



Smaller, Faster, Smarter Electronics

The gold standard for electromagnetic field simulation

Electromagnetic, Electronics, Thermal and Electromechanical Simulation

ANSYS electromagnetic field simulation helps you design innovative electrical and electronic products faster and more cost-effectively. In today's world of high performance electronics and advanced electrification systems, the effects of electromagnetic fields on circuits and systems cannot be ignored. ANSYS software can uniquely simulate electromagnetic performance across component, circuit and system design, and can evaluate temperature, vibration and other critical mechanical effects. This unmatched electromagnetic-centric design flow helps you achieve first-pass system design success for advanced communication systems, high-speed electronic devices, electromechanical components and power electronics systems.

Wireless and RF

ANSYS high-frequency electromagnetics design software enables you to design, simulate and validate the performance of antennas and RF and microwave components. The integrated microwave circuit and system modeling capabilities have direct integration to our EM solvers delivering a platform for full-system verification of next-generation RF and microwave designs.

PCB and electronic packaging

The ANSYS Chip-Package-System (CPS) design flow delivers unparalleled simulation capacity and speed for power integrity, signal integrity and EMI analysis of high-speed electronic devices. Automated thermal analysis and integrated structural analysis capabilities complete the industry's most comprehensive chip-aware and system-aware simulation solution across the chip-package-board.

Electromechanical and power electronics

ANSYS electromechanical and power electronics simulation software is ideal for applications which depend on the robust integration of motors, sensors, and actuators with electronics controls. ANSYS software simulates the interactions between these components, and the design flow incorporates thermal and mechanical analysis for evaluating cooling strategies and analyzing critical mechanical effects like noise-vibration-harshness (NVH).

Electronics Thermal Management

ANSYS electronics thermal management solutions leverage advanced solver technology with robust, automatic meshing to enable you to rapidly perform heat transfer and fluid flow simulation for convective and forced air cooling strategies. Our solutions help you design cooling strategies to avoid excessive temperatures that degrade the performance of IC packages, printed circuit boards (PCBs), data centers, power electronics and electric motors.

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Applications

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- [RADIO FREQUENCY INTERFERENCE](#)
 - [RF AND MICROWAVE](#)
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 - [ELECTRONICS COOLING](#)
 - [ELECTRIC MOTORS](#)
- [ELECTROMAGNETIC INTERFERENCE/COMPATIBILITY](#)
 - [POWER ELECTRONICS](#)
 - [RADAR CROSS SECTION \(RCS\)](#)
 - [RF DESENSE](#)

Flagship Products

- **HFSS**

A 3D EM field solver to design high-frequency and high-speed electronic components. Its FEM, IE, asymptotic and hybrid solvers address RF, microwave, IC, PCB and EMI problems.

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- **Maxwell**

An EM field solver for electric machines, transformers, actuators and other electromechanical devices. It solves static, frequency-domain, and time-varying electric fields.

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- **SIwave**

A specialized tool for power integrity, signal integrity and EMI analysis of IC packages and PCBs. Solves power delivery systems and high-speed channels in electronic devices.

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- **Icepak**

A CFD solver for electronics thermal management. It predicts airflow, temperature and heat transfer in IC packages, PCBs, electronic assemblies/enclosures, power electronics.

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- **Q³D Extractor**

A 3D and 2D EM field simulator to extract RLCG parameters from an interconnect. It's a parasitic extraction tool to design electronic packaging and power electronic devices.

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- **Electronics Enterprise**

Premier software package for the engineer solving problems across the electronics design spectrum. All ANSYS electronics technologies are included in this single user package.

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- **Electronics Pro 3D**

Electronics Pro 3D is ideal for 3D low frequency electromagnetic analysis, 3D parameter extraction, RF system analysis for the prediction of radio frequency interference and circuit simulation with advanced RF functionality.

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- **Sherlock**

Electronics design software that provides fast and accurate life predictions for electronic hardware at the component, board and system levels in early design stages.

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- **Motor-CAD**

A template-based design tool for fast multiphysics analyses of electric motors across the full torque-speed operating range to optimize their performance, efficiency and size.