

Portunus® is a unique system simulator to model, simulate and analyse as well applications with focused on one domain, as even complete mechatronic systems involving complex multiphysic descriptions.

## Welcome to the world of multi-domain simulation!

### Versatile

#### Multi-domain, multi-physics, multi-level simulation

Evaluating and understanding the system response of individual devices or full systems requires a comprehensive, multi-domain tool. With range of applications that cover power electronics, automation and drive and all electromechanical systems like electric machines, hybrid vehicles etc. there are almost no limits for the use of Portunus.

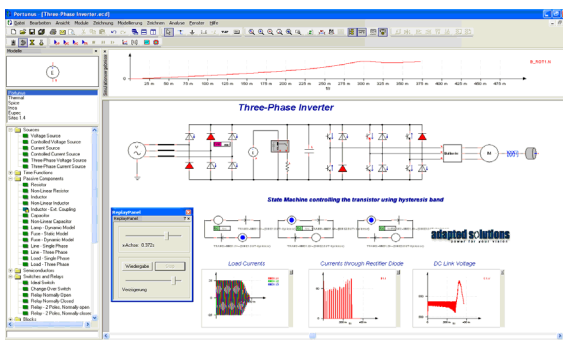
### Intuitive

#### A user-friendly and intuitive interface

With an extremely user-friendly interface you will avoid wasting time for handling and description to focus on the analysis.

Using a system simulator has never been so intuitive thanks to:

- » Modelling, simulation and analysis reached **in the same window**
- » **Ready-to-use complete libraries**
- » **Multiple page functionality** to split large models, create extra sections for results and documentation
- » **Live on-sheet display** of result with integrated post-processing capability.



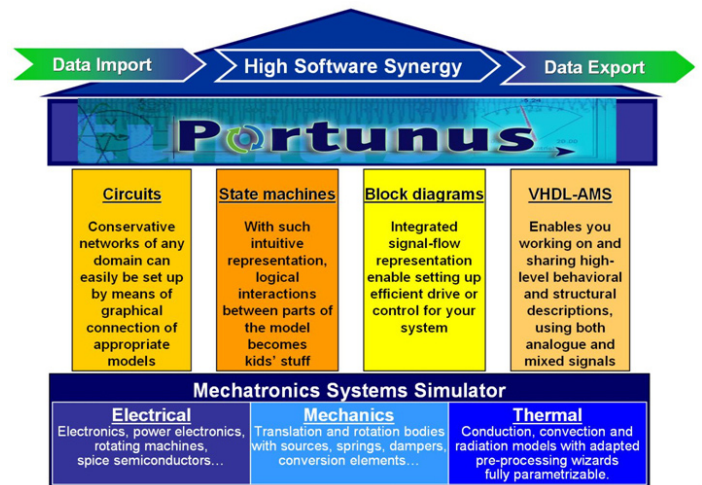
Several description approaches to model your systems in the most comprehensive and efficient way.

### Powerful

#### The engine you need to power your complex systems

Portunus has the capacity to handle your most complicated applications thanks to the handling of **circuit networks** for electrical, mechanical or thermal applications, **block diagrams** for signal flow descriptions, **state machines** for event-driven simulations and more complex models coming from **Spice netlists** or **VHDL-AMS language**.

The powerful combination of modelling techniques taking into account digital, analog and mixed signal is reached by the coupling of two fast and robust solvers.



### VHDL-AMS

#### An efficient language for complex system descriptions

Multi domain simulation is reached even more easily with the VHDL-AMS language. Using this IEEE standard description language, designers will benefit from its advantages:

- » **Non proprietary language** enabling a seamless exchange of data/models
- » **Both modelling in continuous time and on discrete events**
- » **Processing of implicit equations.** Writing equations therefore becomes natural for the designer
- » **Native multi-domain approach** enables the use of the same description language for systems of different scientific disciplines. Electrical, thermal, mechanical or hydraulics engineers will naturally increase if teamwork can communicate easily and gather their efforts for the modelling of a complex multidisciplinary system.

### The ultimate tool

#### A wide range of applications:

- Automation and drive
- Power electronics
- Electric motors and generators
- Jet engine
- Hybrid vehicle
- Actuators and sensors
- Power supply, UPS...

... Adapted to many markets !

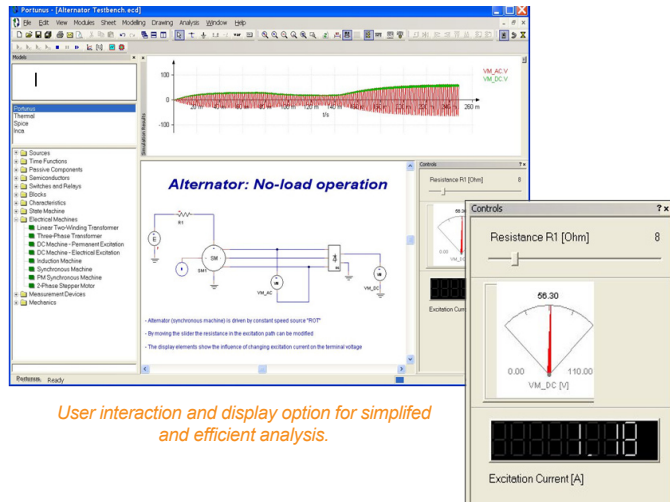
## Advanced functionalities

### The capacity to simulate complex systems

#### » An extensive spectrum of studying for a validation of your complete process

Avoid costly prototypes and long multiple validation process with functionalities that will help you going deep in the analysis of your system:

- **Parameter sweep** - for automated parameter variation analysis
- **User-interaction** - for direct analysis of parameter impact, parameter adjustment or fault simulation
- **Worst case analysis**



#### » Library and model management

Create and manage your own libraries and implement your specific models coming from subsystems, direct imports in the SPICE or VHDL-AMS format, or user components described with C/C++ code.

#### » Scripting possibilities

Experts will appreciate the scripting possibilities (Visual Basic) to drive Portunus from an external environment and perform automated solving processes up to custom optimization.

## Software Synergy

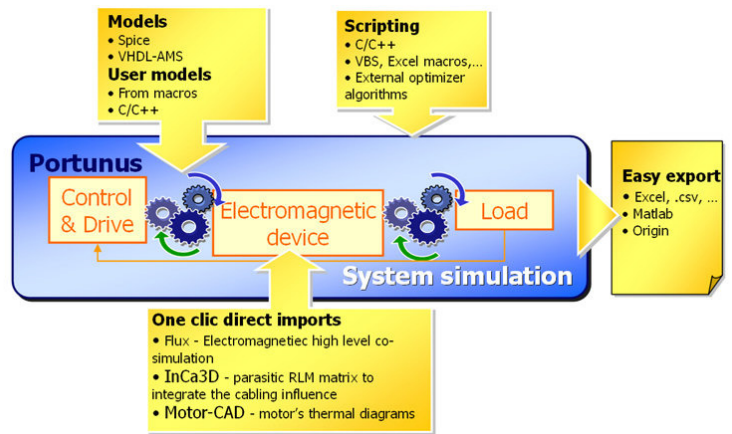
### An open software ready to communicate

As part of the CEDRAT software, **Portunus** offers more than a simple system simulator and will allow you to broaden your knowledge of the system through active interaction with existing tools and software.

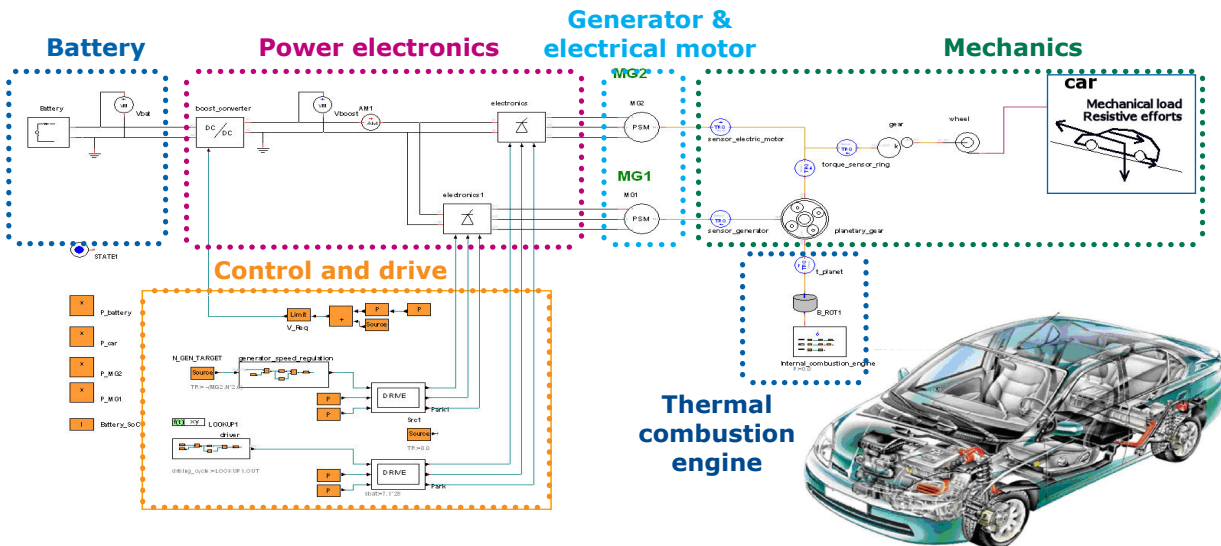
» **High level co-simulation** to leading 2D/3D finite element package **Flux** with an unequalled exchangeability of parameters between Finite Element solver and system simulator.

» Portunus is **open to data** coming from our software suite and other existing programs.

» **One-click data exchange.**



## The capacity to simulate complex systems



Trial version on: [www.cedrat.com/en/software-solutions/portunus.html](http://www.cedrat.com/en/software-solutions/portunus.html)

For more information, please contact:

CEDRAT Group  
 15 Chemin de Malacher - Inovallée  
 38246 Meylan Cedex - France  
[software@cedrat.com](mailto:software@cedrat.com)  
 Phone: +33 (0)4 76 90 50 45 - Fax: +33 (0)4 56 38 08 30