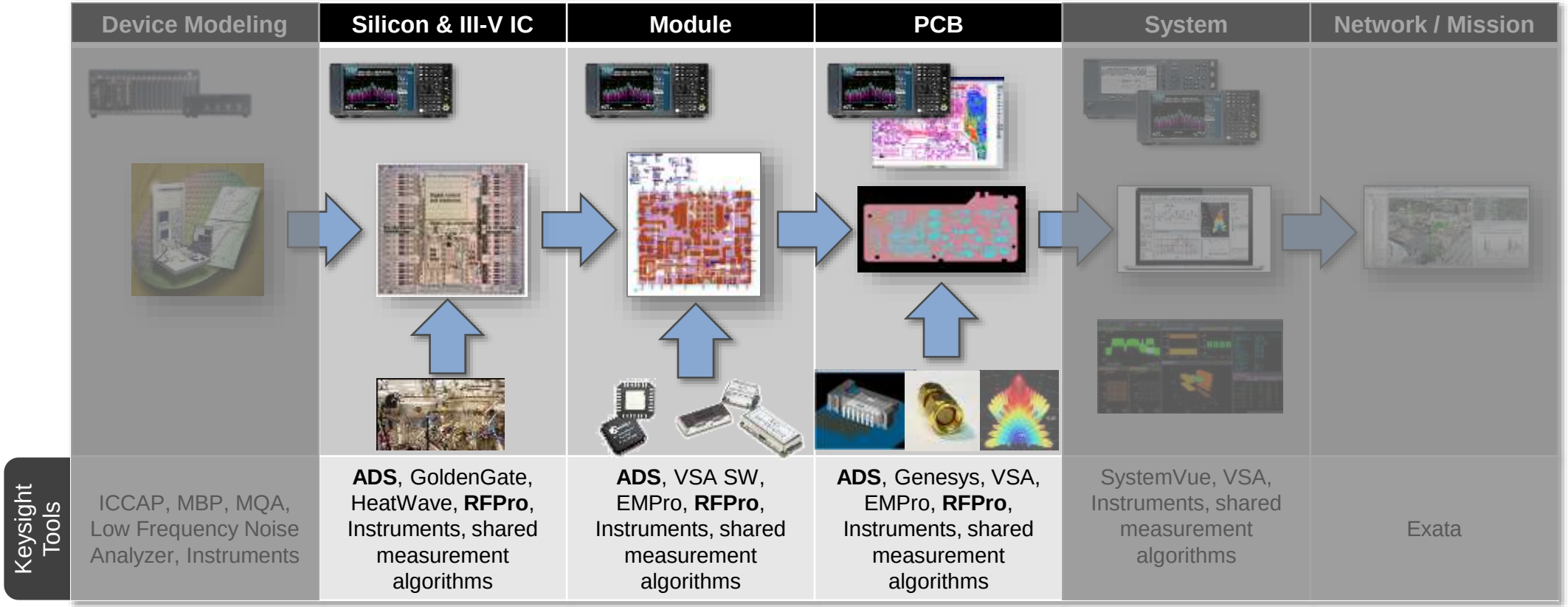
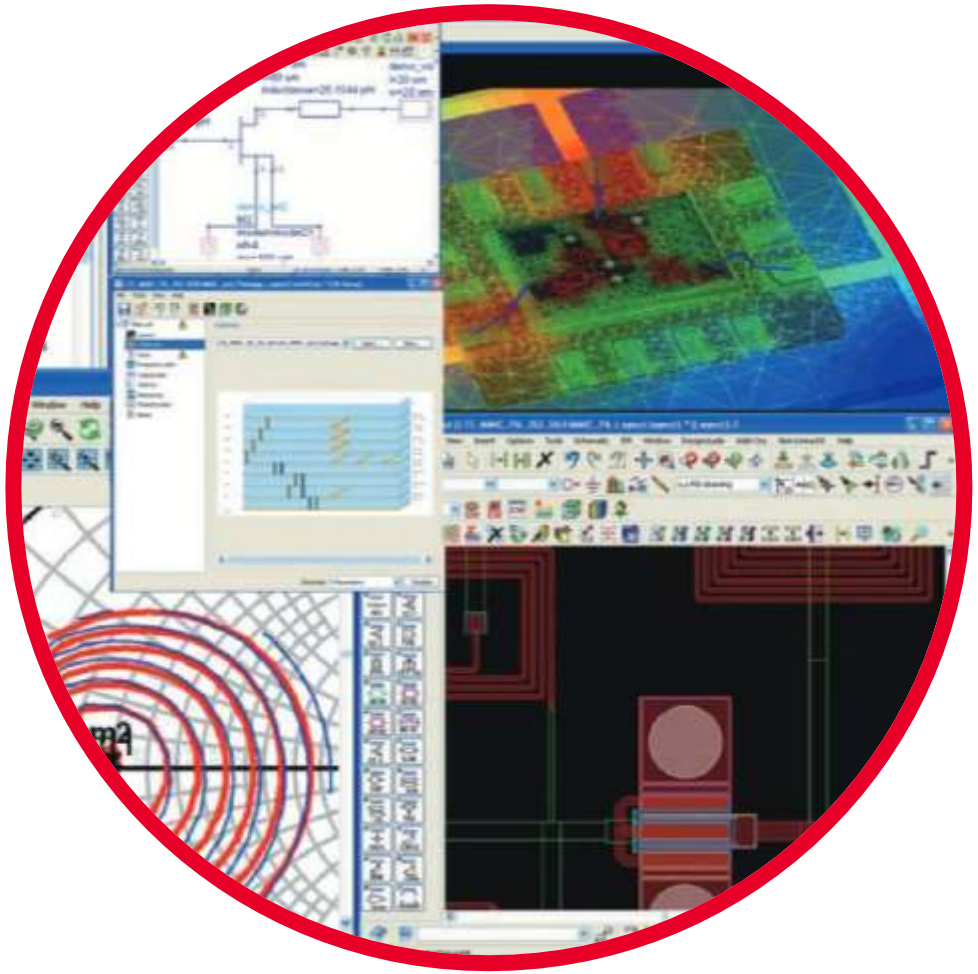
Keysight EDA Tool Suite



Keysight/Cliosoft Design Data (SOS) and IP Management (HUB)

PathWave Advanced Design System (ADS)

- Industry-leading RF, microwave, signal integrity, power integrity design platform
- Allows designers to perform EM and circuit co-simulation in one single tool
- Schematic, layout, circuit, electro-thermal co-simulation and three full-wave 3D EM technologies with integrated circuit (IC), package, laminate, PCB, and 3D EM component co-design



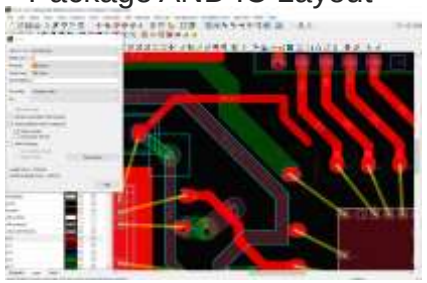
Applications

- RF and Microwave Circuits
- Radar Design
- Power Electronics and High-Speed Digital
- Electromagnetics

A Platform for Multi-Technology Assembly and RF Simulation

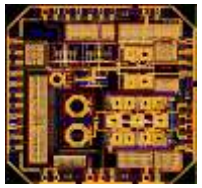
PATHWAVE ADS

Package AND IC Layout

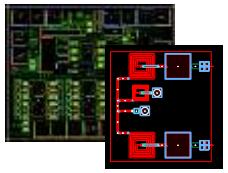


"Layout vs. Layout"

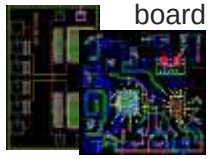
Silicon RFIC



GaAs/GaN/MMIC



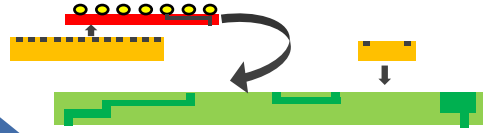
Silicon IC Pkg or board



Interoperable, OA-based designs

Native IC and package designs

Imported designs



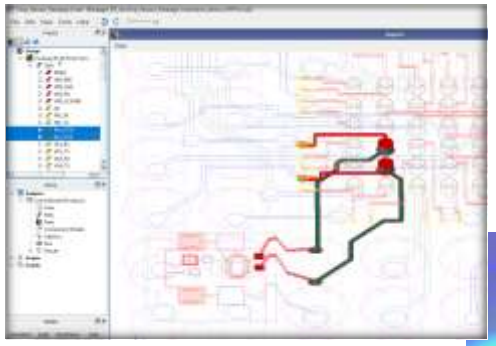
Technology Assembly

Layout, Verification

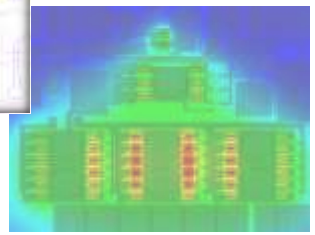
EM, Thermal

Simulation, Analysis

RF Pro

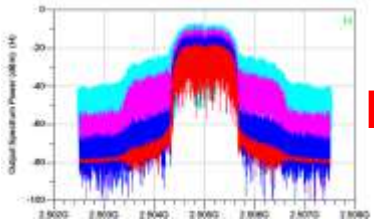


Heatwave



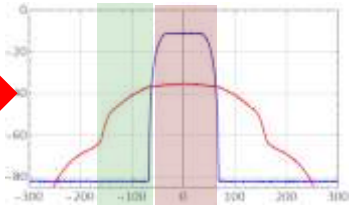
Circuit Envelope

Data Display



X-Apps

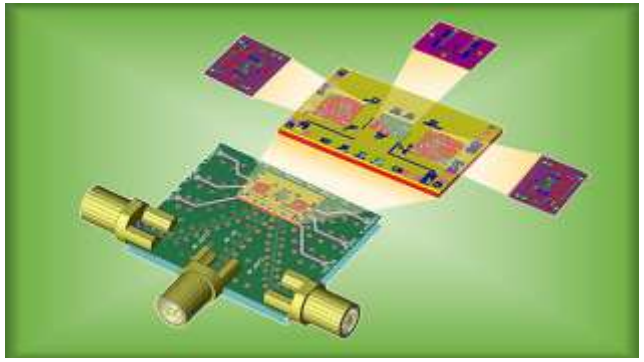
"Distortion EVM"



Models, Design Kits
Libraries, Database Management

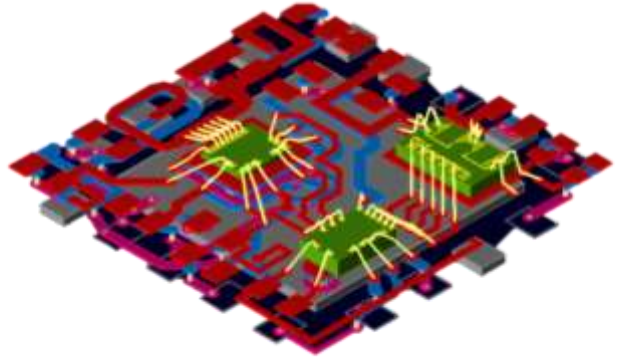
PathWave Design System (ADS) At-A-Glance

INTEGRATION



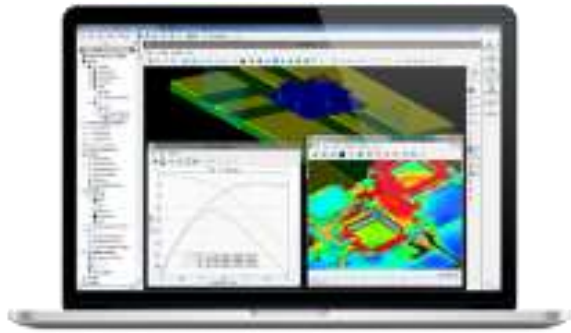
- **Traceability**: Able to read in many formats, including OA
- **Verification:** Layout-vs-Layout
- **In-platform layout tool** spans technology (IC-Module-PCB)
- Complex Multi-library **workspace management** tools built into platform

ASSEMBLY



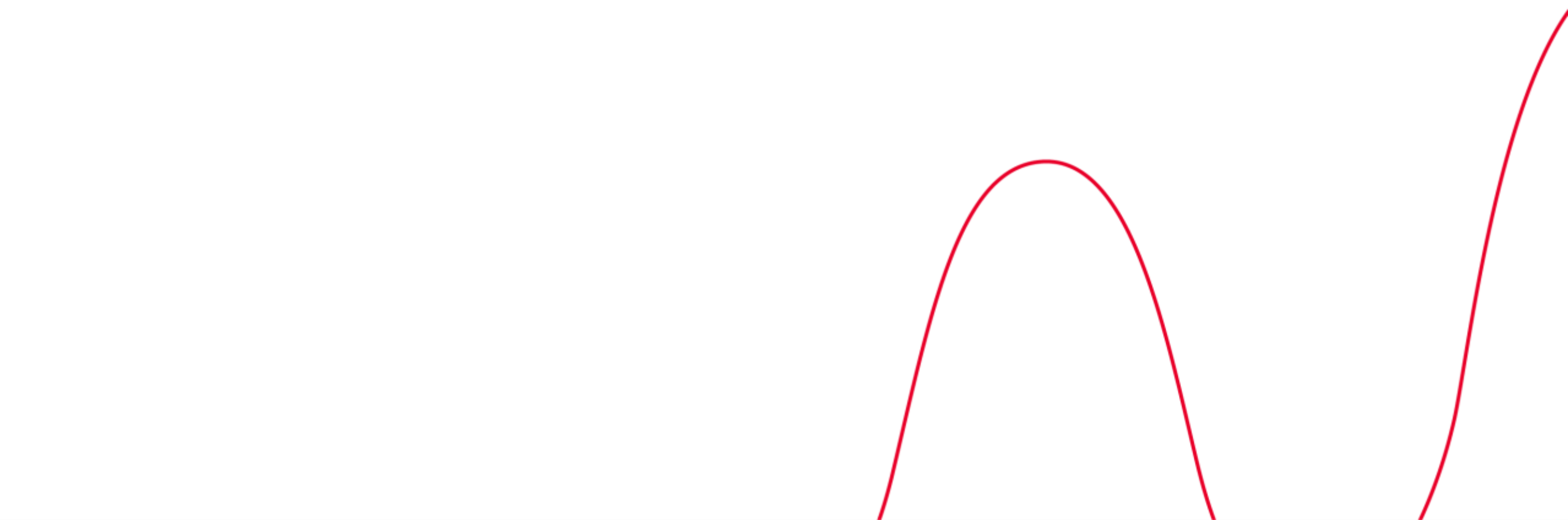
- **Smart Mount** Multi-Technology Assembly is as easy as placing an instance
- **Physical Verification** across technology boundaries
- **Design Rule Checking** on 3D Structures, with constraints manager

SIMULATION

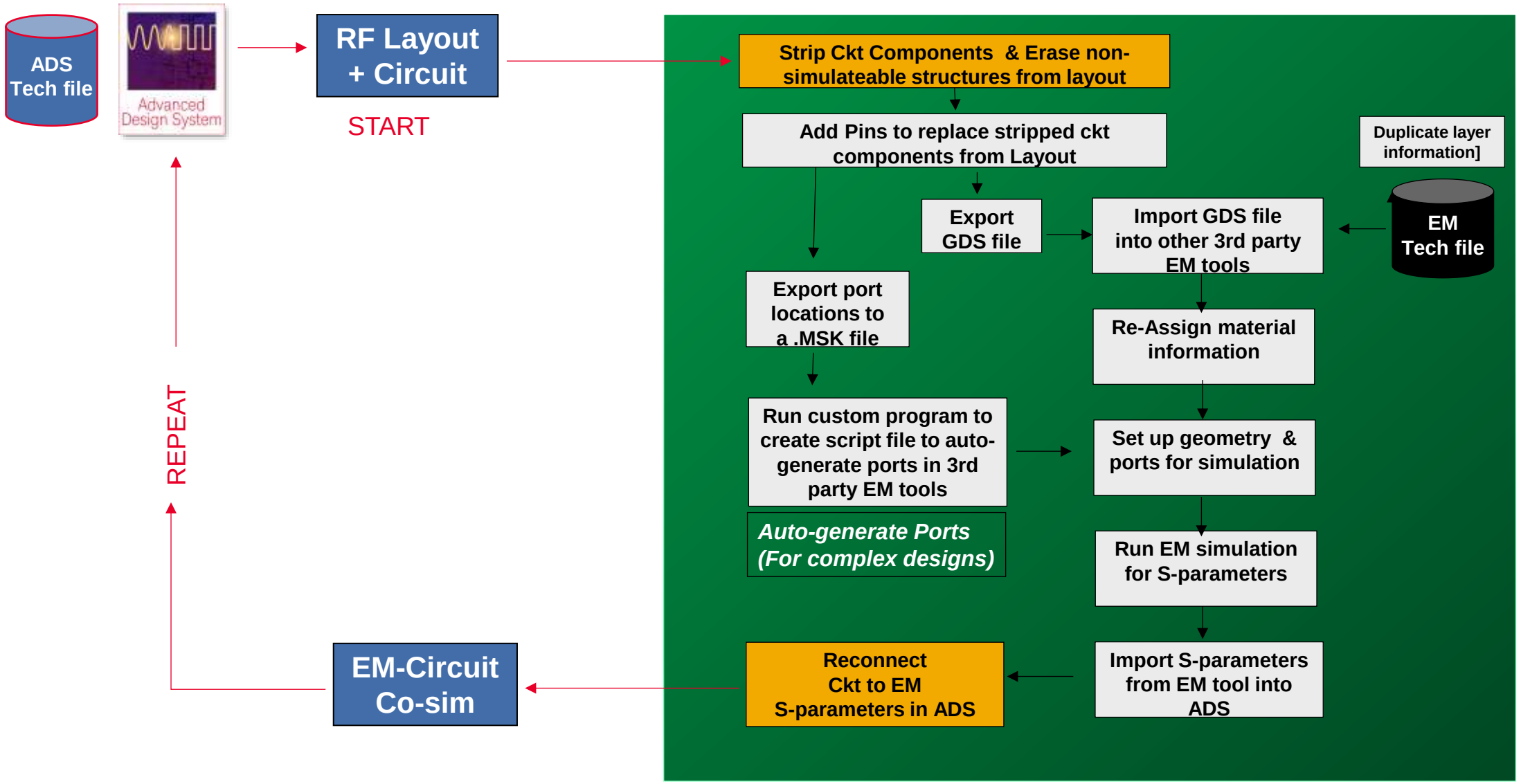


- Fast, accurate **Harmonic Balance**
- **RFPro** for easy, user-friendly **EM**
- **Electrothermal** solver, floor planner
- **Envelope** simulation for modulated signal analysis (compact signals & Fast Envelope)
- Find **stability** problems with WS-Probe
- Unlock data and insights from simulation with **Data Display, Python**

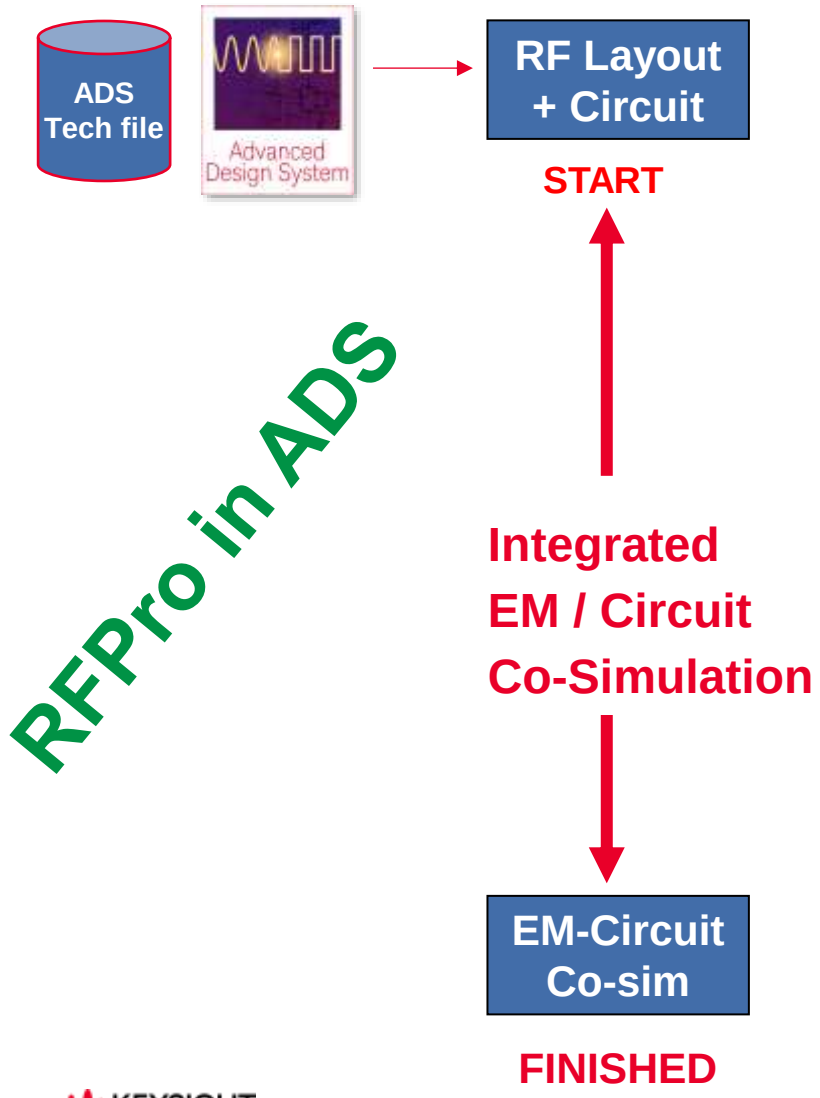
How Does ADS Work with EM Simulations?

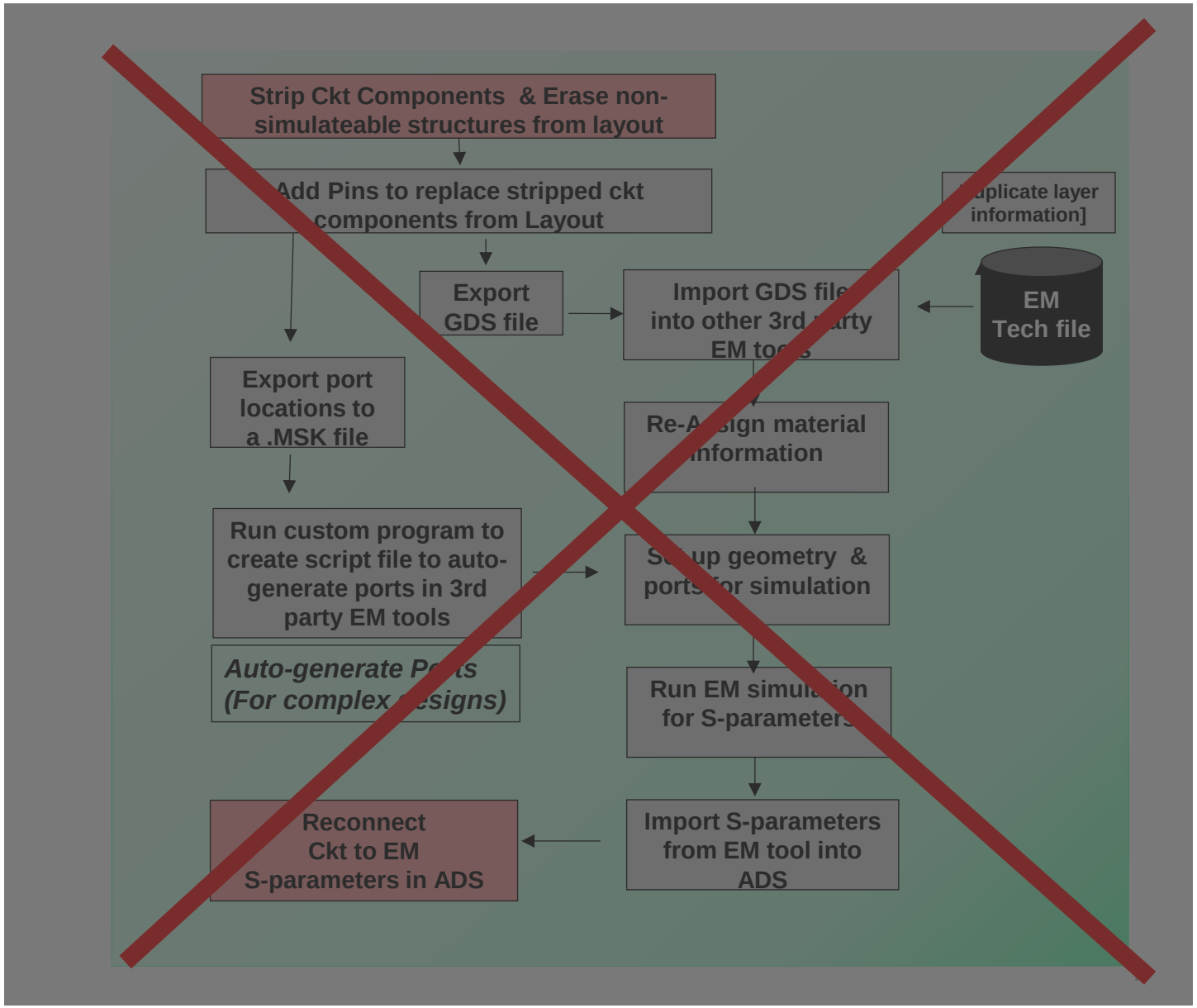


EM-Circuit Simulation - What we heard over 10 years



Integrated EM-Circuit Co-Simulation

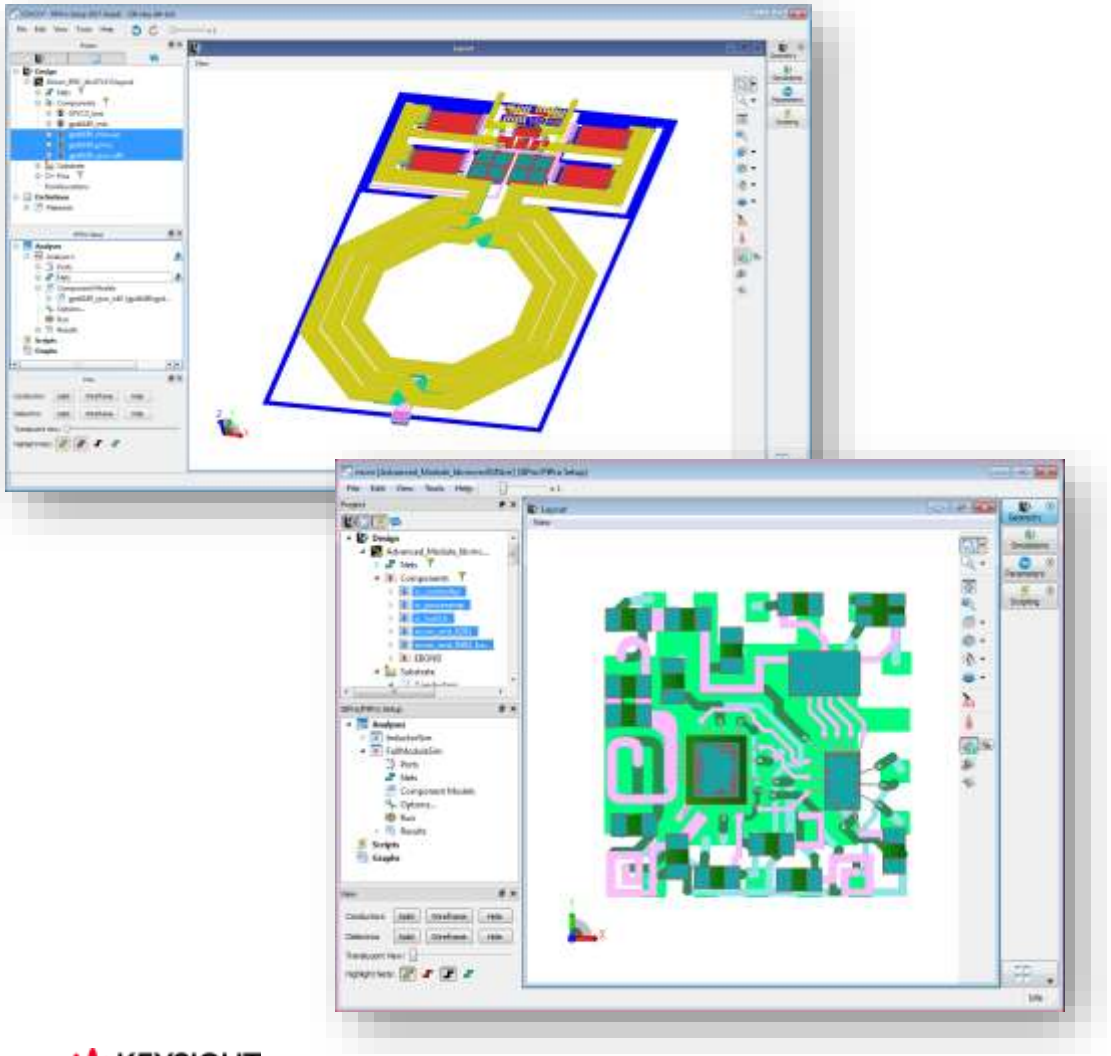




KEYSIGHT

RFPro Makes EM Accessible to Circuit Designers

Simplifies EM setup and analysis for complex ICs and packages



Key Benefits

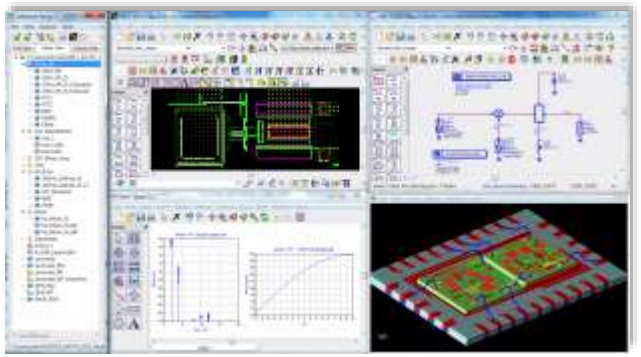
- **Instant EM access** during design with a single integration into the main IC platforms
- **Automatic EM expert settings** guarantee confidence in EM results for novice and expert users
- Fast & correct analysis setup, regardless of problem size for quick, interactive EM and **EM-circuit co-simulation** on demand
- Enhanced ADS Momentum and FEM simulator performance

In Summary

In Summary – Simplifying the Design Cycle with ADS and RFPro

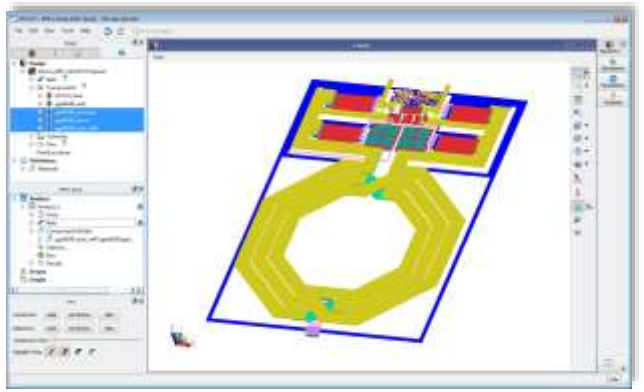
Advanced Design System (ADS)

- Industry-leading RF and microwave design platform
- Works with devices at the integrated circuit (IC), module, or PCB level
- Can work with devices at the circuit/schematic level or at the physical/layout level
- Powerful simulation technologies, including S-parameters, harmonic balance, thermal, and EM



RFPro

- Brings full 3D EM simulations to every circuit designer, no expert setup required
- Full 3D EM engines, containing the same environment for Momentum and FEM
- No need to ‘cookie cut’ – you don’t need to remove active devices or SMD components and replace with pins
- No exporting – integrated into the design environment



Backup