



**Guruprasad**  
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## Professional Summary

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Analog / AMS Design Engineer with hands-on experience in LDO and power-management circuits in TI CMOS processes. Worked on Texas Instruments client projects involving block-level LDO design support and verification, PVT and Monte-Carlo analysis, trimming, aging, and post-layout simulations. Experienced in silicon/IP-level verification and characterization of non-volatile memories, VCO, HVGEN, and EEPROM IPs, including testbench development without data sheets. Strong background in analog fundamentals, PMIC blocks, and Cadence Spectre-based design flow.

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## Core Skills

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**Analog Blocks:** LDO, Bandgap, Op-Amps, Comparators, POR, Voltage References

**PMIC Concepts:** Stability, PSRR, Load Transient, Compensation, Trimming

**Verification:** PVT, Monte-Carlo, Aging, Burn-in, Corner Analysis

**Simulation & Analysis:** AC, Transient, Noise, Stability analysis

**EDA Tools:** Cadence Virtuoso, Spectre, ADE

**Technology:** TI lbc9 / lbc10 / lbc10lv / lbc10mv

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## Texas Instruments – Client Projects (via KarMic Design)

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**Technology nodes:** lbc9, lbc10, lbc10lv, lbc10mv

**Role:** Analog / AMS Design & Verification Engineer

### 1. 1.8 V NMOS LDO – BEANIE Project (lbc10lv)

- Bias circuit modification and block-level design support and verification of NMOS LDO
- PVT, Monte-Carlo, aging, and burn-in simulations
- Line/load regulation, PSRR, stability, startup, and load transient analysis
- Resistor trimming and post-layout simulation support

### 2. Embedded Memory & NVM IP Characterization

- Worked on EEPROM, MTP, and NVM IPs across multiple TI technologies.
- Developed testbenches for IDDQ, program/read currents, margin testing.
- External IREF margin characterization across PVT and Monte-Carlo (up to 1000 samples per corner)
- Post-burn and post-bake current analysis and data extraction

### 3. High-Voltage Generator & VCO IP Testing

- HVGENMINILV / HVGENMINIMVAL IP characterization.
- Designed testbenches to measure IDDQ, frequency vs control voltage.
- Verified VCO performance across temperature and process corners.
- Supported performance improvement through circuit-level modifications.

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## Analog & Mixed-Signal Design Projects (Training / Internal)

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### 1. PMOS Capless LDO (lbc10)

- Designed and verified a PMOS cap-less LDO with focus on stability, quiescent current, and load regulation.
- Conducted PVT and Monte-Carlo simulations to verify all the performance parameters and compared with the theoretical values.

### 2. Bandgap Reference with trimming (lbc10)

- Designed and verified current mode sub 1V bandgap voltage reference using vertical PNP based PTAT, CTAT currents and high gain folded cascode operational amplifier.

- Implemented a 5 bit resistor trimming circuit to tune the BGR across Process corners and mismatch.

### **3. Design and Implementation of Synchronous voltage mode CCM Buck Converter (lbc10)**

- Designed a synchronous CCM buck converter comprising Type II compensated folded cascode amplifier, Com-parator, Level shifter, Non-overlapping single phase clock generator, Power switch driver, Power switches.
- Verified each block and simulated Buck converter across PVT corners and measured performance parameters.

### **4. Design and Implementation of 4 bit SAR ADC (lbc10)**

- Designed a SAR ADC comprising Sample and Hold, Comparator, Successive Approximation Logic, Output buffer, Digital to Analog converter, Internal clock and control signal generator.
- Verified its functional correctness across the PVT corners and measured essential performance parameters.

### **5. Design and Implementation of Delta Sigma Modulator (lbc10)**

- Designed a Delta Sigma Modulator comprising Fully differential folded cascode op-amp with common mode feedback, First order differential switched capacitor active integrator, Dynamic clocked comparator, One bit Digital to Analog converter, Non-overlapping two phase clock generator.
- Verified each block and simulated the modulator across PVT corners and measured vital parameters.

### **6. Design and verification of Digital Phase Locked Loop (lbc10)**

- Designed a Digital PLL comprising Phase frequency Detector, Charge pump, Loop filter, Current starved 3 stage VCO, Divide by 2.
- Verified across all PVT corners and ran Monte-Carlo simulation.

## **Education**

**B.E** - Electronics and Communication

**M.Tech** - Digital Electronics and Communication

**Ph.D** - Analog Circuits

## **Previous Work Experience**

- Design Engineer – KarMic Design Pvt. Ltd. Manipal. (Nov 2024 – Present)
- Faculty – ECE (2008 – 2024)

## **Additional Highlights**

- Author of multiple IEEE journal and conference publications in analog circuits.
- NPTEL Topper – Power Management IC (IIT Chennai)