ANSYS®

18

18.0 CAPABILITIES

ANSYS

● = Fully Supported
▲ = Limited Capability
□ = Requires more than 1 product

	ANSYS Maxwell	ANSYS HFSS	ANSYS SIwave	ANSYS Q3D Extractor	ANSYS Icepak
ELECTRONICS					
Low Frequency Electromagnetics					
Electrostatics	●				
AC Conduction	●				
DC Conduction	●				
Magnetostatics	●				
Adaptive Field Mesh	●	●	●	●	
AC Harmonic Magnetic	●				
Electric Transient	●				
HPC Frequency Sweeps	●				
HPC Enabled Matrix Multiprocessing	●				
HPC Time Distribution Solver	●				
Magnetic Transient					
Translational Motion	●				
Fully Automatic Symmetrical Mesh Generation	●				
Layered Mesh Generation	●				
Rotational Motion	●				
Non-Cylindrical Motion	●				
Advanced Embedded Circuit Coupling	●				
Circuit Coupling with Adaptive Time Stepping	●				
Direct and Iterative Matrix Solvers	●				
Advanced Magnetic Modeling					
Vector Hysteresis Modeling	●				
Hysteresis Modeling for Anisotropic Material	●				
Nonlinear Reduced Order Models	●				
Frequency Dependent Reduced Order Models	●				
Equivalent Model Extraction (Linear-Motion, Rotational-Motion, No-Motion)	●				
Nonlinear Anisotropic Materials	●				
Functional Magnetization Direction	●				
Magnetization/De-magnetization Modeling	●				
Temperature De-magnetization Modeling	●				
Core Loss computation	●				
Lamination Modeling	●				
Magnetostriction and Magnetoelastic Modeling	●				

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Integrated Motor Synthesis and Design Kit	●				
Integrated Planar Magnetics Synthesis and Design Kit	●				
Integrated System and Circuit Simulation (Simplorer Entry)	●				
High Frequency Electromagnetics					
Multi-frequency broadband adaptive meshing		●			
Frequency and Time Domain Analysis		□			
Eigenmode Analysis		●			
Hybrid Finite Element/Integral Equation Analysis		●			
Hybrid Finite Element/Shooting and Bouncing Ray Analysis		□			
Modal Wave Port Excitation		●			
Lumped, Voltage and Current Excitations		●			
Floquet Excitations		●			
Incident Wave Excitation		●			
Magnetic Ferrite Bias Excitation		●			
Terminal Solutions		●			
Perfect Electric and Magnetic Boundary		●			
Finite Conductivity Boundaries		●			
Lumped RLC Boundary		●			
Symmetry Boundary		●			
Periodic Boundary		●			
Frequency dependant materials		●			
Higher and Mixed order Elements		●			
Curvilinear Elements		●			
Fully automated adaptive mesh refinement		●			
S,Y,Z Matrix Results		●			
E, H, J, P Field Results		●			
Direct and Iterative Matrix Solvers		●			
HPC Accelerated Frequency Sweeps		●			
HPC Enabled Matrix Multiprocessing		●			
HPC Distributed Hybrid Solving		●			
Antenna Parameter Calculation		●			
Infinite and Finite Antenna Array Calculations		□			
Radar Cross Section calculation		●			
FSS, EBG and Metamaterial Calculation		●			

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Specific Absorption Rate Calculation		●			
EMI/EMC Calculation		●			
System Level EMI and RFI analysis		●			
Linear Circuit Analysis with EM Dynamic link		●			
Integrated Antenna Synthesis and Design Kit		●			
Integrated Links to Delcross Savant Shooting and Bouncing Ray+ (SBR+) Solver		●			
Integrated Link to Delcross EMIT RFI/EMI System Solver		●			
Integrated Parametric 3D Component Libraries		●			
Power and Signal Integrity					
Board Simulation Capabilities					
Electronics Desktop 3D Layout GUI		●	●		
ECAD Translation (Altium, Cadence, Mentor, Pulsonix, & Zuken)		●	●		
MCAD (.sat) Generation from ECAD		●	●		
Lead Frame Editor		●	●		
DC Voltage, Current and Power Analysis for PKG/PCB			●		
DC Joule Heating with ANSYS Icepak			●	●	●
Passive Excitation Plane Resonance Analysis			●		
Driven Excitation Plane Resonance Analysis			●		
Automated Decoupling Analysis			●		
Capacitor Loop Inductance Analysis			●		
AC SYZ Analysis - PI, SI, & EMI		●	●		
Dynamically Linked Electromagnetic Field Solvers		●	●		
Chip, Package, PCB Analysis (CPM)		●	●		
HPC SYZ Speed Up		●	●		
Near-Field EMI Analysis			●		
Far-Field EMI Analysis			●		
Characteristic Impedance (Zo) PKG/PCB Scan			●		
Full PCB/PKG Cross-talk Scanning			●		
TDR Analysis		●	●		

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Transient IBIS Circuit Analysis			●		
SerDes IBIS-AMI Circuit Analysis					●
Macro-Modeling (Network Data Explorer)		●	●		
Steady State AC (LNA) Analysis		●	●		
Virtual Compliance - DDRx, GDDRx, & LPDDRx			●		
Synopsys HSPICE Integration			●		
Cadence PSPICE Support			●		
Electromagnetically Circuit Driven Field Solvers		●	●		
RLCG Parasitic Extraction					
DCRL, ACRL & CG Solver			●	●	
IC Packaging RLCG IBIS Extraction for Signals & Power			●	●	
Touchpanel RLCG Unit Cell Extraction			●	●	
Adaptive Meshing for Accurate Extraction				●	
Bus Bar RLCG Extraction				●	
Power Inverter & Converter Component Extraction				●	
Specialized Thin Plane Solver for Touchpanel Extraction				●	
HPC Acceleration for DCRL, ACRL, and CG				●	
3D Component Library		●		●	
Reduced RLCG Matrix Operations				●	
SPICE equivalent Modeling Export				●	
DCRL & ACRL Joule Heating Analysis with Icepak				●	
Macro-modeling (Network Data Explorer)				●	
2D Transmission Line Modeling Toolkit				●	
2D Cable Modeling Toolkit				●	

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Electronics Cooling					
Multi-mode Heat Transfer					●
Steady-state and Transient					●
CFD Analysis					●
Turbulent Heat Transfer					●
Multiple-fluid Analysis					●
Species Transport					●
Solar Loading					●
Reduced Order Flow and Thermal					●
Network Modeling					●
Joule Heating Analysis	●	●	●	●	●
Thermo-electric Cooler Modeling					●
Thermostat Modeling					●
Package Characterization					●
Data Center Modeling					●
Multiphysics					
Platform Technologies					
Advanced, Automated Data Exchange	●	●			
Accurate Data Interpolation Between	●	●			
Dissimilar Meshes	●	●			
Drag-n-Drop Multiphysics	●	●			
Direct Coupling Between Physics	●	●			
Collaborative Workflows	●	●			
Fully Managed Co-Simulation	●	●			
Flexible Solver Coupling Options	●	●			
Electro-Thermal Interaction					
Convection Cooled Electronics		●			●
Conduction Cooled Electronics		●			●
High Frequency Thermal Management		●			
Electromechanical Thermal Management	●				

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