18.2 CAPABILITIES

ANSYS

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

	ANSYS Mechanical Enterprise	ANSYS Mechanical Premium	ANSYS Mechanical Pro	ANSYS DesignSpace	ANSYS Autodyn	ANSYS LS-DYNA	ANSYS AIM
STRUCTURES							
Geometric Idealization							
Spring	●	●	▲	▲	●	●	
Mass	●	●	●	●	●	●	●
Damper	●	●			●	●	
Spar	●	●	●	●			
Beam	●	●	●	●	●	●	
Pipe/Elbow	●	●	●	●			
Shell - Thin	●	●	●	●	●	●	●
Layered Shell - Thin (Composite)	●	●			●	●	
Shell - Thick (Solid Shell)	●	●	●	●			
Layered Shell - Thick (Solid Shell) (Composite)	●	●					
2D Plane / Axisymmetric	●	●	●	●	●	●	
3D Solids	●	●	●	●	●	●	●
Layered 3D Solids (Composite)	●	●					
Infinite Domain	●	●	●		●	●	
2.5D	●	●					
Reinforced	●	●			●	●	
ROM	●						
Substructuring / Matrix	●						
Modeling Capabilities							
Contact - Linear	●	●	●	●	●	●	●
Contact - Nonlinear	●	●	●	▲	●	●	●
Joints	●	●	●			●	●
Spot Welds	●	●	●		●	●	
Birth and Death	●						
Gaskets	●						
Rezoning and Adaptive Remeshing	●				●	●	
Materials							
Basic Linear Materials (Linear, Anisotropic, Temperature Dependent).	●	●	●	●	●	●	●
Basic Nonlinear Materials (Hyper, Plasticity, Rate Independent, Isotropic, Concrete).	●	●			●	●	
Advanced Nonlinear Materials (Rate dependent, Anisotropic, Damage Models, Geomechanics Materials, Multiphysics).	●				●	●	▲
Field Dependent	●	●					
Reactive Materials	●				●		
Fracture Mechanics	●						

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	ANSYS Mechanical Enterprise	ANSYS Mechanical Premium	ANSYS Mechanical Pro	ANSYS DesignSpace	ANSYS Autodyn	ANSYS LS-DYNA	ANSYS AIM
Composite Materials							
Material Definitions	●	●			●	●	
Layers Definitions	●	▲			●	●	
Solid Extrusion	●						
First-ply Failure	●						
Last-Ply failure	●						
Delamination	●				●	●	
Draping	●						
Structural Solver Capabilities							
Linear Static	●	●	●	●			●
Nonlinear Static	●	●	●	▲			●
Pre-Stress effects, Linear perturbation	●	●	●	●	▲	▲	
Nonlinear Geometry	●	●	●		●	●	●
Buckling - Linear Eigenvalue	●	●	●	●			
Buckling - Nonlinear Post Buckling Behavior	●	●	●			●	●
Buckling - Nonlinear Post Buckling Behavior- Arc Length	●	●					
Steady State Analysis applied to a Transient Condition	●						
Advanced Wave Loading	●						
Topology Optimization							
Static Structural	●	●	●	●			●
Modal Analysis	●	●	●	●			●
Design Validation Transfer	●	●	●	●			●
Manufacturing Constraints	●	●	●	●			
Multi Analysis							
Submodeling	●	●	●	●			
Data Mapping	●	●	●				●
Trace Mapping	●	●					
Initial State	●	●			●	●	
Advanced Multi-Stage 2-D to 3-D Analysis	●	●					
Vibrations							
Modal	●	●	●	●			●
Modal - Pre-Stressed	●	●	●	●			
Modal - Damped/Unsymmetric	●	●					
Transient - Mode-Superposition	●	●					

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Harmonic - Mode-Superposition	●	●					
Harmonic - Full	●	●					
Spectrum	●	●					
Random Vibration	●	●					
Mistuning	●	●					
Rotordynamics	●	●					
Modal Acoustic	●						
Harmonic Acoustic	●						
Nonlinear Transient Dynamics							
Rigid Body Mechanisms	●	●					
Rigid Body Dynamics with CMS components for flexible bodies	●						
Full Transient	●				●	●	
CMS with Substructuring	●						
Explicit Dynamics							
FE (Lagrange) Solver	●				●	●	
Euler Solvers	▲				●		
Meshless Solvers					●		
Implicit-Explicit Deformations	●				●	●	
Implicit-Explicit Material States	●				●		
Fluid-Structure Interaction (FSI)					●		
Mass Scaling	●				●	●	
Natural Fragmentation	●				●		
Erosion Based on Multiple Criteria	●				●	●	
De-Zoning					●	●	
Part Activation and Deactivation (Multi Stage Analysis)					●		
Remapping in Space					●		
Remapping Solution Methods					●		
Durability							
Stress-Life (SN)	●	●	●				●
Strain-Life (EN)	●	●	●				●
Dang Van	□[1]	□[1]	□[1]				
Safety Factor	●	●	●				●
Adhesive Bond	□[1]	□[1]	□[1]				
Crack Growth Linear Fracture Mechanics	□[1]	□[1]	□[1]				
Seam Weld	□[1]	□[1]	□[1]				
Spot Weld	□[1]	□[1]	□[1]				
Thermo-mechanical Fatigue	□[1]	□[1]	□[1]				

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	ANSYS Mechanical Enterprise	ANSYS Mechanical Premium	ANSYS Mechanical Pro	ANSYS DesignSpace	ANSYS Autodyn	ANSYS LS-DYNA	ANSYS AIM
Vibration Fatigue	☐1	☐1	☐1				
Virtual Strain Gauge Correlation	☐1	☐1	☐1				
Python Scripting Customization	☐1	☐1	☐1				
Wave Hydrodynamics							
Diffraction and Radiation	●						
Frequency & Time Domain Motions Analysis	●						
Moorings, Joints & Tethers	●						
Load Transfer to Structural Analysis	●						
Thermal							
Steady State Thermal	●	●	●	●			●
Transient Thermal	●	●	●				●
Conduction	●	●	●	●	●	●	●
Convection	●	●	●	●			●
Radiation to Space	●	●	●				●
Radiation - Surface to Surface	●	●	●				
Phase Change	●	●	●		●	●	
Thermal Analysis of Layered Shells and Solids	●	●					
Additional Physics							
1-D Thermal-flow	●	●	●				
1-D Coupled-field Circuits	●						
1-D Electromechanical transducer	●						
MEMS ROM	●						
Piezoelectric	●						
Piezoresistive	●						
Electroelastic	●						
Electromagnetic	●						▲
Vibro-acoustics	●						
Migration	●						
Diffusion -Pore-fluid	●						
Diffusion-Thermal Structural-Electric	●						
Structural-Thermal-Electric-Magnetic	●						▲
1-Way Fluid-Structure Interaction	☐2	☐2	☐2				●
2-Way Fluid-Structure Interaction	☐2						

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	ANSYS Mechanical Enterprise	ANSYS Mechanical Premium	ANSYS Mechanical Pro	ANSYS DesignSpace	ANSYS Autodyn	ANSYS LS-DYNA	ANSYS AIM
Optimization							
DesignXplorer Included	●	●	●	●	□3	□3	●
Parameters	●	●	●	●	●	●	●
Design Point Studies	●	●	●	●	●	●	●
Correlation Analysis	●	●	●	●			●
Design of Experiments	●	●	●	●			●
Sensitivity Analysis	●	●	●	●			●
Goal Driven Optimization	●	●	●	●			●
Six Sigma Analysis	●	●	●	●			●
Miscellaneous and Usability							
ANSYS SpaceClaim	●	□4	□4	□4	□4		●
ANSYS Customization Suite (ACS)	●	□5	□5	□5	□5		●
Support ACT Extensions	●	●	●	●	●	●	●
Command snippet support	●	●	●				●
Batch run capability	●	●	●	●	●	●	●
External Code Interfaces	●	●		●	●		
HPC - Structures							
Default Number of Cores	2 (DMP + SMP) MAPDL 2 for Explicit 2 for RBD 2 for AQWA	2 (DMP + SMP)	2 (DMP + SMP)	2 (SMP)	1	1	2 (DMP + SMP) MAPDL
Parallel Solving on Local PC	●	●	●	●	●	●	●
Parallel Solving on Cluster	●	●	●		●	●	
GPU Support	□6 MAPDL - Yes Explicit - No RBD - No Aqwa - No	□6	□6	□6			

1 = ANSYS nCode DesignLife Products
2 = ANSYS Fluent
3 = ANSYS DesignXplorer
4 = ANSYS SpaceClaim
5 = ANSYS Customization Suite (ACS)
6 = ANSYS HPC, ANSYS HPC Pack or ANSYS HPC Workgroup

DMP = Distributed-memory
SMP = Shared-memory
MAPDL = Mechanical APDL
Explicit = Autodyn
RBD = Rigid Body Dynamics
Aqwa = Aqwa

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	ANSYS CFD Enterprise						
	ANSYS CFD Premium						
	ANSYS FLUENT	ANSYS CFX	ANSYS POLYFLOW	ANSYS Forte	ANSYS FENSAP-ICE	ANSYS AIM	ANSYS Chemkin Pro
FLUIDS							
General Solver Capabilities							
Comprehensive Inlet and Outlet Conditions	●	●	●	●	●	●	
Steady-State Flow	●	●	●	●	●	●	●
Transient Flow	●	●	●	●	●	●	●
2-D and 3-D Flow	●	▲	●	▲	●	▲	
Reduced Order Models (ROM)	●						
Time Dependent Boundary Conditions	●	●	●	●	●		●
Customizable Materials Library	●	●	●	●	●	●	●
Fan Model	●	●			●		●
Periodic domains	●	●	●	●	●	●	
Flow-driven solid motion (6DOF)	●	●			●		
Pressure-based coupled solver	●	●	●	●	●	●	●
Density-based coupled solver	●						●
Dynamic/moving-deforming mesh	●	●	●	●	●		
Overset Mesh	●						
Immersed-solid/MST method for moving parts		●	●		●		
Automatic on-the-fly mesh generation with dynamic refinement	●			●			●
Dynamic Solution-Adaptive Mesh refinement	●	●		●	▲		●
Polyhedral unstructured solution-adaptive mesh refinement	●						
Single Phase, non reacting flows							
Incompressible Flow	●	●	●			●	●
Compressible Flow	●	●		●	●	●	●
Porous Media	●	●	●			▲	●
Non-Newtonian Viscosity	●	●	●			●	
Turbulence - Isotropic	●	●	●	●	●	●	
Turbulence - Anisotropic (RSM)	●	●					
Turbulence - Unsteady (LES/SAS/DES)	●	●					
Turbulence - Laminar/Turbulent Transition	●	●			●	●	
Flow Pathlines (Massless)	●	●	●			●	
Fan Model	●	●			●		
Acoustics (Source Export)	●	●			●		
Acoustics (Noise Prediction)	●	▲					
Heat Transfer							
Natural Convection	●	●			●	●	●
Conduction & Conjugate Heat Transfer	●	●			●	●	●
Shell Conduction (including multi-layer model	●						

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	ANSYS CFD Enterprise						
	ANSYS CFD Premium						
	ANSYS FLUENT	ANSYS CFX	ANSYS POLYFLOW	ANSYS Forte	ANSYS FENSAP-ICE	ANSYS AIM	ANSYS Chemkin Pro
Internal Radiation - Participating Media	●	●	●		●		●
Internal Radiation - Transparent Media	●	●					●
External Radiation	●	●				●	●
Solar Radiation & Load	●	●					
Simplified Heat Exchanger Model	●						
Non-equilibrium Thermal Model	●						
Prorous Media	●						
Particles Flows (Multiphase)							
Coupled Discrete Phase Modeling including Thin Wall Films	●	●		●	●		●
Macroscopic Particle Model	●						
Inert Particle Tracking (With Mass)	●	●					
Liquid Droplet (Incl. Evaporation)	●	●		●	●		
Combusting Particles	●	●		●			●
Multicomponent Droplets	●	●		●	●		
Discrete Element Model (DEM)	●						
Break-Up And Coalescence	●	●		●	●		
Erosion	●	●					
Free Surface Flows (Multiphase)							
Implicit VOF	●	●	●				
Explicit VOF	●		●				
Coupled Level Set/VOF	●	●			●		
Open Channel Flow And Wave	●	●					
Surface Tension	●	●		●	●		
Phase Change	●	●		●	●		
Cavitation	●	●		●	●		
Cavitation where multiple fluids and non-condensing gases are present	●						
Dispersed Multiphase Flows (Multiphase)							
Mixture Fraction	●	●					
Eulerian Model including Thin Wall Films	●	●		●	●		
Boiling Model	●	●		●			
Surface Tension	●	●		●			
Phase Change	●	●		●	●		●
Drag And Lift	●	●		●	●		
Wall Lubrication	●	●		●			
Heat And Mass Transfer	●	●		●	●		●
Population Balance	●	●		●			●
Reactions Between Phases	●	●		●			●
Granular Model for Dense Bed of Solids	●	●					
Dense Particulate Coupling (DDPM)	●	●					

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	ANSYS CFD Enterprise						
	ANSYS CFD Premium						
	ANSYS FLUENT	ANSYS CFX	ANSYS POLYFLOW	ANSYS Forte	ANSYS FENSAP-ICE	ANSYS AIM	ANSYS Chemkin Pro
Reacting Flows							
Species Transport	●	●	●	●			●
Non-Premixed Combustion	●	●		●			●
Premixed Combustion	●	●		●			●
Partially Premixed Combustion	●	●		●			●
Composition PDF Transport	●	●					
Finite Rate Chemistry	●	●	●	●			●
Pollutants And Soot Modeling	●	●		●			●
Sparse chemistry solver with dynamic cell clustering and dynamic adaptive chemistry	●			●			●
Ability to use Model Fuel Library mechanisms	●			●			●
Flame-speed from Fuel-component Library	●			●			
DPIK Spark-ignition Model				●			
Flame-propagation using level-set method (G-equation)				●			
Internal Combustion Engine Specific Solution	●	●		●			●
0-D/1-D/2-D reactor models and reactor networks							●
Plasma reactions							●
Comprehensive surface-kinetics	●						●
Chemical and phase equilibrium	●						●
Flamelet table generation	●						●
Flamespeed and ignition table generation							●
Reaction sensitivity, uncertainty and path analysis							●
Surrogate blend optimizer							●
Mechanism Reduction							●
Turbomachinery							
MRF/Frozen-Rotor	●	●					
Sliding-Mesh/Stage	●	●					
Transient Blade Row		●					
Pitch Change		●					
Time Transformation		●					
Fourier Transformation		●					
Harmonic Analysis		●					

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	ANSYS CFD Enterprise						
	ANSYS CFD Premium						
	ANSYS FLUENT	ANSYS CFX	ANSYS POLYFLOW	ANSYS Forte	ANSYS FENSAP-ICE	AIM	Chemkin Pro
Blade Flutter Analysis		●					
Forced Response Analysis		●					
Flank milled blades		●					
In-Flight Icing							
Simulates Droplet Sizes					●		
Simulates Ice Growth and Performs Visibility Studies					●		
Models Heat Transfer Anti- and De-icing Heat Loads					●		
Rotating frame of reference for the analysis of turbomachines, rotors and propellers					●		
Model ice accretion at engine face (Fan and IGV) and within any number of successive compressor stages					▲		
Aerodynamic degradation (CFD) meets the requirements of Appendix C, Appendix D (Ice Crystals) and Appendix O (SLD)					●		
Optimization							
Parameters	●	●	●				
Design Point Studies	●	●	●				
Correlation Analysis	●	●	●				
Design of Experiments	●	●	●				
Sensitivity Analysis	●	●	●				
Goal Driven Optimization	●	●	●				
Six Sigma Analysis	●	●	●				
Adjoint Solver for Shape Optimization	●						
Adjoint solver supports rotating reference frames & conjugate heat transfer	●						
Multi-objective-constrained optimization	●						
Mesh Morphing (RBF Morph)	□						
High Rheology Material							
Viscoelasticity			●				
Specialty Extrusion Models			●			▲	
Specialty Blow Molding Models			●				
Specialty Fiber Spinning Models	●						

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	ANSYS CFD Enterprise						
	ANSYS CFD Premium						
	ANSYS FLUENT	ANSYS CFX	ANSYS POLYFLOW	ANSYS Forte	ANSYS FENSAP-ICE	ANSYS AIM	ANSYS Chemkin Pro
HPC – Fluids							
Parallel Solving On Local PC Option	●	●	●	●	●	●	
Parallel Solving Over Network Option	●	●	●	●	●	●	
CPU Support	●	●	●	●	●	●	
GPU Support	●		●				
Post Processing							
Photo realistic rendering	●	●	●	●	●		
Compare multiple runs, datasets physics, graphs in a single window	●	●	●	●	●		
MULTIPHYSICS							
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	●	●			●		
Fluid-Structure Interaction							
Force Induced Motion/Deformation	□	□	●			●	
Fluid Thermal Deformation	□	□				●	
Electro-Thermal Interaction							
Convection Cooled Electronics	●	●					
Conduction Cooled Electronics	●	●					
High Frequency Thermal Management	●	●					
Electromechanical Thermal Management	●	●					
Other Coupled Interactions							
Aero-Vibro Acoustics	●						
Acoustics-Structural	●	●					
Fluid Magnetohydrodynamics	●	●					

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	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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	ANSYS Maxwell	ANSYS HFSS	ANSYS SIwave	ANSYS Q3D Extractor	ANSYS Icepak
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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	ANSYS Maxwell	ANSYS HFSS	ANSYS SIwave	ANSYS Q3D Extractor	ANSYS Icepak
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		●			
RF Link Budget Analysis		●			
Wireless Propagation Models		●			
Visual Ray Tracing		●			
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			●		

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Characteristic Impedance (Zo) PKG/PCB Scan			●		
Full PCB/PKG Cross-talk Scanning			●		
TDR Analysis		●	●		
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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	ANSYS Maxwell	ANSYS HFSS	ANSYS SIwave	ANSYS Q3D Extractor	ANSYS Icepak
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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☐= Requires more than 1 product

	ANSYS Simplorer	ANSYS SCADE Architect	ANSYS SCADE Suite	ANSYS SCADE Display
SYSTEMS & EMBEDDED SOFTWARE				
Virtual Systems Prototyping				
Integrated Graphical Modeling Environment	●		▲	
Standard Modeling Languages and Exchange Formats	●		▲	
Extensive Model Libraries	●		▲	
Reduced Order Modeling (ROM)	●		▲	
Power Electronic Device And Module Characterization	●		▲	
Model Import Interfaces	●		▲	
Rapid Prototyping	●		▲	
Modelica Library Integration	●		▲	
Model-based Systems Engineering				
Model-Based System Design		●		
Functional Decomposition		●		
Architecture Decomposition		●		
Allocation Of Functions To Components		●		
Model Checks		●		
System Model Diff/Merge		●		
System / Software Bi-Directional Sync		●		
Model Sharing And IP Protection		●		
Model-Based Interface Control Document Production		●		
Configurable For Industry Standards (IMA, AUTOSAR, Etc.)		●		
Product configuration for automotive developers		●		
Embedded Control Software Development				
Data Flow And State Machine Design And Simulation Capabilities			●	
Extensive Set Of Libraries Delivered As Design Examples			●	
Simulation Capabilities			●	
Record And Playback Scenarios			●	
Integration In To Configuration Management Environment			●	
Plant Model Co-Simulation Including FMI			●	
Coverage Analysis For Requirements-Based Tests			●	

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Formal Verification			●	
Timing And Stack Optimization			●	
Worst Case Execution Time Estimates On Target			●	
Verification Of Stack Space Requirements			●	
Certified Code Generation For DO-178C, EN 50128, ISO 26262, IEC 61508			●	
Certification Kits For DO-178C, EN50128, ISO 26262, IEC 61508			●	
Man-Machine Interface Software				
Model-Based Prototyping And Specification Of MMIs				●
Support Of OpenGl, OpenGl SC and OpenGL ES				●
Integration In To Configuration Management Environment				●
Font Management				●
Optimization Of Graphical Specifications				●
Plant Model Co-Simulation Including FMI				●
Automatic Generation Of iOS and Android Projects				●
Certified Code Generation For DO-178C, EN 50128, ISO 26262, IEC 61508				●
Certification Kits For DO-178C, EN50128, ISO 26262, IEC 61508				●
Testing capabilities				●

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	ANSYS AIM	ANSYS Enterprise	ANSYS Design Modeler	ANSYS SpaceClaim Direct Modeler
GEOMETRY				
Open data from all major CAD systems	●	●	●	●
Edit designs and prepare them for simulation	●	●	●	●
Simplify geometry by removing features (eg rounds and holes)	●	●	●	●
Clean up and repair dirty geometry to create watertight solids	●	●	●	●
Create parameters on imported geometry to enable optimization of designs through analysis	●	●	●	●
Extract mid-surfaces/shells and beams solid models for efficient meshing and solving	●	●	●	●
Extract volumes/create inner fluid domains and outer air enclosures for CFD	●	●	●	●
Create shared topology among bodies to generate conformal meshes	●	●	●	●
Slicing of models into hex meshable bodies	●	●	●	●
Create weld bodies to simulate welds between shells	●	●	●	●
Define regions of symmetry for symmetric analysis			●	
Define named selections to aid in scoping of loads and boundary conditions	●	●	●	●
Scripting	●	●	●	●
2D drawing and editing tools	●	●	●	●
2D dimensioning and constraints			●	▲
Supply 3D markups and compare models to document changes to design teams	●	●		●
Repair and edit faceted files for further FEA topological optimization and CFD analysis	●	●		●
Early Concept Design (bid modeling/ brainstorming/concepting)				
Create new concepts quickly and easily with four tools: Pull, Move, Fill, Combine	●	●		●

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	ANSYS AIM	ANSYS Enterprise	ANSYS Design Modeler	ANSYS SpaceClaim Direct Modeler
Use Cut, Copy, Paste, etc for fast ideation from existing designs	●	●		●
Enable 2d and 3D communication and collaboration with 3D Markup, Dimensions, and Drawing tools	●	●		●
Create BOM to evaluate weights and lengths for cost calculations	●	●		●
Make real-time edits with customers in LiveReview				●
Use automated tools to repair dirty geometry	●	●	●	●
Use top down or bottom up modeling	●	●	●	●
Create 2D drawings	●	●		●
Import and edit large assemblies	●	●		●

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If you've ever seen a rocket launch, flown on an airplane, driven a car, used a computer, touched a mobile device, crossed a bridge or put on wearable technology, chances are you've used a product where ANSYS software played a critical role in its creation. ANSYS is the global leader in engineering simulation. We help the world's most innovative companies deliver radically better products to their customers. By offering the best and broadest portfolio of engineering simulation software, we help them solve the most complex design challenges and engineer products limited only by imagination. Visit www.ansys.com for more information.

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