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LOW FREQUENCY ELECTROMAGNETICS									
Electrostatics	●						● (2D Only)	●	
AC Conduction	●						● (2D Only)	●	
DC Conduction	●						● (2D Only)	●	
Magnetostatics	●						● (2D Only)	●	
Adaptive Field Mesh	●						● (2D Only)	●	
AC Harmonic Magnetic	●						● (2D Only)	●	
Electric Transient	●						● (2D Only)	●	
MAGNETIC TRANSIENT									
Translational Motion	●						● (2D Only)	●	
Fully Automatic Symmetrical Mesh Generation	●						● (2D Only)	●	
Rotational Motion	●						● (2D Only)	●	
Non-Cylindrical Motion	●						● (2D Only)	●	
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	●						●	●	
Frequency Dependent Reduced Order Models	●						●	●	

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ADVANCED MAGNETIC MODELING (CONTINUED)									
Equivalent Model Extraction (Linear-Motion, Rotational-Motion, No- Motion)	●						●	●	
Functional Magnetization Direction	●						●	●	
Magnetization/De- Magnetization Modeling	●						●	●	
Manufacturing Dependent Core L Loss Models	●						●	●	
Noise – Vibration Modeling	■						■	■	
Temperature De- Magnetization Modeling	●						●	●	
Core Loss Computation	●						●	●	
Lamination Modeling	●						●	●	
Magnetostriction and Magnetoelastic Modeling	●						●	●	
Hardware in the Loop Modeling	●						●	●	
Integrated Motor Synthesis and Design Kit	●					●	●	●	
Integrated Planar Magnetics Synthesis and Design Kit	●						●	●	
Litz Wire Modeling	●						●	●	
CONCEPT DESIGN SOLUTION FOR ELECTRICAL MACHINE									
Template-Based Magnetic Topologies						●			
Template-Based Cooling Topologies						●			
Magnetic 2D FEA with Analytical Solution						●			
Thermal 2D FEA with Analytical Solution						●			

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CONCEPT DESIGN SOLUTION FOR ELECTRICAL MACHINE (CONTINUED)									
3D Thermal and Fluid Network						●			
Temperature Dependent Duty-Cycle Analysis						●			
Manufacturing Effects Due to Winding Impregnation and Housing Interfaces						●			
Linear Structural 2D FEA						●			
Electrothermal Reduced Order Model (FMU)						●			
HIGH FREQUENCY ELECTROMAGNETICS									
Fully Automated Adaptive Mesh Refinement		●						●	
Multi-Frequency Broadband Adaptive Meshing		●						●	
Frequency Domain Finite Element (FEM) Analysis		●						●	
Frequency Domain Integral Equation (MoM) Analysis		●						●	
Time Domain FEM Analysis		●						●	
FEM Eigenmode Analysis		●						●	
MoM Characteristic Mode Analysis		●						●	
Physical Optics (PO) Analysis		●						●	
Shooting and Bouncing Ray+ (SBR+) Analysis		●						●	
Physical Theory of Diffraction (PTD) Correction for SBR		●						●	
Uniform Theory of Diffraction (UTD) Correction for SBR		●						●	
Visual Ray Tracing for SBR+ Analysis		●						●	
SBR+ Creeping Wave Correction for RCS of Curved Obects		●						●	

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HIGH FREQUENCY ELECTROMAGNETICS (CONTINUED)									
Range Doppler Plots for Radar Scenario Analyses								●	
Accelerated Doppler Processing (ADP) for SBR+ Range Doppler Analyses								●	
Domain Decomposition Method (DDM) for Frequency Domain FEM Analysis		●						●	
Hybrid Finite Element/ Integral Equation Analysis		●						●	
UI Coupled Finite Element and/or IE with SBR+ Analysis		●						●	
Modal Wave Port Excitation		●						●	
Terminal Wave Port Excitations		●						●	
Lumped, Voltage and Current Excitations		●						●	
Circuit Port Excitations		●						●	
Parametric Antenna Excitations for SBR+		●						●	
Floquet Excitations		●						●	
Incident Wave Excitation		●						●	
Magnetic Ferrite Bias Excitation		●						●	
Perfect Electric and Magnetic Boundary		●						●	
Finite Conductivity Boundary		●						●	
Lumped RLC Boundary		●						●	
Symmetry Boundary		●						●	
Periodic Boundary		●						●	

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HIGH FREQUENCY ELECTROMAGNETICS (CONTINUED)									
Frequency Dependant Materials								●	
Spatial XYZ Material Properties Via Dataset								●	
Higher and Mixed Order Elements		●						●	
Curvilinear Element Mesh Correction		●						●	
S,Y,Z Matrix Results		●						●	
E, H, J, P Field Results		●						●	
Direct and Iterative Matrix Solvers		●						●	
Antenna Parameter Calculation		●						●	
Infinite and Finite Antenna Array Calculations		●						●	
Radar Cross Section Calculation		●						●	
FSS, EBG and Metamaterial Calculation		●						●	
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		●						●	
5G SAR Standards Toolkit		●						●	
Power Density and CDF		●						●	
Radar Prep/Post Simulation Wizards		●						●	
3D Component Libraries with User Controled Parametrics		●						●	
3D Component with Encryption Creation		●						●	

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HIGH FREQUENCY ELECTROMAGNETICS (CONTINUED)									
3D Component with Encryption Utilization		●						●	
Mutlipaction Solver		●						●	
Accelerated Doppler Processing (ADP) for SBR+ Range-Doppler Analysis								●	
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)		●	●					●	
Near-Field EMI Analysis			●					●	
Far-Field EMI Analysis			●					●	
EMI/EMC Full Board Scan								●	

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POWER AND SIGNAL INTEGRITY BOARD SIMULATION CAPABILITIES (CONTINUED)									
Characteristic Impedance (Zo) L PKG/PCB Scan			●					●	
Full PCB/PKG Cross-Talk Scanning			●					●	
TDR Analysis		●	●	●			●	●	
Transient IBIS Circuit Analysis		●	●					●	
Signal Net Analyzer								●	
SerDes IBIS-AMI Circuit Analysis			●					●	
Macro-Modeling (Network Data Explorer)	●	●	●	●				●	
Steady State AC (LNA) Analysis			●					●	
Virtual Compliance - DDRx, GDDRx, & LPDDRx			●					●	
SPISIM Com and USB-C Compliance								●	
SPISIM IBIS AMI Generation								●	
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				●				●	
3D Component Library				●				●	

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RLCG PARASITIC EXTRACTION (CONTINUED)									
Reduced RLCG Matrix Operations				●				●	
SPICE Equivalent Modeling Export				●			●	●	
DCRL & ACRL Joule Heating Analysis with Icepak				●				●	
Macro-Modeling (Network Data Explorer)				●				●	
2D Cable Modeling Toolkit				●				●	
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					●			●	
Joule Heating Analysis	■	■	■	■	●			●	
Thermo-Electric Cooler Modeling					●			●	
Thermostat Modeling					●			●	
Package Characterization					●			●	
Data Center Modeling					●			●	

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CABLE MODELING									
Finite Difference Time Domain Analysis									●
Multi-Conductor Transmission Line Analysis	●	●	●	●	●		●	●	●
Two-Way Coupling FDTD and Transmission Line Solver		▲						▲	●
Twisted Conductors									●
Seam Impedance									●
Cable Junctions									●
Braided Shield Support									●
Pin Voltage, Current Density, Plane Wave Excitations		●						●	●
Multi-Conductor and Multi-Shield Support									●
Uses SpaceClaim Design Modeler UI									●
Thin Surface and Thin Wire Algorithms									●
HPC FOR ELECTRONICS									
GPU Support	■	■							
HPC Accelerated Frequency Sweeps	●	●	●						
HPC Distributed Hybrid Solving		●							
HPC Enabled Domain Decomposition Method	●	●							
HPC Time Decomposition Method	●						●		
HPC Enabled Multi-port Excitation Acceleration		●							
HPC Acceleration for DCRL, ACRL and CG				●					
HPC Enabled Parallel Processing	●	●		●	●		●		

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SYSTEMS MODELING - ELECTRONICS PRODUCTS									
SYSTEM MODELING FOR POWER ELECTRONICS									
Circuit Simulation	●	●	●	●	●		●	●	
Block Diagram Simulation	●	●	●	●	●		●	●	
State Machine Simulation	●	●	●	●	●		●	●	
VHDL-AMS Simulation	●	●	●	●	●		●	●	
Integrated Graphical Modeling Environment	●	●	●	●	●		●	●	
Power Electronics Component Libraries	●	●	●	●	●		●	●	
Reduced Order Modeling	●	●	●	●	●		●	●	
Power Electronic Device and Module Characterization	●	●	●	●	●		●	●	
Co-Simulation with Low Frequency Electromagnetics	●						●	●	
Co-Simulation with MathWorks Simulink	●	●	●	●	●		●	●	
SYSTEM MODELING FOR RF/MICROWAVE									
Radio Frequency Interference (RFI) System Solver		●					●	●	
Electromagnetic Interference System Solver		●					●	●	
RF Link Budget Analysis		●					●	●	
RF Co-Site and Antenna Coexistence Analysis		●					●	●	
Automated Diagnostics for Rapid Root-Cause Analysis		●					●	●	
RF Component Library		●					●	●	
Wireless Propagation Models		●					●	●	
Multi-Fidelity Parametric Radio Models		●					●	●	

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SYSTEM MODELING FOR SI/PI									
SerDes Channel Modeling - IBIS-AMI, QuickEye and VerifEye		▲	●					●	
Multi-Drop & Parallel Bus Modeling - IBIS, HSPICE, Spectre, PSPICE, and Nexxim Transient		▲	●					●	
Network Data Exploration	●	●	●	●				●	
TDR analysis		●	●					●	
Steady State AC (LNA) Analysis		●	●					●	
Virtual Compliance - DDRx, GDDRx, & LPDDRx		●	●					●	
MULTIPHYSICS									
PLATFORM TECHNOLOGIES									
Advanced, Automated Data Exchange	●	●	●	●	●			●	
Drag-n-Drop Multiphysics	●	●	●	●	●			●	
Direct Coupling Between Physics	●	●	●	●	●			●	
Collaborative Workflows	●	●	●	●	●			●	
Fully Managed Co-Simulation	●	●	●	●	●			●	
Flexible Solver Coupling Options	●	●	●	●	●			●	

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ELECTRO-THERMAL INTERACTION									
Convection Cooled Electronics		●			●			●	
Conduction Cooled Electronics		●			●			●	
High Frequency Thermal Management		●		●	●			●	
Electromechanical Thermal Management	●			●	●			●	
MATERIALS DATABASE FOR ELECTRONICS									
GRANTA Materials Data for Simulation	■	■			■		■	■	
MISCELLANEOUS									
Integrated Windows HPC Support	●	●	●	●	●				
Integrated IBM Spectrum LSF Support	●	●	●	●	●				
Customizable 3rd Party Scheduler Support	●	●	●	●	●				
Support ACT Extensions	▲	▲	▲	▲	▲			▲	
Parallel Solving with Ansys Cloud Launched from Desktop	●	●	●	●	●				

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