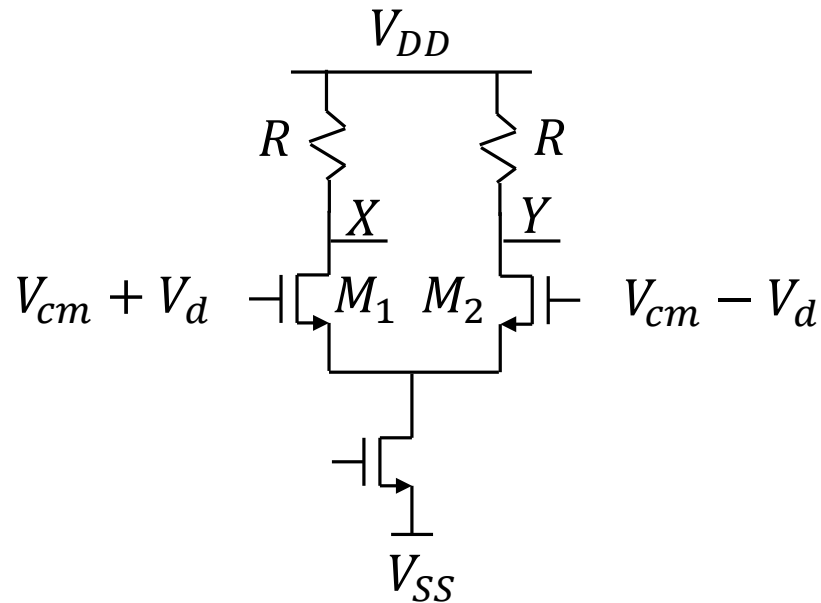

EE288 Data Conversions/Analog Mixed-Signal ICs

Spring 2018

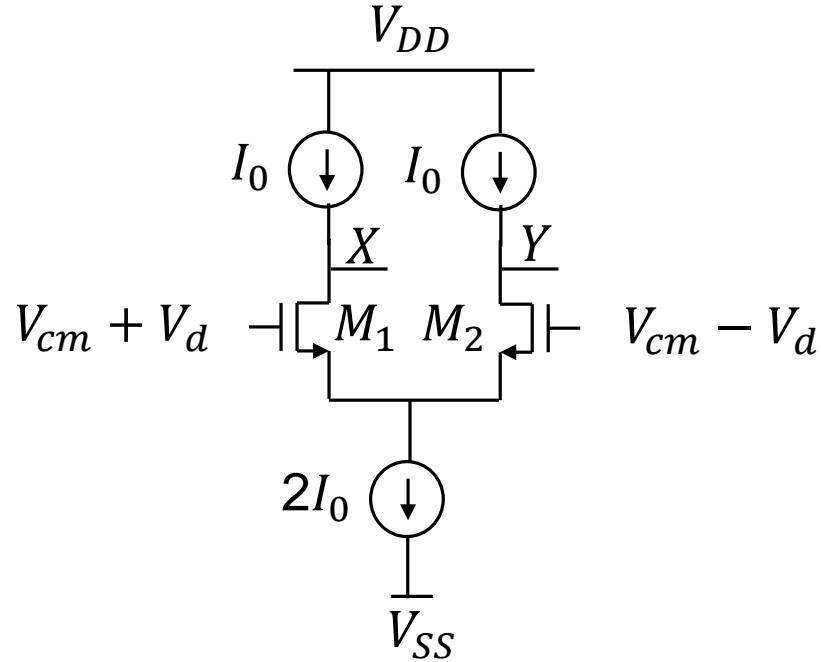
Lecture 14: Differential Preamplifiers

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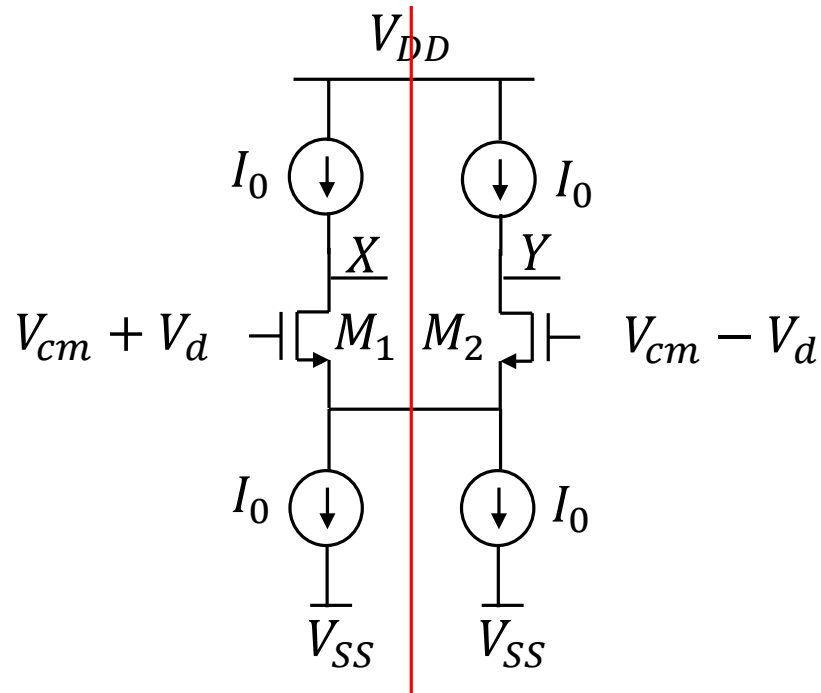
Differential Amplifier with Resistor Pull-up



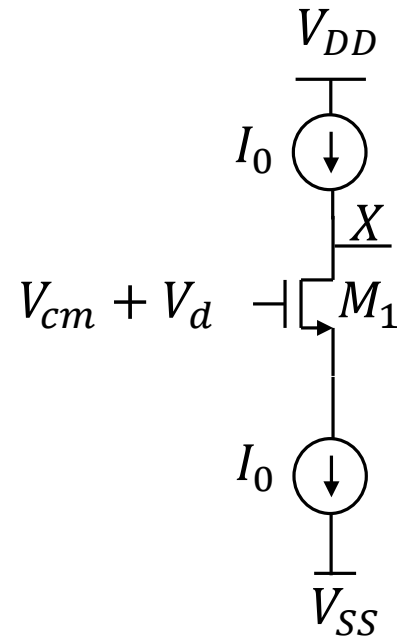
Differential Amplifier with Current Source Load



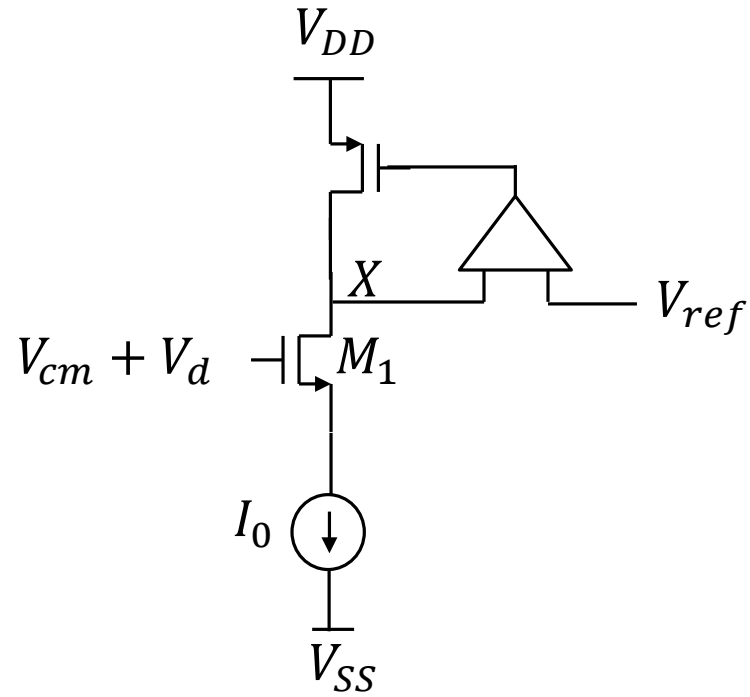
Differential Amplifier with Current Source Load



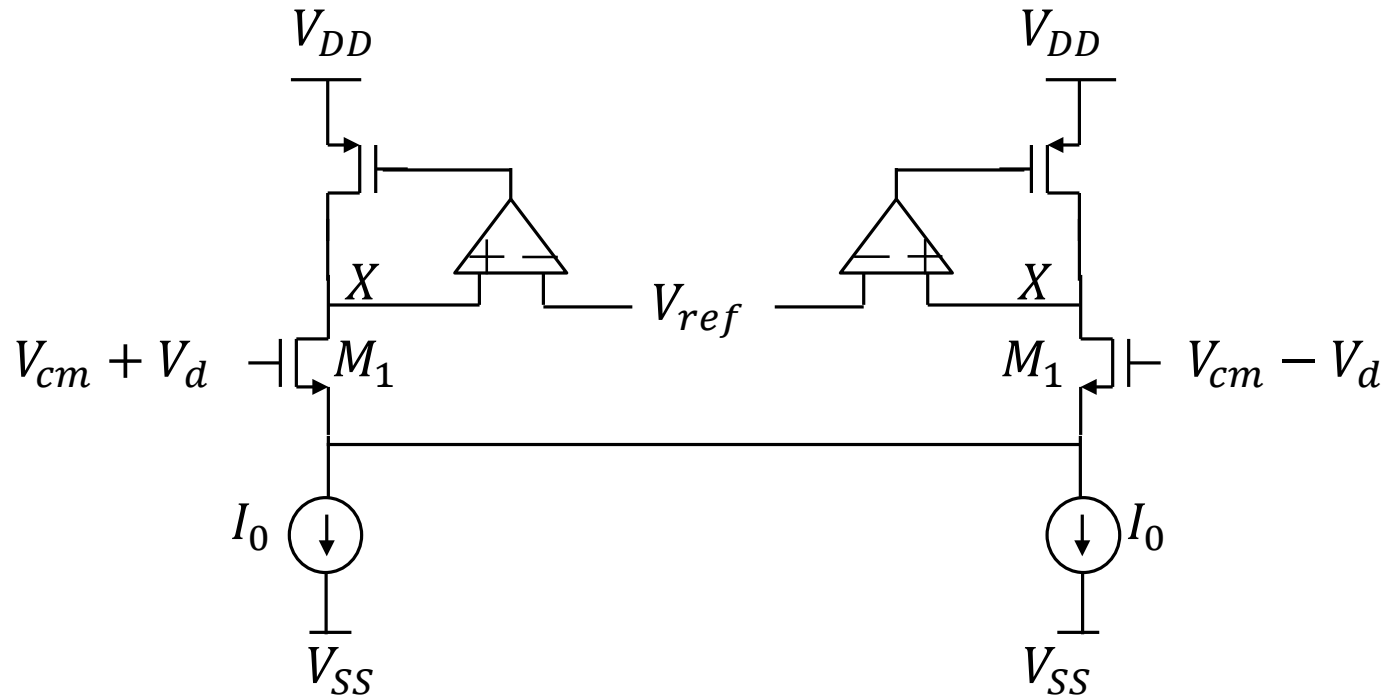
Common-Mode Half Circuit



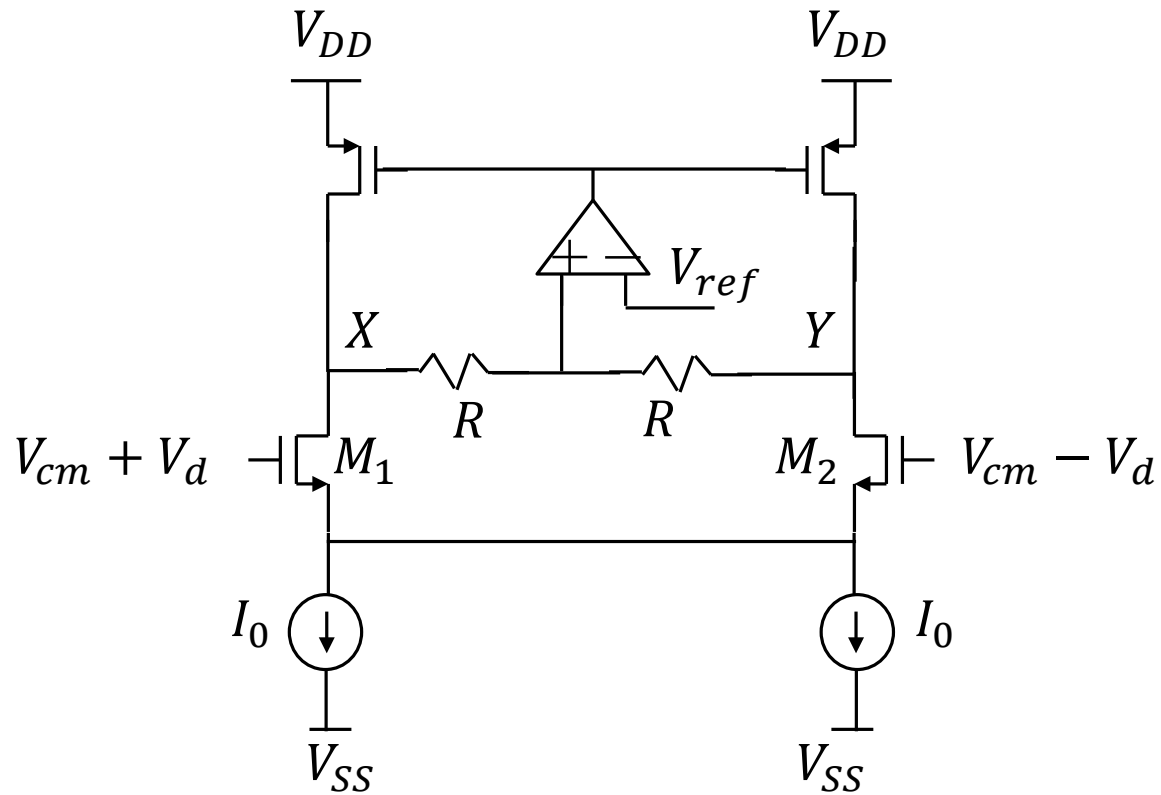
Common-Mode Feedback



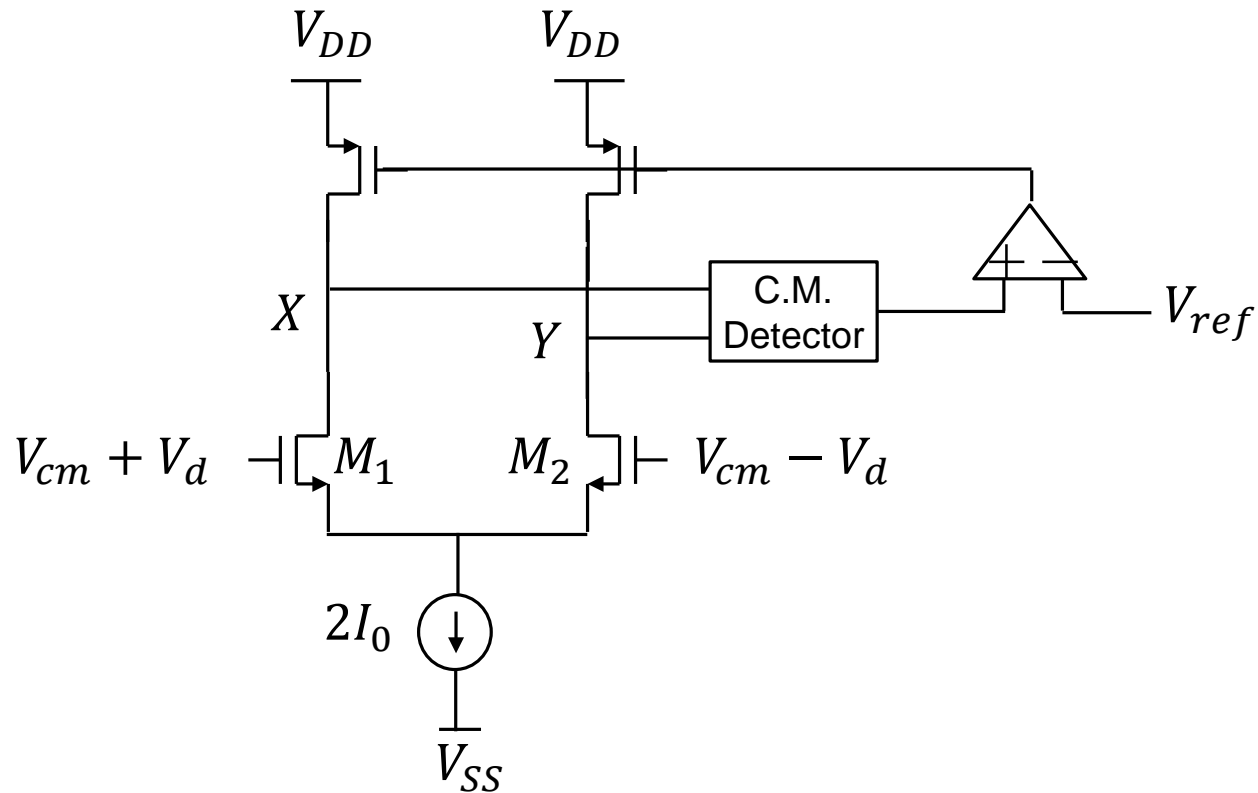
Common-Mode Feedback



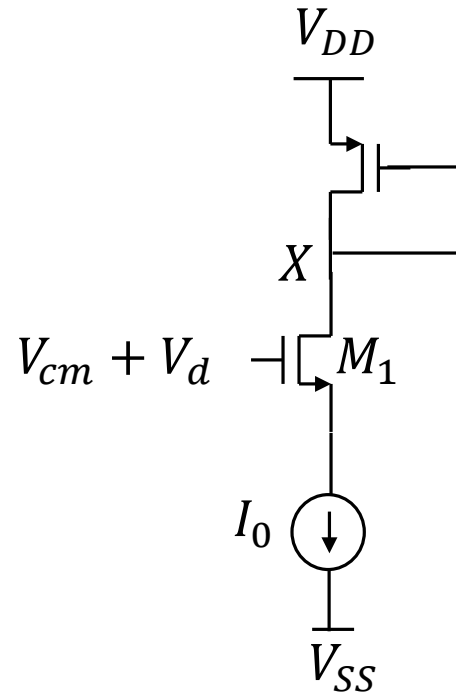
Common-Mode Feedback



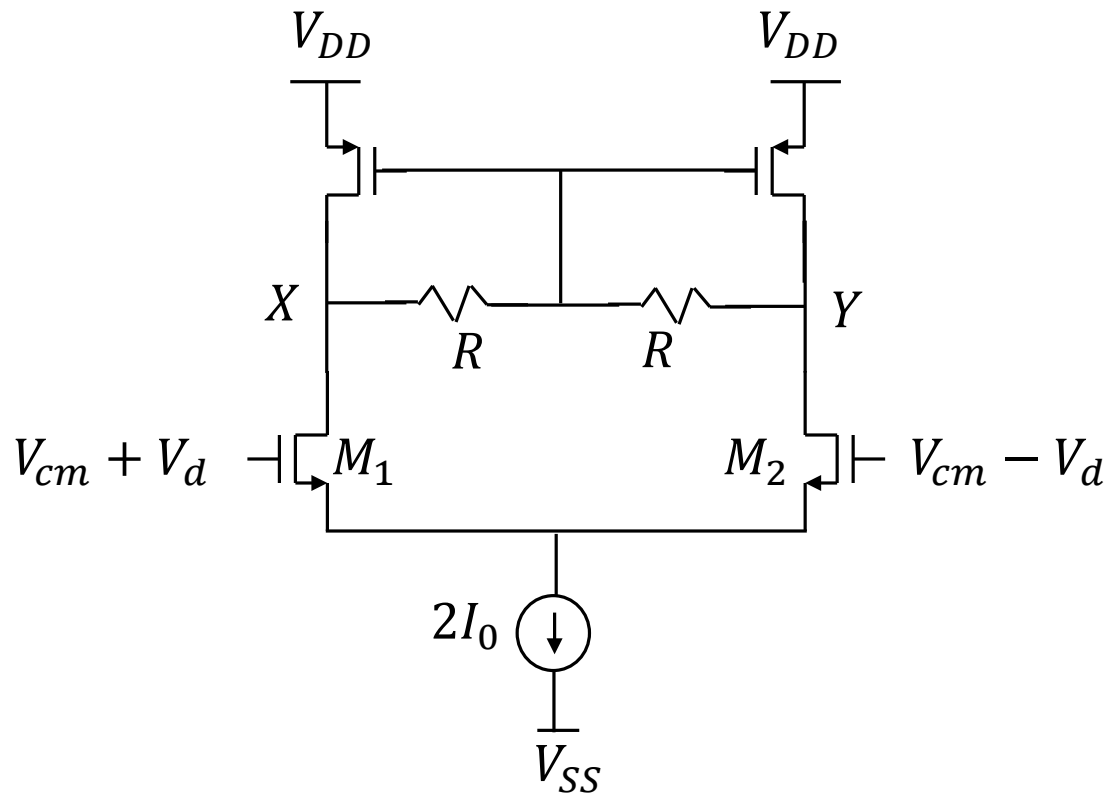
Common-Mode Feedback



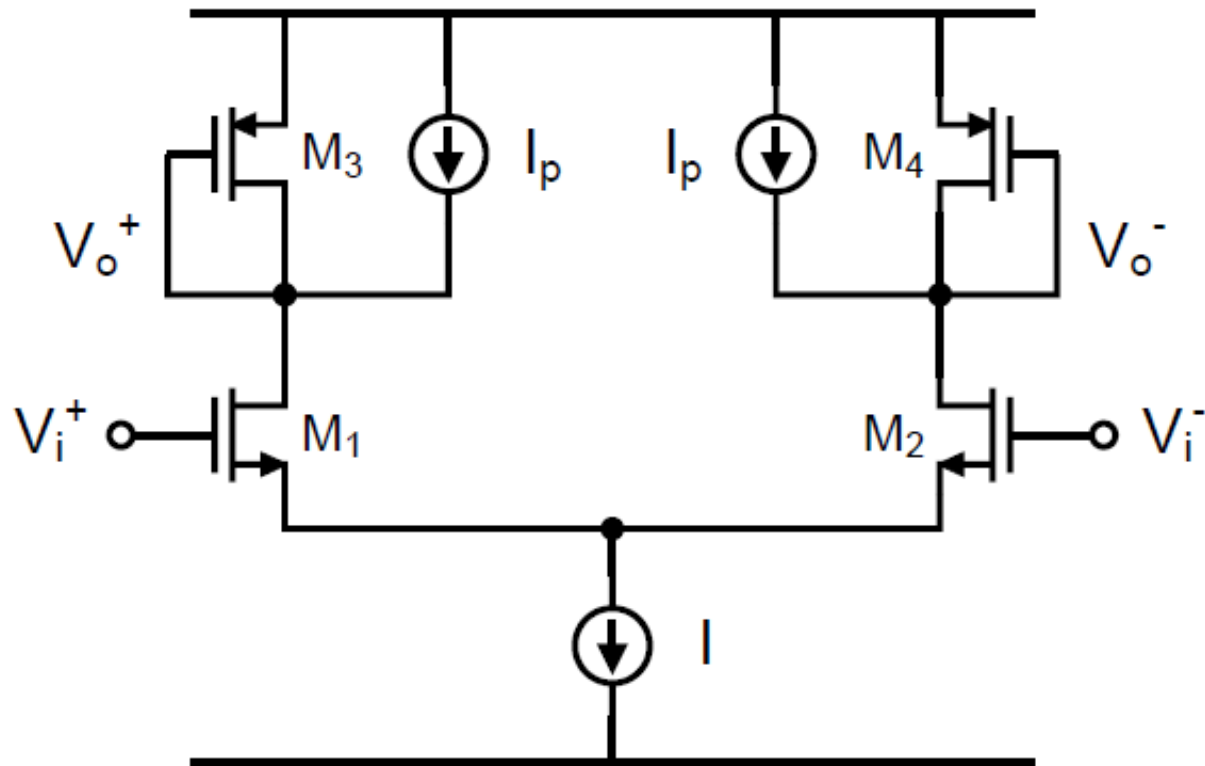
Common-Mode Feedback



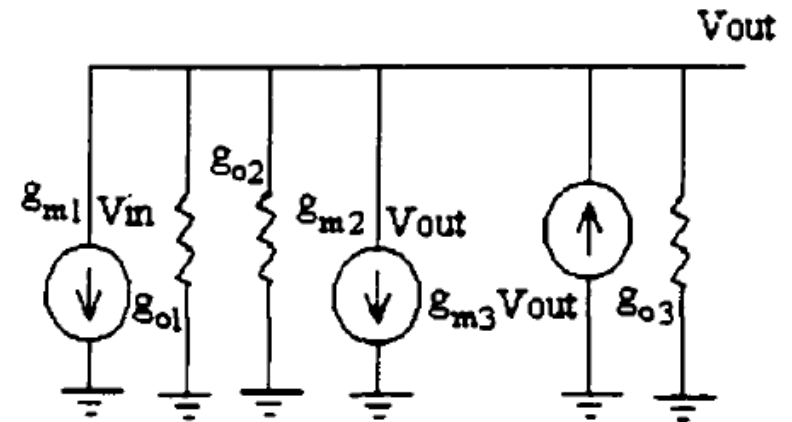
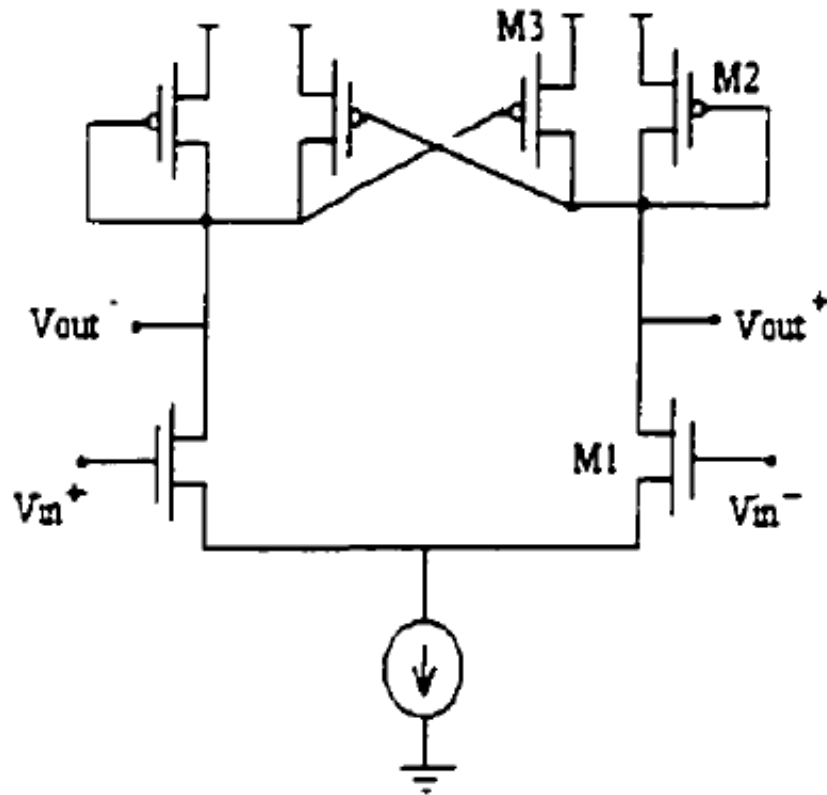
Common-Mode Feedback



Differential Amplifier with Increased Gain

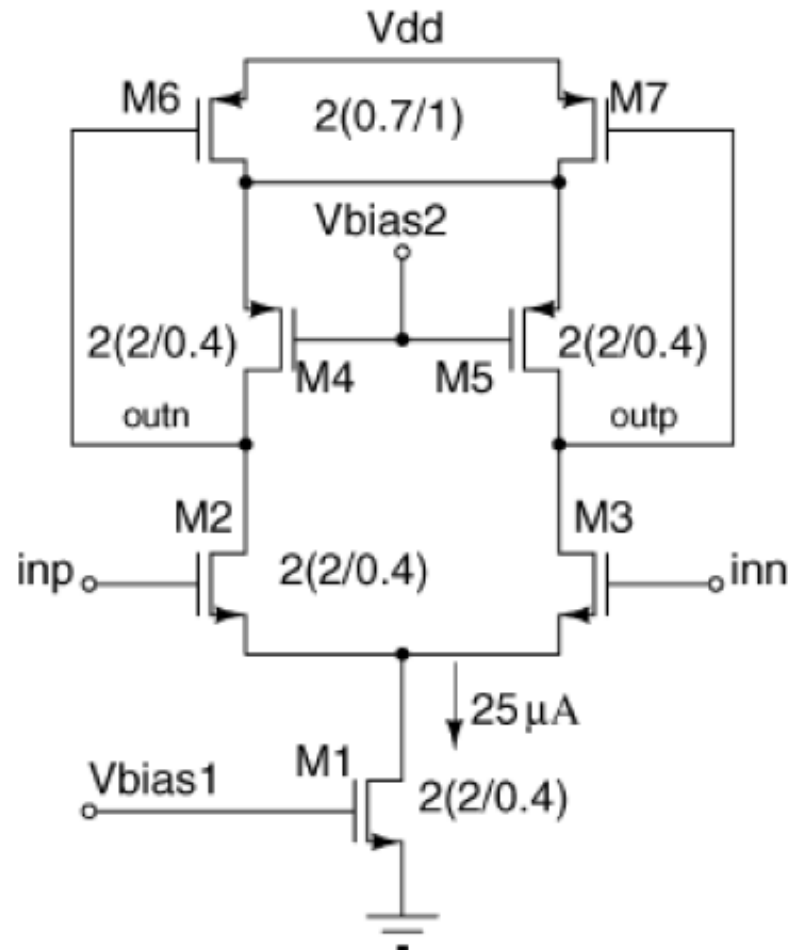


Differential Amplifier with Positive Feedback

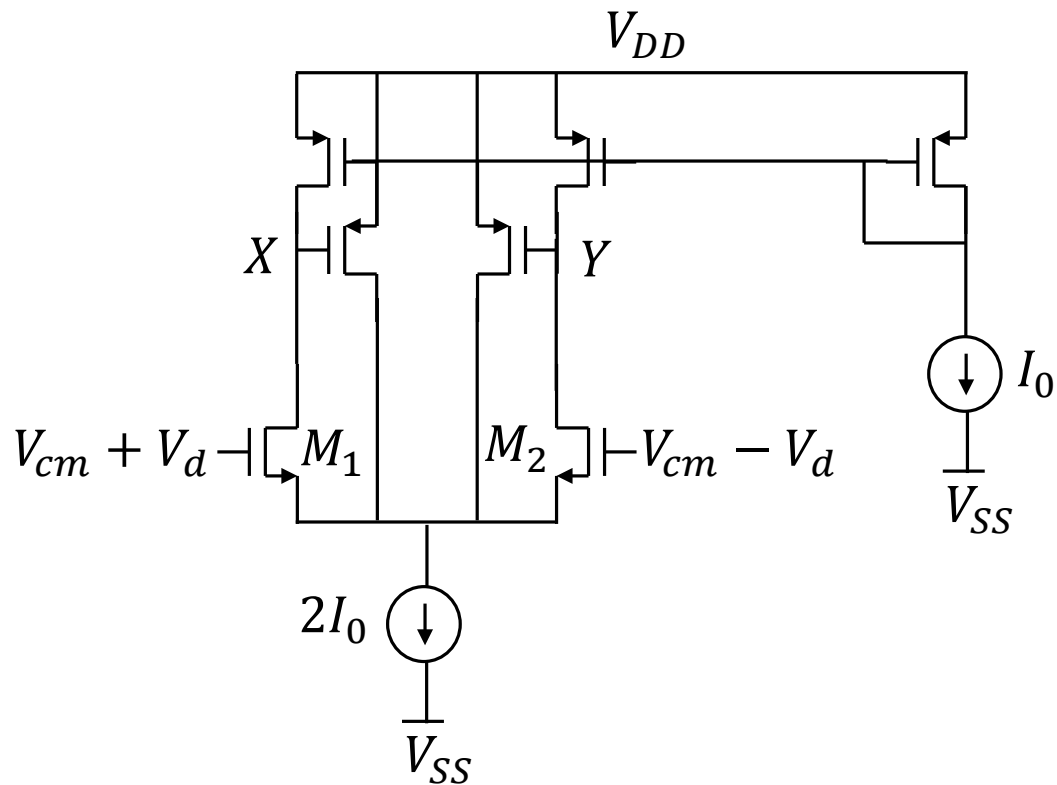


$$A_v = \frac{-g_{m1}}{g_{o1} + g_{o2} + g_{o3} + g_{m2} - g_{m3}}$$

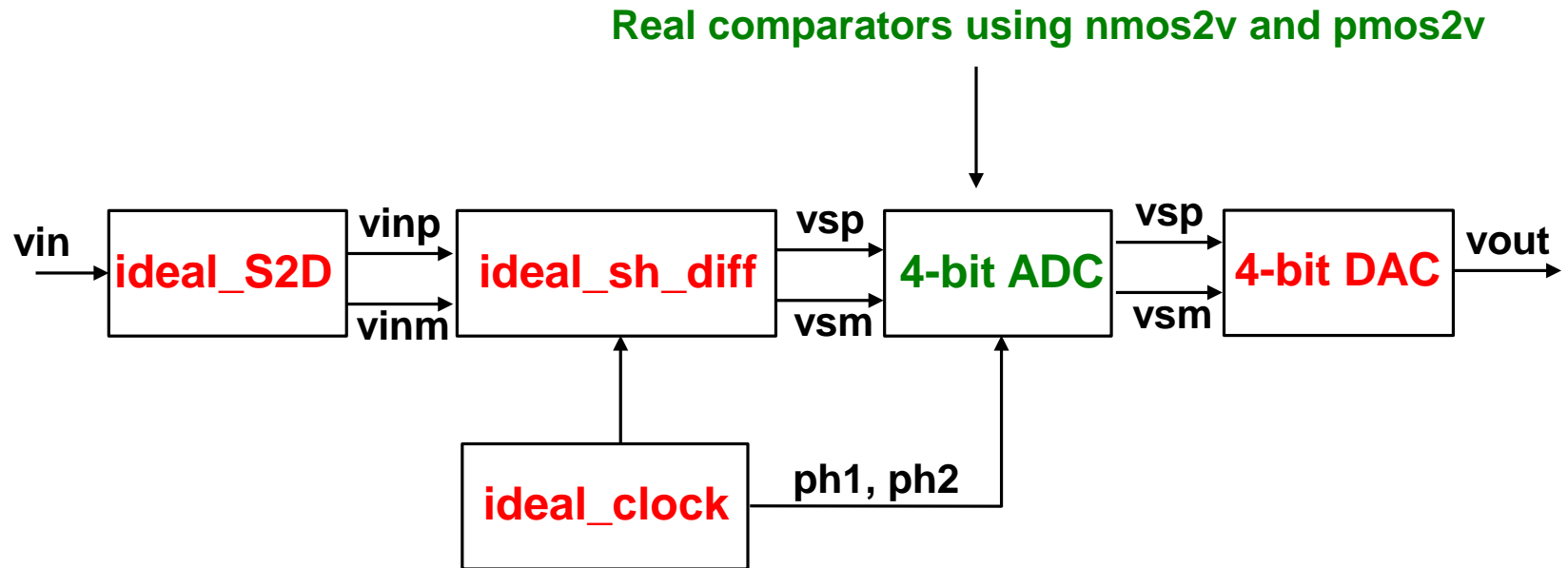
Differential Amplifier with a simple CMFB



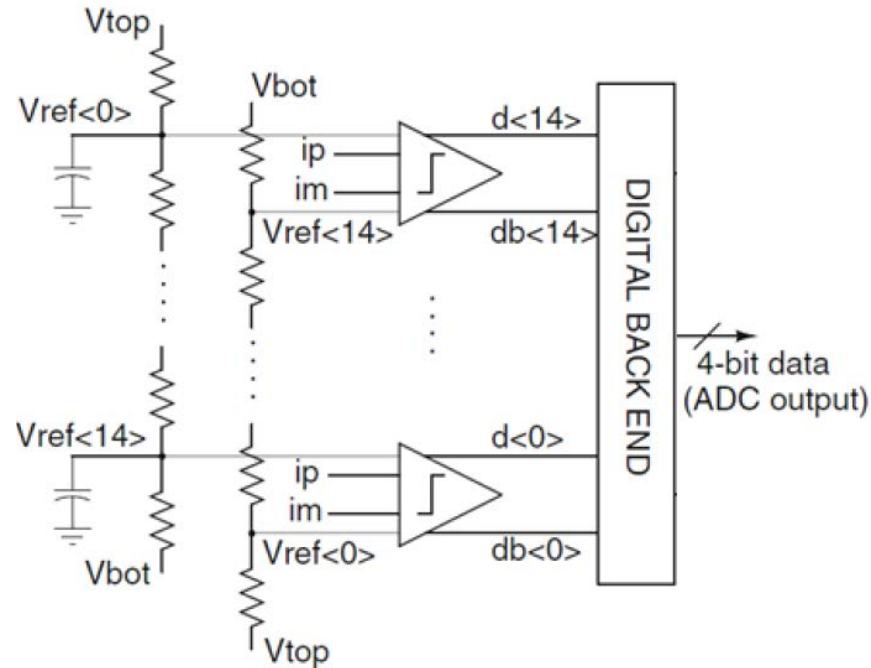
Common-Mode Feedback



HW#4 : 4-bit Flash ADC



HW#4 : 4-bit Flash ADC



- Your goal is to minimize the ADC Figure of Merit given by $FoM = Power / (fs * 2^{ENOB})$.
- Use `ideal_swn`, `ideal_swp`, `ideal_clock`, `ideal_S2D`, `ideal_sh_diff` from `ee288lib`

HW#4 : Comparator Overdrive Test Bench

