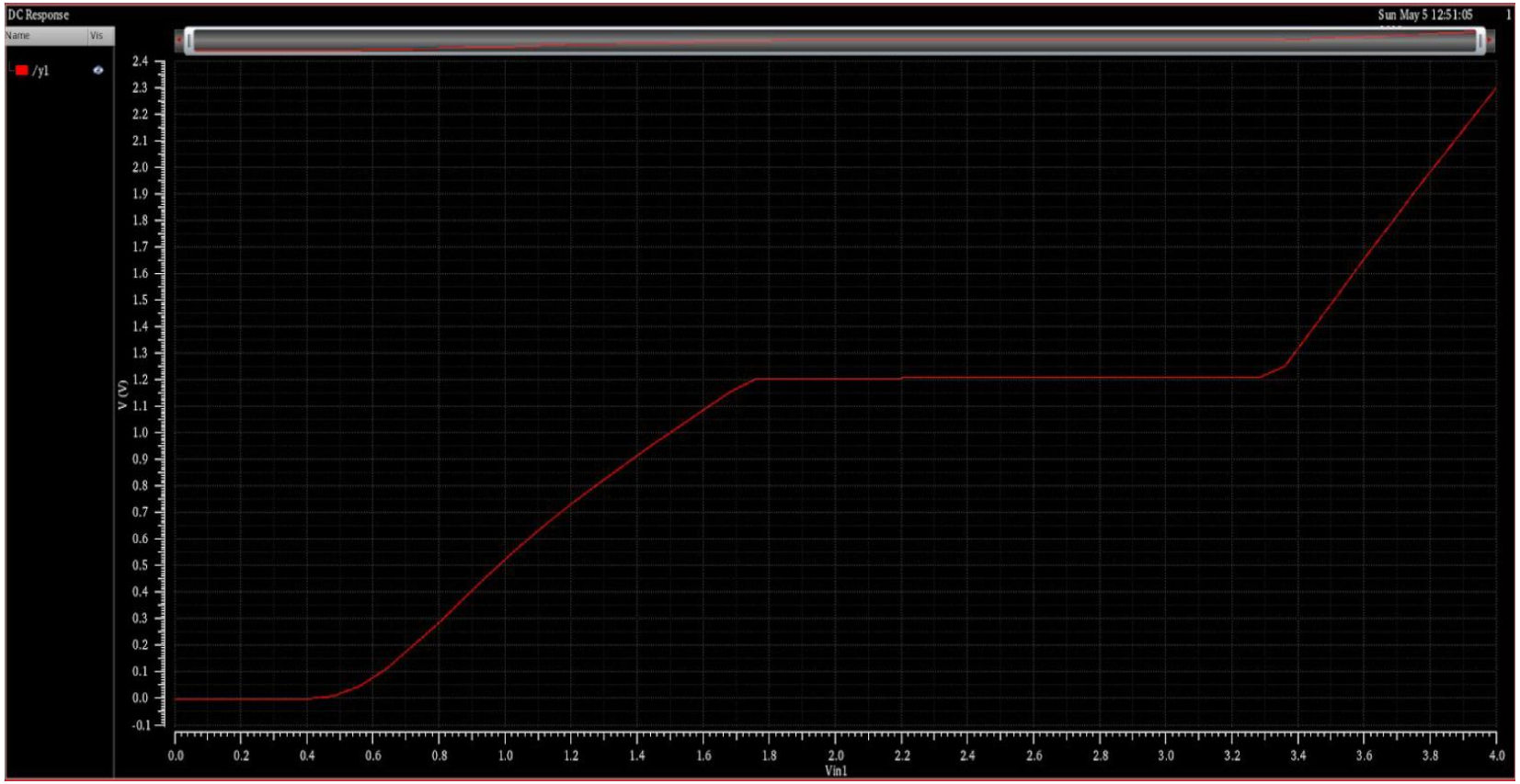
Design Parameter for Error Amplifier

MOSFETs	W/L
M1	7 µm/0.5 µm
M2	7 µm/0.5 µm
M3	7 µm/0.5 µm
M4	7 µm/0.5 µm
M5	6 µm/0.5 µm
M6	87.5µm/0.5 µm
M7	37.5 µm/0.5 µm
M8	6 µm/0.5 µm

Schematic for Error Amplifier



DC Output waveform



Outcome

- Constant output 1.2 V is achieved for input variation of 1.7 V to 3.6 V.
- Millar capacitor can be added at the output of the error amplifier to achieve higher gain and stability.
- PMOS (6 µm/1 µm) is chosen as pass element to reduce the area.