

DAC Theoretical part

- 1 **Bleeding currents.** Why do we use them? How do we use them? Why do they improve linearity?
- 2 **Output impedance.** Problem definitions. Formula derivation. Solutions.
- 3 **Binary-to-thermometer decoder.** Purpose? Thermometer coding. Miki implementation.
- 4 **Segmentation.** How do we choose? Binary vs Thermometer? What is back-off?
- 5 **Mixing DAC with local mixer and local cascode.** Trade-off local vs global? Draw the output stage. Draw output spectrum. CLK and LO locking.
- 6 **Voltage headroom problem.** Solutions? Thin oxide vs thick oxide transistors? Elevated bulks.
- 7 **Resistive DAC.** R2R network? Examples.
- 8 **Mismatch problems:** Amplitude errors? Timing Errors? Impact on performance?
- 9 **Calibration:** With and without self-measurements? Intrinsic and extrinsic redundancy? Low level or High level? Examples.