Effectiveness of Adaptive Supply Voltage and Body Bias for Reducing Impact of Parameter Variations in Low Power and High Performance Microprocessors

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Testchip measurements show that adaptive V_{CC} is useful for reducing impacts of die-to-die and WID parameter variations on frequency, active power and leakage power distributions of both low power and high performance microprocessors. Using adaptive V_{CC} together with adaptive V_{BS} or WID-V_{BS} is much more effective than using any of them individually. Adaptive VCC+WID-V_{BS} increases the number of dies accepted in the highest two frequency bins to 80%.