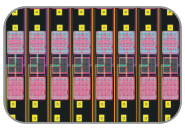
Engineering Center

PRIMARIUS

Semiconductor Engineering Service Platform

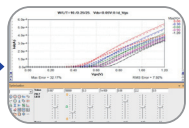
Introduction

Primarius' engineering center is composed of advanced testing lab, EDA computing center, testing services department, modeling services department, PDK service department, standard cell-library and IP service department. Since its initial establishment, the center has been committed to providing SPICE model extraction and verification services for leading foundries. With development of our technical team and more resources allocated, currently we are capable of providing turn-key semiconductor engineering design enablement solutions including testing, modeling, PDK and IP development, consultation, and training services.



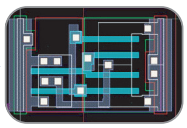
Testing Structure
Design & Layout

Electrical Characteristics
Testing & Analysis



SPICE model
Extraction & Qualification

Process Design Kit (PDK)
Development and Qualification

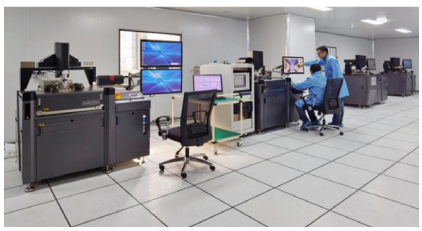


Standard cell library and IP
Development and Characterization

Technical consultation
Training Service

Advanced Testing Lab

Our Lab is equipped with a number of advanced semiconductor testing and analysis systems, including noise measurement systems, semiconductor parameter analyzers, ultra-low temperature testing systems, microwave RF testing systems, and low leakage switching matrix, through which we've successfully established a public technology platform based on big data and AI that supports manual or automatic semiconductor testing, millimeter wave RF device testing, and performance characterization testing of 12-inch wafers or below.



Large-scale EDA Computing Center

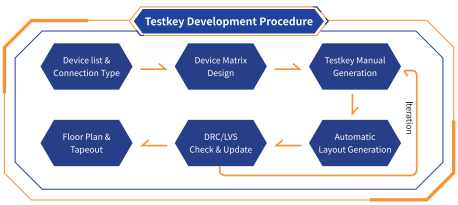
Our computing center is a comprehensive and open service platform with rich EDA resources, equipped with a large number of high-performance X86 and ARM servers and workstations of huge storage capacity. It is also equipped with advanced network security equipment to ensure customers' data security. Our self-developed EDA tools could supply unlimited licenses, providing technical services of IP development and library characterization, as well as flexible software/hardware rental services to fulfill development requirements while saving costs.

Service Scopes

Our semiconductor engineering service solutions support a variety of semiconductor process platforms, such as CMOS planar, FinFET, BI-CMOS, BCD, RFSOI, FDSOI, compound semiconductors, CNFET, and FPD process. These solutions cover various process nodes ranging from 0.18um, 0.13um, 90nm, 65/55nm, 28nm to 14nm and 5nm. They apply for various IC types, including digital logic, analog, radio frequency, display driver, memory, ultra-high voltage, super-conducting quantum, and anti-irradiation. Our center has taken practical actions to contribute to development of the global semiconductor industry.

Testkey Design & Layout

Our model device department has realized full automation in test structure design and layout with high efficiency and guaranteed delivery quality for SPICE models, reliability, PEX, design rules, and PCM development based on PCell and other layout design software developed by Primarius.



Electrical Characteristics Testing and Analysis

Our testing service department provides high and low temperature DC/AC/RF/WAT/noise/reliability/ultra-low temperature/ultra-high voltage testing and other one-stop solutions. We've established efficient and scientific flows and management methods based on years of experiences to provide reliable and professional testing and training services for industry-leading customers. We've delivered large-scale testing projects with tens of thousands of testing hours, during which we accumulated engineering experiences and won recognition and trust from customers.

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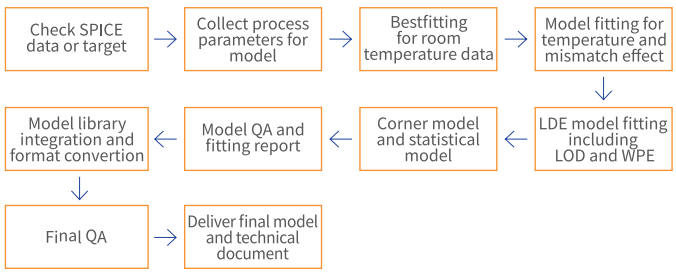
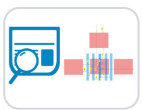
SPICE Model Extraction and QA

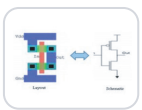
Based on our self-developed modeling and QA platform, as well as universal parallel SPICE simulator, we are capable of providing efficient modeling services while ensuring delivery quality. In addition to providing CMOS baseband and RF SPICE model services that are widely used in the industry, Primarius always takes the initiative to implement innovative device and application-oriented SPICE modeling plans for new materials, devices and applications. We provide complete EDA solutions for HV/ultra-HV power devices, third-generation compound semiconductor devices, super-conducting quantum, and ultra-low temperature MOS, such as device model service, training and consultation for BCD, RFSOI, FDSOI, anti-irradiation, compounds, FPD, IGBT, and CNFET models, etc.

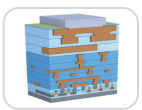


PDK Development and Qualification

Teamed by experts and senior engineers with foundry-related experiences, our PDK service department provide one-stop PDK development, training and consultation services including DRC, LVS, PEX, and PCell development. Since its initial establishment, we have been providing PDK development services for many leading foundries and design companies based on our efficient PDK development and verification solutions including full custom design platform NanoDesigner, parametric cell library development platform PCellLab, and advanced PDK verification platform PQLab. Moreover, we provide fully customized PDK solutions for customers.


DRC development


LVS development


PEX development


PCell development

Standard Cell Characterization & IP Development

Teamed by experienced experts and senior engineers, our IP service department provides development services of foundation IP, analog IP and digital IP based on Primarius' design EDA solutions, and massive storage and computing resources in our EDA computing center. Moreover, we provide complete IP Design Kit services covering mature 0.18um process to advanced 5nm FinFET process, characterization service, one-stop circuit customization service, ASIC back-end design service and related technical consultation and training services.

Library Characterization Service

- Professional service team
- Short characterization cycle
- Huge computing resources
- Self-developed high-performance characterization tools

IP Development Service

Provide development service for various IP types including standard cell library, GPIO, SRAM, eFuse, PLL, DLL, ADC, DAC, LDO, DC-DC, I2C, and MCU

ASIC Back-end Design Service

Provide digital circuit physical synthesis, place & routing, DFT, DFR, analog circuit layout design, physical verification and other service

Chip Customization Service

Provide one-stop IC customization service from chip definition and design to tape-out and testing

Key Advantages

High quality:
Engineering team with rich technical customer service experiences and unique verification solutions to ensure high-quality delivery

High efficiency:
Adopting unique products and technologies in parallel testing, simulation, parameter extraction and automation to enhance service efficiency

Leading technology:
Extensive planar and FinFET engineering experiences based on our self-developed EDA products, industry-leading with cutting-edge technologies

Professional:
Teamed by experts with technical backgrounds and nearly 20 years' engineering experiences

Rich experiences:
Providing services to global leading customers over a decade, winning recognition and trust from customers