

GT-SUITE

Industry's Tool of Choice



Highlights:

Revolutionizes simulation of vehicle systems and their integration

Deployed and used by practically all OEMs and suppliers

Provides models that represent all vehicle and engine subsystems

The individual models each establish a new level of state-of-the-art

Combined they enable integrated simulations

One tool for the whole life-cycle process:

- concept analysis
- component design
- system optimization

Ask for a demonstration

GT-SUITE Overview

Engine and Vehicle Simulation Platform for Concept and System Detailed Design Analysis

GT-SUITE is a product of Gamma Technologies (GTI), a specialist software company which is **solely focused on the Engine and Vehicle Industry**. GT-SUITE handles, in a single software tool, a wide variety of vehicle and engine technical applications. These include:

- Engine performance modeling (**GT-POWER**)
- Analysis of measured engine cylinder pressure
- Acoustics of intakes and exhausts
- Exhaust aftertreatment
- Sil, HiL and Real-Time simulation
- Vehicle dynamics (drive cycles, drivelines)
- Transmission Modeling
- Hybrid and electric vehicles, fuel cells
- Engine cooling
- Vehicle thermal & energy management
- Underhood cooling module analysis (3-D with COOL3D)
- Air conditioning
- Exhaust heat recovery
- Lubrication circuits and bearings
- Fuel injection systems
- Hydraulics and pneumatics
- Valvetrain/Camshaft kinematics and dynamics
- Cranktrain kinematics and dynamics (incl. balancing and bearings)
- Gear, chain and belt drives

In its foundations, GT-SUITE is a **versatile multiphysics platform** for constructing a wide range of engineering models through a combination of the following underlying libraries:

- Flow library (1D and quasi-3D) – gases, liquids, refrigerants
- Acoustics library (both non-linear and linear)
- Thermal Library (lumped and FEA)
- Mechanical library (kinematics, multi-body dynamics, freq.domain)
- Electric and Electromagnetic library (circuits, electromechanical devices)
- Chemistry Library (chemical kinetics)
- Controls library (logic, math signal processing)

GT-SUITE is a unique tool, which provides the ability to execute **Integrated Simulations** of the entire vehicle and engine system. Such simulations are an industry trend that is gaining in importance and they constitute the **next frontier in CAE applications**.

Advanced Features:

GT-SUITE solvers are robust and highly efficient

Handles with ease large scale models with even 10,000 or more components

Built-in GT-POWER engine model assures the highest accuracy in representation of engines

Licensing and Support:

Simple licensing, based on an all-inclusive package

The most cost-effective solution on the market

Unparalleled level of user support

Call us to find out why GTI is leader in system simulations

GT-SUITE is an unusually **versatile tool** which can address many different analysis needs covered today by separate single-purpose codes. The possibility to use one tool to do many tasks brings many benefits:

- Interactions between different system parts can be made as detailed as needed
- Capabilities are automatically **always synchronized** (single version)
- All teams use the same tool, facilitating their cooperation ("same language")
- Data sharing is streamlined (and error-free)
- Engineers share a "**virtual engine/vehicle**" model
- This capability is key for studies of transients
- GT-SUITE offers all this at a **SIGNIFICANTLY LOWER COST** than other solutions

Uniquely in the industry, GT-SUITE is supplied as an all-inclusive package with many valuable **Productivity Tools** that are included with all licenses **at no extra cost**. These tools increase user efficiency, and thus are important part of the product.

- DOE tool to easily create large Design of Experiments simulations
- DOE-POST for optimization based on DOE runs, plus other optimizers
- Distributed computing to split larger jobs across multiple computers
- Neural-Network automated training tool to create fast-running high-fidelity models
- GEM tool for converting 3D CAD models into GT-SUITE models
- 3-D CFD Coupled with STAR-CD, FLUENT, FIRE, CFX and OpenFOAM
- Control Built-in library, plus coupling with SIMULINK
- Libraries are user-extendable through user 'super-objects' or code

Why You Should Choose GT-SUITE

Industry's Tool of Choice

- GT-POWER is the #1 engine simulation software by a wide margin
- It is recognized as the Industry Standard
- Practically all leading OEMs and their suppliers chose GT-SUITE
- Used by almost all leading engine consulting companies
- Contains unique capabilities and advancements

Experienced Team of Engine/Vehicle Specialists

- Developing tools for **just one industry**: engines and vehicles
- Backed by a **highly experienced developer team** (> 25 years in business)

Modern Software -- Integrated Simulations

- First true "Virtual engine/powertrain/vehicle" simulation code
- Integrates all relevant applications in one computational platform
- GT-SUITE allows multi-disciplinary "Integrated Simulations"
- Fast solver makes simulations of large systems practical
- Advanced graphical interface GT-ISE, based on object-oriented data model
- Unique post-processing tool GT-POST automates standard data analysis tasks

Rapid Rate of Code Development

- Significant advancement in capabilities for each release
- Development plan is largely user-driven - **by leading industrial firms**

High Quality Customer Support/Applications Team

- Users have direct access to developers
- Rapid responses to user questions
- Prompt implementation of user-requested features
- **Highly acclaimed by users**