# CEDRAT is proud to announce the release of Portunus V5.1. Pascal Guitard - CEDRAT.

Portunus is a system simulator for both digital and analogue component modeling. Its versatile and highly user-friendly interface allows the use of combined modeling approaches such as conservative networks, block diagrams and state machines.

Since interoperability is a key point in the design process, Portunus already supports Spice and VHDL-AMS standards, and has strong links to other software (Motor-CAD and InCa3D imports, connector with I-sight®, co-simulation with Flux3D, Simulink® and Keil µVision®).
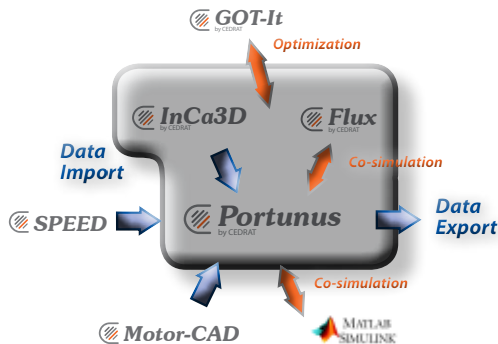
The strengths of this new version of Portunus are project manager release, new interpolations for lookup tables, new FFT, better vhdl-ams coverage… for pre-processing and a new graphical curve management feature, HTML export and API connexion with a 3D animation tool for post-processing.

Pre-processing news

» Project manager

Project Manager is dedicated to managing data information. It is a useful option that gathers and shares project data between all project partners. Data versioning of is assured, enabling you to include different documents in the same file (Portunus files, PowerPoint presentation, web link…) or zip and send them in a single mouse-click.

» Lookup table interpolations

A spline interpolation has been developed for 2D lookup tables; this ensures better continuity when a derivative is applied to table output. A bilinear interpolation has been made for 3D lookup tables to ensure continuity when the output is derivated.

Derivative of a spline interpolation
Derivative of a bilinear interpolation

» New FFT

The previous FFT was limited to 50 harmonics calculation. This limitation has been removed in curve exploitation for better signal analysis accuracy. It is possible to export the FFT result to a text file. The FFT component in measurement devices has also been changed: the user can define the number of harmonics calculated and save it to a text file. Plus, some new components have been added: mechanical hard

stop, symmetrical FET with table entrance characteristic, junction and diffusion capacitance, new voltage and current source control and a new expression block for writing 3-parameter functions.

» VHDL-AMS coverage

The implementation of VHDL-AMS standards in Portunus is a key feature in mechatronic design: this language is multi-abstraction (possible to define different levels of modeling), multi-domain (multi-physics) and mixed (analogue and digital). With MoCoSyMec project (proposed by ANR), dedicated to process issues with simulation tools for mechatronic simulation, VHDL-AMS language is more and more integrated into Portunus.

Post-processing news

» Curve management

In 5.1 version, a key feature is improved curve management. Much work has gone into more efficient display. All the features are more ergonomic:

• Automatic resize of the graphic in x and y-axis.
• Undo/redo option.
• New curve management (thinness, marker size…).
• Possibility to save the curve in jpeg format, to print it and copy-it in a mouse-click.
• Two cursors with associated characteristics table (with an automatic snapping cursor to data).
• A move mode in all directions.
• An overview mode.
• A conventional zoom in/out and a zoom area.
• Multi y-axis option for several curves.
• Logarithm scale for x and/or y axis.

» HTML export

It is now possible to share Portunus results in a web page via HTML export. Moreover, it is possible to run a simulation and change parameters values via the web!


HTML creator interface

Web page
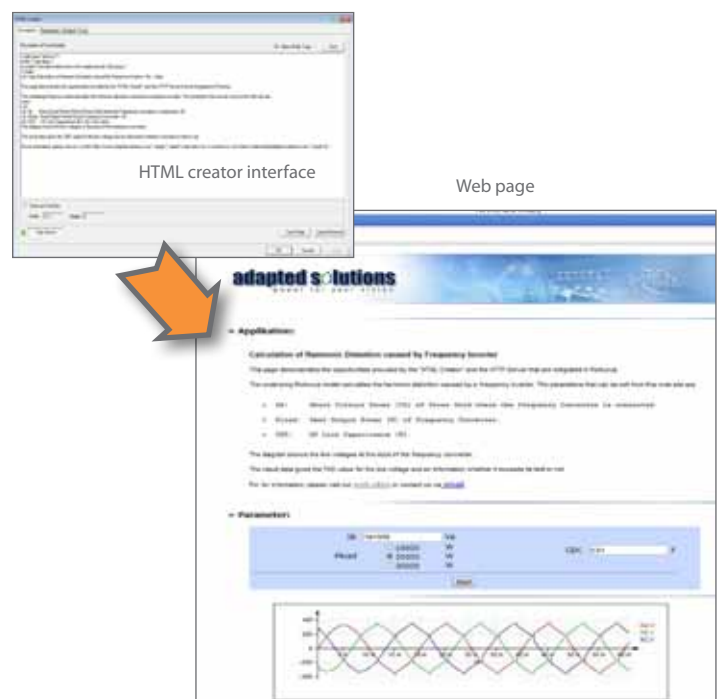
» Coupling with a 3D animation tool

The company SimFonIA has developed an animation tool (**SAT**: **S**imFonIA **A**nimation **T**ool) based on Google SketchUP. It is possible to animate a 3D scene with text file calculated by Portunus. Also, strong coupling has been developed between Portunus and SAT: an API allows data exchange between both software; it is possible to visualize parameter effects live, which the customer can control using a cursor! Another option is 3D animation export to the web and the scene remains handleable.

This tool is sold separately from Portunus. Follow the link: *http://www.simfonia.fr/SAT/*

Conclusion

The new Portunus 5.1 version offers an efficient level of mechatronic simulation with big improvements to pre- and post-processing. Portunus is going ahead via the national project MoCoSyMec i.e. Portunus is becoming the reference tool for mechatronic simulation.
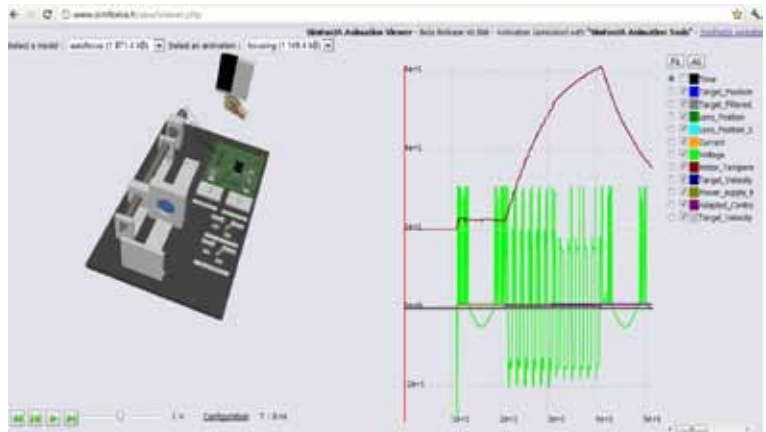
Who won the CEDRAT iPad2?

In November 2011, CEDRAT conducted a survey to evaluate the perception of Flux® 2D/3D by its customers. In order to encourage users to participate, applicants had the opportunity to win an iPad2. The lucky winner is the manager of the R&D department in LANCOR 2000. Based in Abanto y Ciervana, Spain, this company has been manufacturing and designing electrical motors for more than nearly 70 years. Dedicated to electrical machines for elevators since the 1990's, they are now willing to widen their portfolio, and develop their design and products for other kinds of machines.

Convinced by Indielec, CEDRAT distributor for Spain, LANCOR 2000 purchased Flux in 2008 and uses it for calculation of permanent magnet motors.

CEDRAT random draw to select the iPad 2 winner

For example, they used Flux to calculate and design the lamination and improve the performance of a machine for an elevator.

"Accurate, time-saving, fast, helpful for the designers" these were the words the R&D manager used when asked to qualify Flux benefits for the user.

To complete their software package, they also acquired Motor-CAD, CEDRAT tool for thermal optimisation of motors. They are also thinking about buying Flux 3D to develop some applications.

According to him, *"3D is definitely going to be useful in the future"*.

Therefore, LANCOR 2000 is keeping an eye on Flux 3D for near future.

The lucky winner of the prize : R&D manager at LANCOR 2000.