Racyics® ABX Platform
GlobalFoundries® 22FDX®

CHALLENGE

Body biasing is a disruptive 22FDX® feature enabling on-the-fly adaption of transistor threshold voltages. **Racyics®** adaptive body biasing platform (**Racyics® ABX Platform)** provides reliable and predictable ultra-low voltage (ULV) operation down to 0.4V, compensating process, supply voltage and temperature variations (PVT) to guarantee timing and power with high yield. For automotive applications, **Racyics® ABX** enables significant leakage reduction at 0.8V high temperature corners.

KEY FACTS

▸ Comprehensive **Racyics® ABX Platform** for ULV operation

▸ **Racyics®** adaptive body bias generator, standard cells, SRAM

▸ Up to 9X performance[1]

▸ 75% leakage reduction[2]

▸ Corner tightening and adaptive body biasing-aware implementation for improved PPA

▸ Guaranteed performance and power

▸ Easy-to use turnkey **Racyics® ABX** solution based on standard design flow and sign-off

▸ No overhead in test and operation

▸ Automotive grade-1 compliant library available

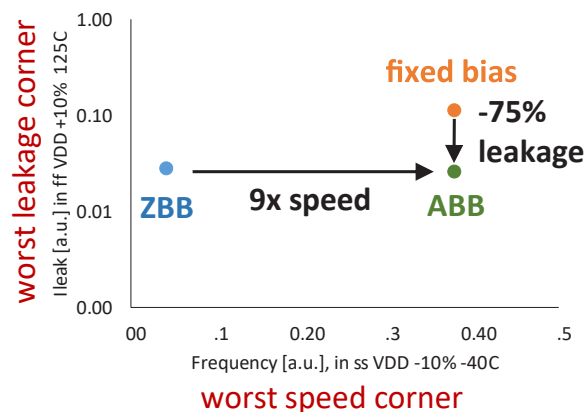▸ Interoperable with foundation IP standard cells and SRAM

[1] at 0.50V compared to zero bias
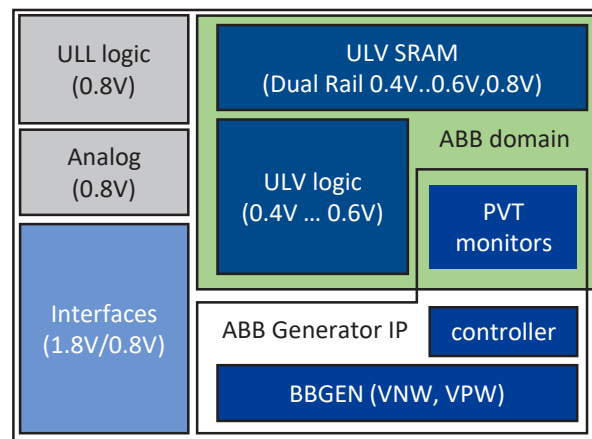[2] at 0.50V compared to fixed bias

TARGET APPLICATION

▸ Automotive

▸ Low Power

▸ IoT

▸ High Speed Computing

PLATFORM KIT

- Standard Cells incl. PMK
- Dual Rail SRAM
- ABX Generator IP
- IO Library
- Clock Generation (ADPLL)

ABX SPEED AND LEAKAGE IMPROVEMENTS

EXAMPLE ULV SOC WITH RACYICS® ABX IP

IP OFFERING

IP Type	Supplier	Description	Ready for Evaluation	Ready for Testchip	Ready for Production
Standard Cell Libraries incl. PMK	Racyics	116CPP 9T CNRX STD-cell library, fully ABX enabled (RBB), supply voltage 0.80V	now	now	now
	Racyics	116CPP 8T CNRX STD-cell library, fully ABX enabled (FBB, RBB), supply 0.40V/0.45V/0.55V/0.60V/0.80V	now	now	now
Single Rail SRAM	Racyics	Single-Rail SP SRAM generator for ULV designs, supply 0.55V/0.65V/0.80V	now	now	now
Dual Rail SRAM	Racyics	Dual-Rail SP SRAM generator for ULV designs, supply 0.40V/0.45V/0.50V/0.60V/0.80V (core) 0.80V (bitcells)	now	now	now
ABX Generator IP	Racyics	Racyics® ABB generator, includes PVT monitors, bias generator, digital control loop, supports FBB and RBB	now	now	now

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