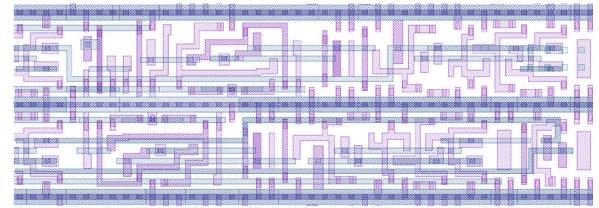


### DESCRIPTION

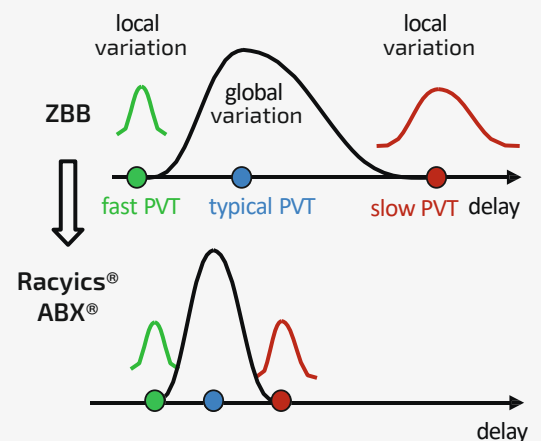
Body biasing is a disruptive 22FDX feature which enables the adaptation of transistor threshold voltages after production during device operation. Racyics dense 9T logic standard cells libraries and low power 8T standard cell libraries are fully enabled for the adaptive body biasing (ABB) aware implementation and sign-off flow of the **Racyics ABX® Platform** solution. The libraries include adaptive body bias aware characterization (CCS, CCSN, LVF) to fully leverage the benefits of Racyics ABX corner tightening at implementation and sign-off for improved PPA.



### KEY FACTS

- ▶ Contains > 300 cells, various Vt and channel length options
- ▶ Robust power supply rails on M2, optimized M1 pin access with at least two on-track M2 access points
- ▶ DFM and variability optimized layouts and variation aware placement attributes for automated place & route
- ▶ Enabled for reliable ULV operation down to 0.4 V in combination with adaptive forward body bias
- ▶ Characterization corners for -40 °C to 150 °C temperature range for Racyics ABX aware timing and power sign-off
- ▶ LVF characterization for non-gaussian random distributions
- ▶ Silicon validation for wide range of PVT conditions
- ▶ Automotive grade-1 compliant library available

### RACYICS ABX SIGN-OFF IMPROVEMENTS



### DESIGN VIEWS

- ▶ Verilog simulation models
- ▶ .lib /.db timing (NLDM, CCS, CCS noise, LVF) and power models
- ▶ .lef layout abstract views
- ▶ GDSII layouts
- ▶ LVS netlist

### IP SPECIFICATION

| IP                | Supplier | Description                                                        | VT options | Gate Length             | Supply Voltages [V]              | ZBB (Zero Bias) | ABB                     | Ready for Evaluation | Ready for Testchip | Ready for Production |
|-------------------|----------|--------------------------------------------------------------------|------------|-------------------------|----------------------------------|-----------------|-------------------------|----------------------|--------------------|----------------------|
| riib_gf22fox_9tg1 | Racyics  | 116CPP 9T CNRX STD-cell library with automotive grade-1 compliance | RVT, HVT   | C20, C24, C28, C32, C36 | 0.80                             | yes             | yes, RBB (Vt dependent) | now                  | now                | now                  |
| riib_gf22fdx_8t   |          | 116CPP 8T CNRX STD-cell library                                    | SLVT, LVT  | C20, C24, C28, C32, C36 | 0.40 / 0.45 / 0.50 / 0.60 / 0.80 | yes             | yes, FBB                | now                  | now                | now                  |
|                   |          |                                                                    | RVT, HVT   | C20, C24, C28, C32, C36 | 0.55 / 0.65 / 0.80 / 0.90        | yes             | yes, RBB (Vt dependent) | now                  | now                | now                  |



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