Empyrean AMS Design Suite

DATASHEET

Full-Custom Design and Verification Suite Delivering High-Performance, Productivity, and Ease-of-use.

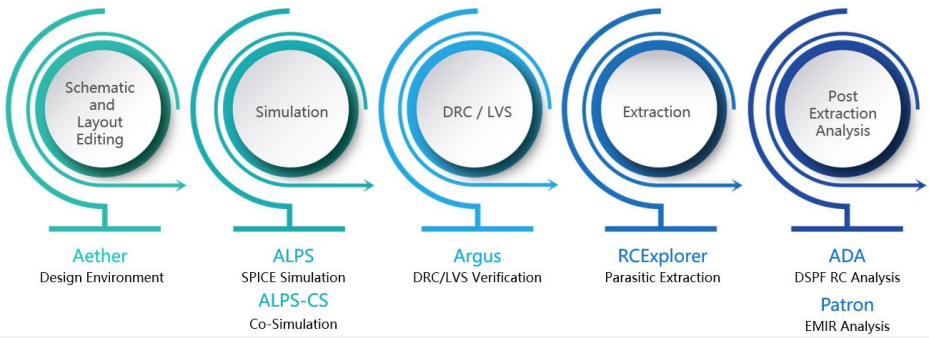
Benefits

- **Enhanced Productivity**
  Empyrean Aether™, the advanced Open Access-based design environment, offers robust functionalities for design entry, simulation management, analysis, and layout, significantly boosting design efficiency.
- **Superior Simulation Performance**
  Utilizing our proprietary Smart Matrix Solver (SMS) technology with GPU architecture, our SPICE tools Empyrean ALPS® achieve unmatched performance in large post-layout simulations, ensuring high runtime efficiency and precise results.
- **Ease of use**
  Fully integrated flow with easy-to-use design and verification features.

Overview

With the increasing complexity in next-generation image sensors, IoT, 5G, 6G, and automotive and electrical vehicle applications, there is a growing demand for superior Analog and Mixed-Signal (AMS) solutions to ensure exceptional designs and faster turnaround times.

Empyrean Technologies offers a comprehensive and highly productive AMS design and verification suite. Our suite of tools is fully integrated within a design environment tailored for AMS designs, covering every step from initial design specification to tape-out. It delivers performance, accuracy, and user-friendliness for new users and those familiar with legacy tools.



Key Features

- **Seamless Integration:** Integrate smoothly with SPICE simulator Empyrean ALPS® suite, physical verification tool Empyrean Argus™, and parasitic extraction tool Empyrean RCExplorer™. This ensures a highly efficient workflow that mitigates risk and boosts productivity.
- **Comprehensive Reliability Analysis:** Our specialized tools provide extensive solutions for EMIR with thermal awareness analysis, Monte Carlo simulation, Failure in Time (FIT) calculation, and DSPF-based RC Analysis, enabling early detection of potential design issues.

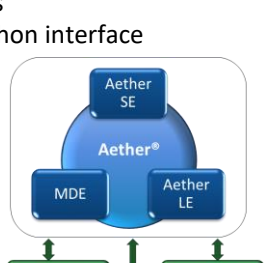
Proven Success

Empyrean Technologies has a proven track record of enabling the tape-out of billions of chips utilizing our AMS design flow. Our advanced tools and integrated design environment ensure that designers can meet the stringent demands of modern applications with confidence and efficiency.

Aether ™

Full Custom Design Platform

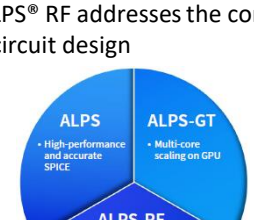
- Complete integrated solution for Analog, FPD, RF, and Memory Designs
- Schematic and layout editing capability for various circuit types
- Flexible Python interface



ALPS ®

Accurate Large-capacity Parallel SPICE Simulator

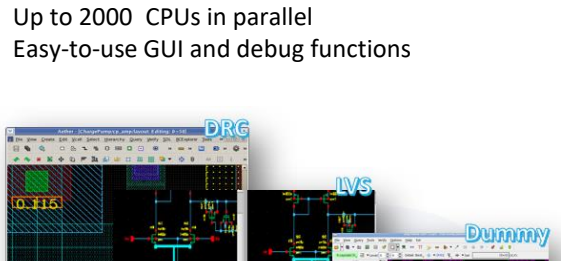
- Empyrean ALPS® delivers 100% SPICE accuracy on circuits with over 100M elements.
- Empyrean ALPS® GT leverages the GPU to provide accelerated processing power and up to 10x performance improvement.
- Empyrean ALPS® RF addresses the complex simulation needs of RF circuit design



Argus ™

Hierarchical Parallel Physical Verification

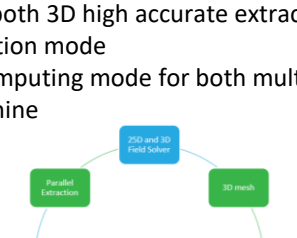
- Signoff quality, 1+ billion chips successfully tape-out
- Up to 2000 CPUs in parallel
- Easy-to-use GUI and debug functions



RCExplorer ™

High-Efficiency Signoff Parasitic Extraction

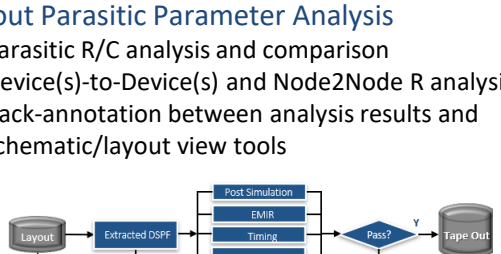
- Supporting transistor-level and gate-level parasitic extraction
- Providing both 3D high accurate extraction and 2.5D fast extraction mode
- Parallel computing mode for both multi-core & multi-machine



ADA ™

Layout Parasitic Parameter Analysis

- Parasitic R/C analysis and comparison
- Device(s)-to-Device(s) and Node2Node R analysis
- Back-annotation between analysis results and schematic/layout view tools



Patron ™

Analog Transistor Level EMIR Signoff

- EMIR analysis, self-heating effect (SHE), multi-state EMIR, Chip Power Model (CPM) generation, and Failure-In-Time (FIT) calculations
- Integrating with Empyrean ALPS® engine providing industrial-certified accuracy from block-level to large post-layout designs
- Intuitive Graphical User Interface (GUI)