What's New in Ansys Electronics 2021 R2

The *What's New* document for Ansys Electronics provides release information for the following:

- HFSS
- HFSS 3D Layout
- SIwave
- Maxwell
- Icepak
- Mechanical
- Q3D Extractor
- Circuit
- EMIT
- Twin Builder

General Electronics Desktop

- Electronics Pro, Premium, Enterprise as the default licensing model
- Additional flexible machine configurations in Ansys Cloud
- License sharing when solving design points from Workbench and optiSlang
- Ensight export support for view orientation, 3D plots, and avz export
- Enhancements to Electronics Desktop integration with optiSlang (Linux is Beta)
- Large-Scale DSO Enhancements
    - Ability to run job from compressed project file
    - Load balancing and automatic retry of failed variations
- Dockable window for display and editing of variables
- Adjustment for display precision of evaluated values
- Support for dBm and dBu units for Electric Fields
- SLURM jobs as a requested user

Granta Materials Data Library

- Added temperature-dependent BH curves for over 1000 permanent magnet materials
- Added 69 new frequency-dependent RF absorber material grades from Laird
- Added 100 material grades for JL Mag

- Updated records from Carpenter, Hitachi Metals and Arcelor Mittal
- Updated producer names for consistency, conciseness, rebranding, and acquisitions

HFSS

- Improvements for SBR+
    - New volumetric SBR+ for dielectric
    - Support for spherical wave expansion (*.swe) file import
    - Official release of SBR+ parametric antenna arrays
    - Support for Range-Doppler data file export in LS-DSO
    - Ability to use antenna blockage with SBR+ regions in hybrid designs
- Improved organization of solution types and related settings
- Enhancements to Mesh Fusion setup and meshing process (Beta)
- New option for enhanced low frequency accuracy
- Ability to define custom layout and weights for antenna array post-processing
- Improved performance by moving embedded element pattern generation to the solver
- Improved efficiency of field file handling for 3D Component Array and FA-DDM
- Addition of total efficiency and system efficiency as antenna parameters
- New ability to compute DC point using Q3D Extractor (Beta)
- Enhancements to cable modeling workflow and capabilities (Beta, Linux only)
- New partial discharge workflow and simulation (Beta)
- Automatic creation of PEC cap for wave ports
- Support for partial derivatives of far fields in tuning Mesh statistics for selected faces
- Mixed (modal and terminal) ports in Transient design (Beta)

HFSS 3D Layout

- New Phi Plus HPC-enabled meshing for bondwires and 3D CAD (Beta)
- IC-on-Package enhanced automation workflow
- Edit 3D Component definitions from Layout
- Filter floating geometry
- Mesh seeding operations on user-defined regions
- Ability to create field plots on clipping planes
- Enhanced multi-zone PCB workflow with rigid flex

SIwave

- New SI Xplorer integrates and extends stackup and via wizard functionality
- Support for temperature-dependent materials in AC solver
- Improved HFSS simulation setup dialog box usability, matching 3D Layout

- Enhanced DDRwizard workflows and capabilities (Beta)
- Updated thermal link using Icepak from Electronics Desktop
- CPA Enhancements:
    - Performance and capacity improvements for high pin counts
    - New hot spot analysis with multiple DIEs
    - Improved RLCG display, with independent RL and CG tabs
- Support for SPICE inductor models in PSI and CPA

Maxwell

- Performance Improvements:
    - Improved Auto-HPC selection for large 3D magnetostatic and eddy simulations
    - Acceleration of 2D transient skew simulation by solving slices in parallel
- Enhancements to the A-Phi transient solver
- Enhancements to the AC conduction solver (Beta)
- New nonlinear impedance boundary for 3D transient
- Support for anisotropic linear elastic properties for mechanical coupling
- Ability to define multiple demagnetization curves at different temperatures
- Support for V-type and user-defined skew types in 2D transient
- Ability to save and plot fields on any slice for skew models in 2D transient
- Enhancements to electric machine toolkit workflows and performance
- Addition of wireless power transfer system components to 3D Component library
- New switched reluctance motor circuit model that includes phase mutual effects
- Ability to select individual objects for loss output in 2D and 3D transient
- Improved robustness of Simulink co-simulation
- Ability to set window options for discrete Fourier transform of harmonic force
- New field line trace plot for E fields in electrostatic
- Ability to use Phi mesh for layered structures

Icepak

- Improved performance through lightweight CAD meshing
- Ability to import Chip Thermal Models
- New LPV ROM creation
- Enhanced device filtering for PCBs
- New features added from Classic Icepak:
    - Joule heating
    - PCB and Package bool ECAD support
    - Mass flow for openings

- Recirculating openings
- Failed fan support
- Mesh settings and operations
- Improved mesh reliability and performance
- Enhanced reporting of heat flow quantities
- Ability to turn monitor point plots on and off

Mechanical

- New Structural solution type (Beta)
- Support for Mechanical-Thermal stress analysis (Beta)
- Now available in Ansys Cloud
- Support for temperature-dependent materials
- Ability to model surface heat in heat flux excitations

Q3D Extractor

- New PRIME meshing for AC-RL solutions
- Improved accuracy and convergence of CG solutions
- Ability to plot electric fields on surfaces

Circuit

- Ansys FilterSolutions
  - New product for filter synthesis
  - Launched from Electronics Desktop
  - Ability to export designs to HFSS and Circuit
- Nexxim
  - Support for RLGC state-space fitting for Q3D
  - Integration of SPISim IBIS and NPort spec modeling
  - SVPWM source in Power Electronics component library
  - ISO7637 EFT source in Circuit EMC component library

EMIT

- Results View Enhancements
  - Multiple result views
  - Edit the scenario while viewing the current results
  - Compare results across different scenarios
  - Save results for future reference

- Imported Emitter Spectrums
    - Import CSV file with data in either the time or spectral domain
    - Configurable FFT and windowing parameters
    - Automatically extracts narrowband components
    - Support for smoothing the broadband spectrum
    - Raw data overlaid on the plots

Twin Builder

Modelica Workflow Enhancements

- Ability to extend models & templates
- Support for Win32 platform binaries (FMU) export

ROMs and ROM Viewer Enhancements

- Support for fields as input parameter in Static ROM Builder
- ROM Builders/Viewer now supports point probes
- New ROM ribbon for easy ROM access in Twin Builder
- Support for field snapshot images of ROMs on Schematic
- Ability to compare transient ROM field to reference field in Dynamic ROM Builder
- Ability to modify a plot's legend, line styles, and colors in ROM Builders/Viewer
- Ability to copy image to clipboard with right-click
- Support for Von Mises stress as post-processing in Static ROM Builder

Export, Deployment and Digital Twins

- New user library in Twin Deployer
- Support for Parametric sweep in Twin Deployer
- ROM Viewer integration in Twin Deployer
- All-inclusive Co-simulation FMU for Linux

Library/Solver Enhancements

- Linux Solver Porting now also supports C-models
- Ability to model capacity fading effect in Battery models

UI/UX Enhancements

- New HFSS Dynamic Link with Push Excitation
- New Python Component in Twin Builder to run Python scripts
- New IronPython Script Editor in Twin Builder
- Equations are now also supported in copy/paste data on Schematic Editor
- Improved Schematic ribbon interface

Selected Defect Corrections

Circuit

- 420947 Y/Z matrix values are now renormalized correctly when exported

EMIT

- 421646 Component editor now works when the default length unit is set to mils
- 431519 External files used in EMIT components are now included in the project archive

HFSS

- 353931 Parametric array element and array pattern is now correct when changing component variable
- 434418 Mesh refinement is now accurate when there are more than 25 excitations for 3D component array
- 435788 VRT is now correct for current source antennas in relative coordinate system

Icepak

- 143708 Parity in serial and parallel solver convergence for designs including network boundaries
- 363841 Simulation results are accurate when restarting solutions for designs using the Ray Tracing radiation model
- 366008 Volumetric flow post processing is now available
- 412012 Pressure drop estimation is now accurate while using the grille boundary with loss curve definition

Maxwell

- 377569 Resoved the hang-on issue on Linux related to induction machine ECE model

Mechanical

- 396214 Solution now invalidates for AmbientTemp changes referenced in BCs

Q3D Extractor

- 342696 Resolved OS-dependent mesh differences

SIwave

- 379677 Resolved wrong return path used for loop RLCG extraction
- 391000 Improvements to thermal modifier handling in SIwave
- 400371 Improvements to SIwave field post-processing on Windows Server systems
- 442349 SIwave accuracy improvements when simulating designs with board outlines containing holes

Known Issues and Limitations

The following items describe specific issues known at the time of release. Workarounds for these items, if available, are included in the respective descriptions. Inclusion in this document does not imply the issues and limitations are applicable to future releases. Go to the Ansys Electronics DesktopCustomer Portal (https://support.ansys.com/portal/site/AnsysCustomerPortal) for information about service packs and any additional items not included in this document.

General Electronics Desktop

- 264162 HPC count is not correct for a two-level solve in which optiSlang distributes Electronics Desktop, and then Electronics Desktop distributes variations.

HFSS

- 444386 Array pattern is not supported when Linked or By File antenna is used as element for SBR+ parametric array.
- 431581 RF discharge setup will not solve properly when frequencies are added to source frequency sweep after RF discharged setup is created. Recommendation: Clear linked data and edit the link setup.
- 442752 Enabling 'Display Wireframe' for objects touching mesh regions of mesh fusion components will cause simulation to fail.
- 443083 VRT launch point for SBR+ parametric array with FF antenna element is not correct with shifted phase center.

HFSS 3D Layout

- 436237 ansysedt is freezing when adding HFSS Custom Setup on Linux. Recommendation: Click X at the top of the dialog box to close the Setup dialog box.

EMIT

- 434530 Analyzing a coupling link in an EMIT design from a script does not update the link data. Recommendation: Invoke UpdateLink() after the analyze command.
- 458888 If a non-current EMIT result set is simulated after updating an HFSS/Layout link, the updated link data will be used instead of the original HFSS/Layout data. Recommendation: Simulate the current result set completely when using HFSS/Layout links that may later be altered.
- 458888 After restoring an archived project that includes an HFSS/Layout link, the link data used by EMIT may be incorrect. Recommendation: Update all HFSS/Layout links in the EMIT design after restoring an archived project.

Circuit

- 428382 On certain Linux systems, projects with Circuit designs containing SIwave dynamic links might hang on opening or when running an analysis.

Q3D Extractor

- 467707 Pin names are missing when exporting a Q3D Extractor equivalent circuit containing a Float at Infinity matrix reduction operation.
- 467635 The electric fields calculated under EM Fields may be incorrect.

SIwave

- 358410 DC power tree does not account for components represented by SPICE or S-parameter models.
- 429120 On certain Linux systems, SIwave might hang when running a script from the command line. Recommendation: Use -RunScriptAndExit with -Embedding.
- 454966 DDR Configuration button missing from Linux SIwave Workflow Wizard. Recommendation: Enter the DDRwizard from the Simulation tab (Simulation > DDRwizard [Beta]).