ANIRUDHA BEHERA

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SUMMARY

Passionate Physical Design Engineer with **2+ years** of experience in **ASIC design flow**, specializing in **PnR**, **STA**, and **low-power techniques**. Proficient in **RTL to GDSII implementation** and **optimization** using **Synopsys** and **Cadence tools**. Experienced in resolving design challenges and improving **PPA metrics** across **3nm**, **5nm**, and **14nm** nodes.

EDUCATION

Illinois Institute of Technology, Chicago, USA ***01/2022 - 12/2023***

Master of Science in Electrical Engineering GPA: 3.53/4.0

Relevant Courses: Introduction to VLSI, CAD Techniques for VLSI Design, High-Performance VLSI/IC Systems, Digital SoC Design, Computer Organization and Design, RF Integrated Circuit Design

Gandhi Institute For Technology, Bhubaneswar, India ***08/2014 - 07/2018***

Bachelor of Technology in Electrical Engineering GPA: 8.1/10

Department Rank 1 (5th - 8th Semester), Recipient of the Best Live Major Project Team Award in 2018

SKILLS

Programming Languages: Perl, TCL Methodology, Bash Shell, Basics of Python, Verilog HDL

EDA Tools: Synopsys ICC2, Design Compiler, PrimeTime, Star RC, IC Validator, Cadence Virtuoso, Encounter, Calibre, ModelSim, Innovus, Redhawk

Physical Design Processes: Floorplan, Power Plan, Placement, Routing, CTS, STA, DRC/LVS, ECO, UPF, RC Extraction, DFT, SDC/Timing Constraint

WORK EXPERIENCE

Honorex Technologies, Washington, USA **05/2024 - Present**

Physical Design Engineer for Marvell Semiconductor

- Contributed to the **Place and Route (PnR)** flow for **AI accelerators** and **high-performance processors** targeting **3nm** and **5nm** nodes, optimizing for **timing**, **power**, and **area (PPA)** across **multiple process corners**. The designs involved over **8M+ standard cells** and **50+ macros**, targeting frequencies of **3.2 GHz** and above.
- Performed **Static Timing Analysis (STA)** for complex designs, identifying and resolving **timing violations** to ensure that **clock frequencies** met **performance** and **power** requirements for Marvell's **custom processors**.
- Developed and optimized **TCL scripts** to automate key tasks in the **PnR** and **STA** processes, reducing iteration cycles and increasing design efficiency, while maintaining high accuracy in **Design Rule Checks (DRC)** and **Layout Versus Schematic (LVS)**.
- Collaborated with **cross-functional teams** in **design**, **verification**, and **manufacturing** to ensure design integrity and achieve **timing closure**, contributing to the successful **tape-out** of advanced **AI and data center processors**.
- Utilized industry-standard **EDA tools** to address design challenges, including **IR-drop** and **crosstalk** issues, and ensured that the **design integrity** was maintained at sign-off, focusing on **robust performance** across varying operating conditions.

Design Automation LAB, IIT, Chicago, USA **08/2023 - 12/2023**

Research Assistant

- Worked under the guidance of **Dr. Ken Choi**, Professor at the **ECE Department, IIT Chicago**, to execute the **RTL to GDSII flow** for **14nm/28nm TSMC nodes** on a **JBI processor**, using **industry-standard EDA tools** to ensure design integrity while optimizing **timing** and **robustness** across **MMMC** and **RC corners**.
- Developed a tailored methodology to minimize **shorts** post-floorplan and **power grid design**, improving **IR-drop resilience** and significantly enhancing the overall **Quality of Results (QOR)** for the design.

ChipEdge Technology, Bengaluru, India **10/2022 - 07/2023**

Physical Design Apprenticeship

- Managed **physical design** phases including **Logic Synthesis**, **Floorplan**, **Placement**, **CTS**, **Routing**, and **Optimization** to meet **Power**, **Performance**, and **Area (PPA)** targets across **14nm, 22nm, 32nm**, and **45nm nodes** using **TSMC FinFET/CMOS technology**.
- Resolved **STA violations** for designs up to **5M cells** and **80+ macros**, ensuring compliance with **timing** and **power** requirements through thorough **analysis** and **optimization**.
- Achieved successful **GDSII tape-outs** by addressing **DRC**, **LVS**, **ERC**, **IREM**, and **Logic Equivalence (LEC)** issues, leveraging **Shell scripting** and **TCL methodology** for **ECO cycles**, **manual debugging**, and automation.

ACADEMIC PROJECTS

OpenSPARC T1 Block Level design from RTL to GDSII using 14nm and 28nm TSMC nodes | DC | ICC2 **02/2023**

- 75% core-area utilization and density sweeps were used to understand congestion and routability behavior.
- Optimized design using insertion and size cell techniques to eliminate DRVs like Caps and Trans.