

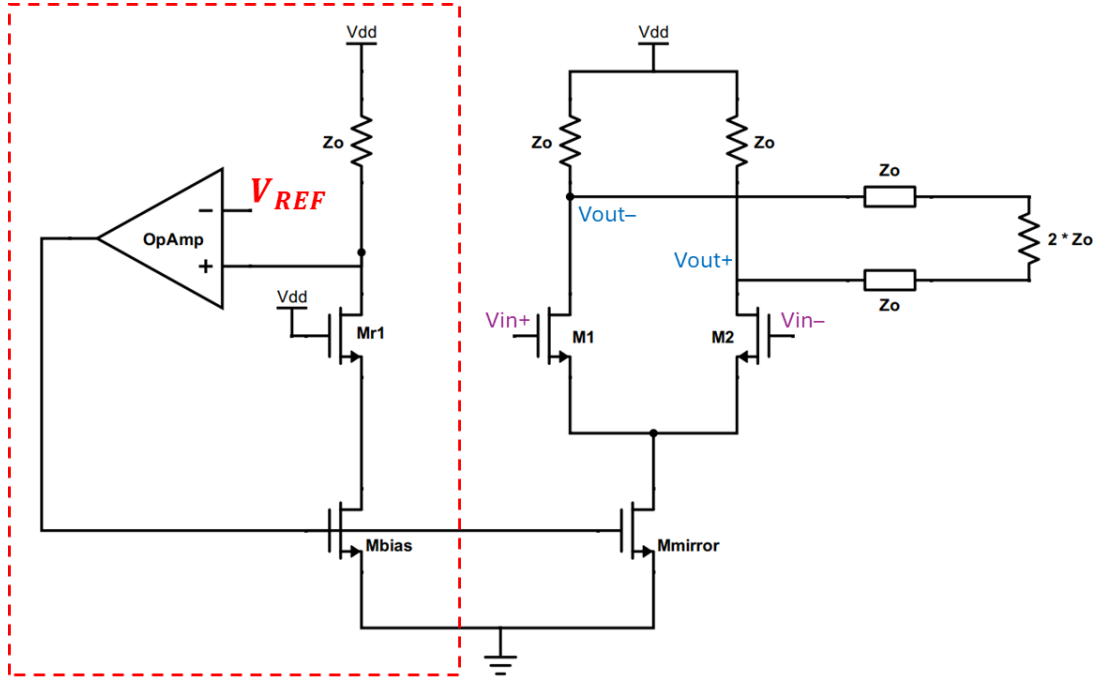
Tx Driver

CML Vs VM

1 Gbps

Muhammad Aldacher

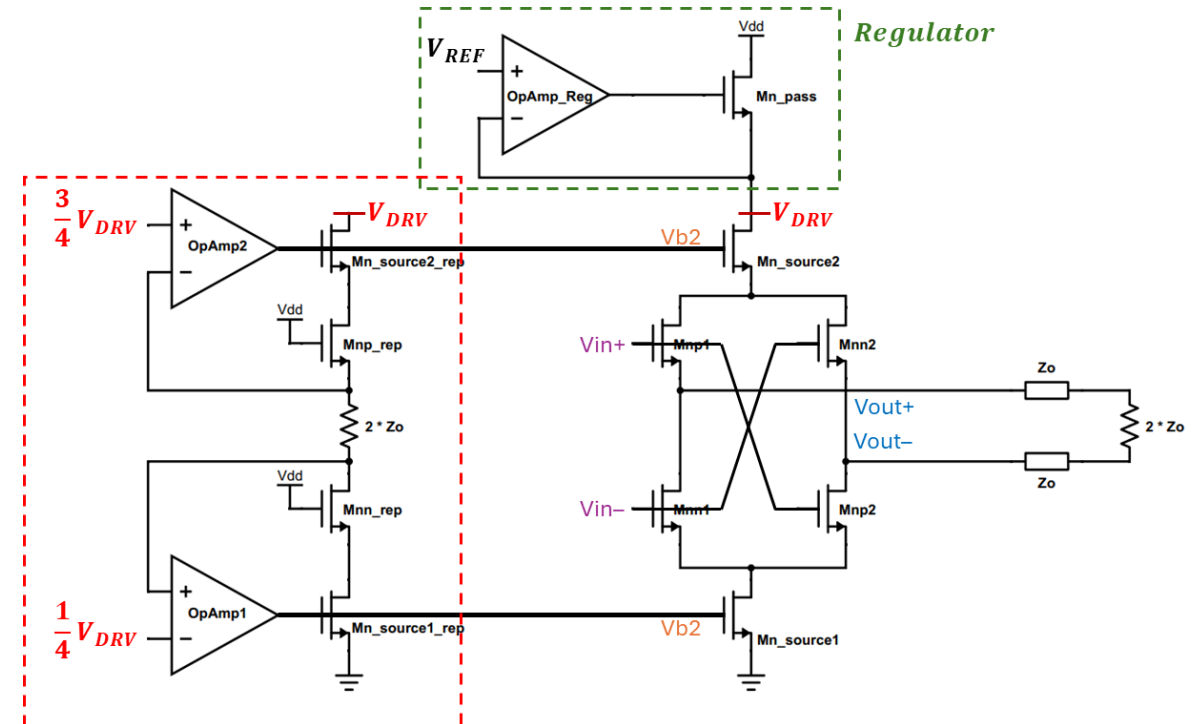
Current-Mode



$$V_{Swing(pk2pk)} = V_{DD} - V_{REF}$$

$$I_{BIAS} = \frac{V_{Swing(pk2pk)}}{Z_O}$$

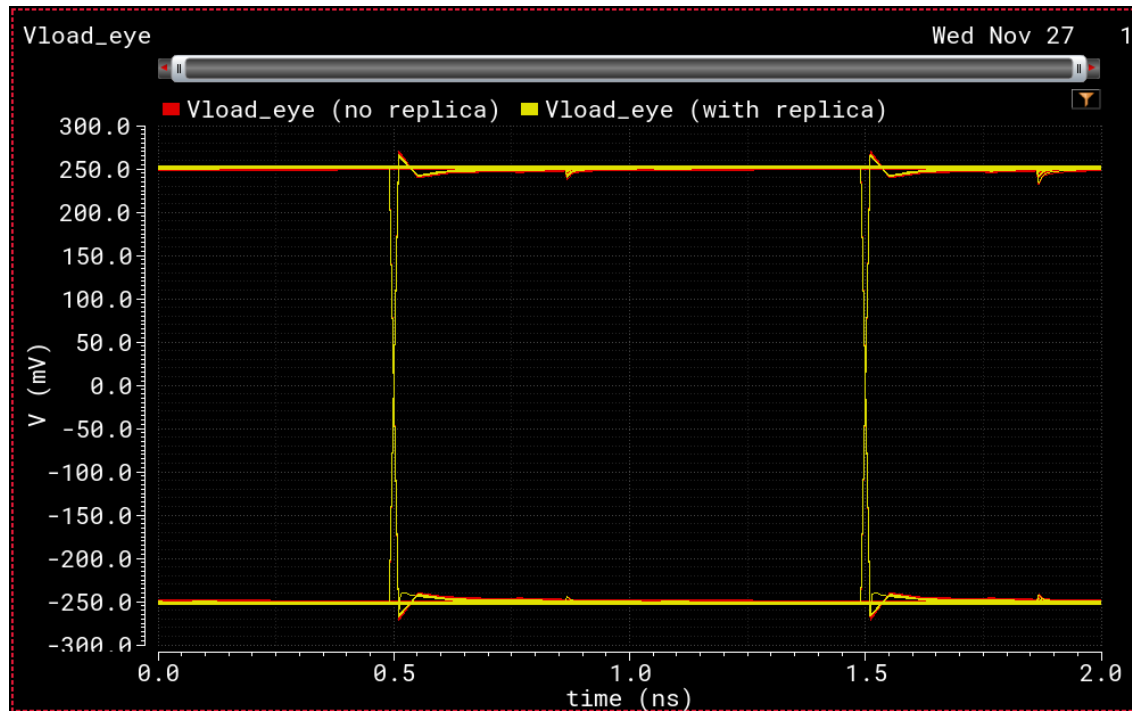
Voltage-Mode



$$V_{Swing(pk2pk)} = V_{DRV} = V_{REF}$$

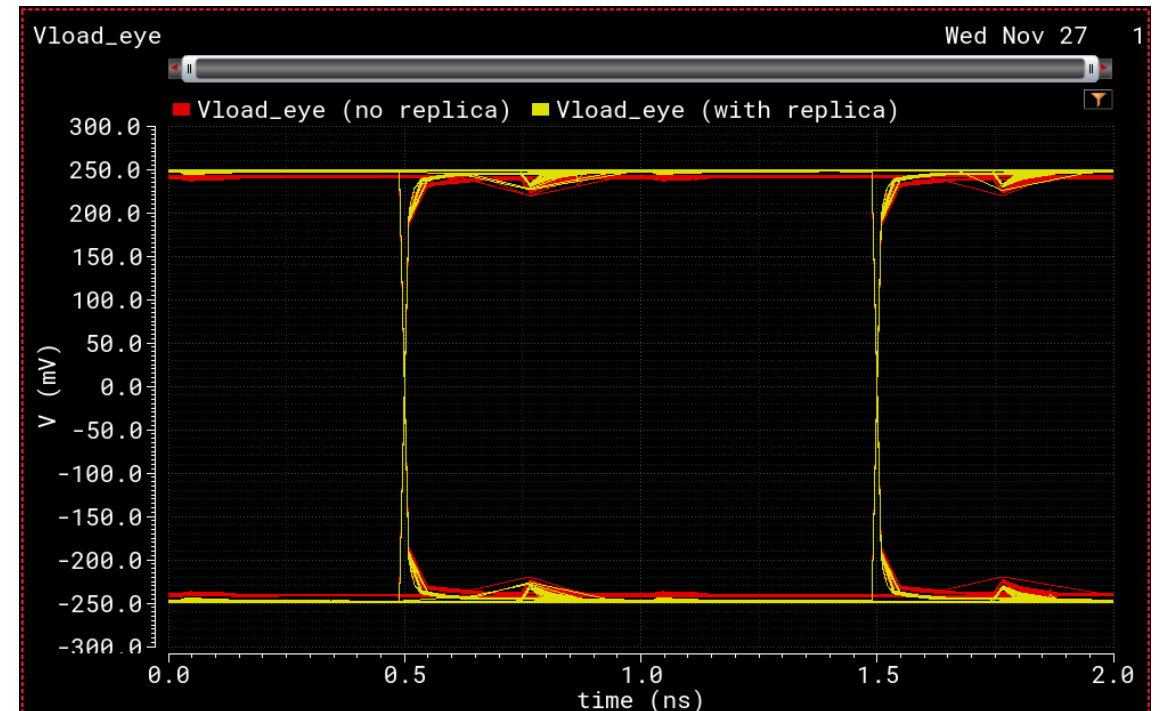
$$I_{BIAS} = \frac{V_{Swing(pk2pk)}}{4 * Z_O}$$

Current-Mode



- ✓ Replica provides slight improvement
- ✓ Faster Rise & Fall times
(Better for higher data-rates)
- ✓ Better impedance & swing control

Voltage-Mode



- ✓ Replica provides significant improvement
- ✓ Less Power consumption

From Simulations

Target Swing of 500 mV	CM driver	VM driver
Swing (without replica)	496.18 mV	478.16 mV
Swing (with replica)	499.90 mV	493.67 mV
Current Consumption	20 mA	5 mA