

## **Requirements for an Integrated Circuit Modeling Engineer**

### **About Scientific, Inc.**

Scientific, Inc. is a VA-Certified, Veteran-Owned. Employee-owned Small Business headquartered in Huntsville, AL specializing in nuclear and space radiation effects system survivability, analysis, verification and testing. Scientific provides full service science and engineering solutions to complex problems facing national defense and aerospace programs supporting both government and prime contractors. Our demonstrated experience extends from research and development through production and qualification. We study environment induced failures; explore new concepts and theories; execute and interpret environmental models; develop new technology designs and materials; and collaborate with government, industry, and academia to implement solutions for our customers.

### **Job Description:**

Results oriented individual able to transition conceptual electrical modeling requirements into proven product on multiple CAD EDA tools (Cadence, Mentor Graphics, etc). Modeling will include analysis of data from space level environments (radiation effects) to integrate into a manufacture's Process Design Kit to allow design engineers to mitigate radiation effects. Parameter extraction techniques and SPICE behavioral modeling techniques post radiation environments is the primary focus of this job. Candidate must be able take empirical data and convert into scalable models representing radiation effects; both static and transient models are required. Physics based knowledge of radiation effects highly desirable but not necessary. Addition skills include ability to define characterization structures and semiconductor layout techniques in Cadence design tools. Previous experience modeling semiconductor degradation effects, NBTI and hot carrier effects would be a beneficial.

### **Education Requirements:**

BS in Electrical

BS in Physics or Computer Engineering w/previous semiconductor modeling experience.

MS in Electrical or Physics w/previous semiconductor modeling experience desired.

### **Basic Qualifications (Required Skills/Experience):**

Understanding of Parameter Extraction Tools & Techniques through use of COTS tools or development of in-house Parameter Extraction Tools

Parameter Extraction & Verification of models including: Curve fitting – SPICE behavioral, PDK Model Integration

Understanding of EDA Tool Environments (PDK integration), SPICE and Derivatives, Model Types/Levels, and Macro-Modeling (behavioral)

Model file CM and Revision Control System

Ability to resolve Simulator Convergence Challenges & Mitigation techniques.

Experience with and understanding of unique Deep-sub-micron technology effects.

Experience with high power bipolar foundry technologies.

Familiarity with UNIX/Linux operating systems from a user's standpoint.

Experience with cross organizational teams.

Customer communication.

Proficiency with commercial Electronic Design Automation tools for Design, Simulation, Monte Carlo Analysis, Physical Layout, and Physical Verification. Prefer a broad background involvement in all of the steps from concept through production.

Integrated circuit analog design and analysis using schematic entry and spice simulation.

Board level analog design and analysis using schematic entry and spice simulation.

**Software skills:**

Ability to verify custom models to empirical and analytical data gathered on targeted radiation test structures and efficiently diagnose and debug discrepancies between datasets.

Knowledge of some of the following languages is preferred:

C, C++, Python, Perl, TCL/TK, Bash/Korn/CSH/TCSH Shell Scripting, Verilog A, Cadence SKILL

Knowledge of some of the following software packages is preferred:

BSIM, Keysight IC-CAP, Silvaco Utmost, Cadence Virtuoso Schematic and Layout, Cadence ADE XL, Cadence Spectre, Cadence PVS DRC and LVS, Mentor Calibre DRC and LVS, Cadence Quantus QRC, Keysight MBP

**Primary Job Location:** Crane, IN

**Job Posting:** 11/16/2018

**Position Type:** Full-Time/Regular

**Travel Requirements:** Yes, up to 10% of the time.

**Security Requirements:** Candidate must be a U.S. Citizen and possess (and be able to maintain) a Final Secret Clearance or meet the eligibility to obtain (and maintain) a Secret clearance.

**Closing Date:** 12/16/2018

Scientific is an Equal Opportunity/Affirmative Action Employer, M/F/Disability/Veteran.

Scientific believes in recognizing employees' worth by offering competitive salaries and benefits, including health, dental, and vision insurance, 401(k) contributions, educational reimbursement, and much more.