

Thermal Systems Modeling

With *GT-SUITE*'s vehicle modeling tools, EngSim can perform system level thermal analysis of the engine, transmission, and the vehicle. We can also use CONVERGE CFD to evaluate flow and conjugate heat transfer.

Simulation Capabilities

Published Work with Clients

- Active Thermal Mgmt with a Dual Mode Coolant Pump
- Modeling Engine Friction with Temperature Dependence for Vehicle Thermal Mgt

Detailed Thermal Systems

- Full cooling system model with engine oil, transmission oil and coolant circuit
- Modeling engine block, cylinder line, and engine components thermal mass
- 3D under-hood modeling

HEV, EV, and Conventional Vehicle Thermal Modeling

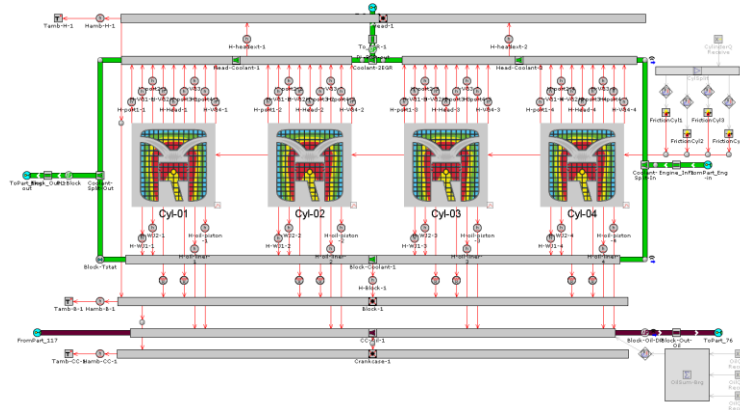
- Drive cycle analysis, fuel economy prediction, and engine warmup
- Development of advanced pump, fan, and thermostats
- Hybrid vehicle and battery thermal management

Thermoelectric Systems

- Exhaust gas recovery system effect on coolant energy
- Evaluating thermo-electric generators

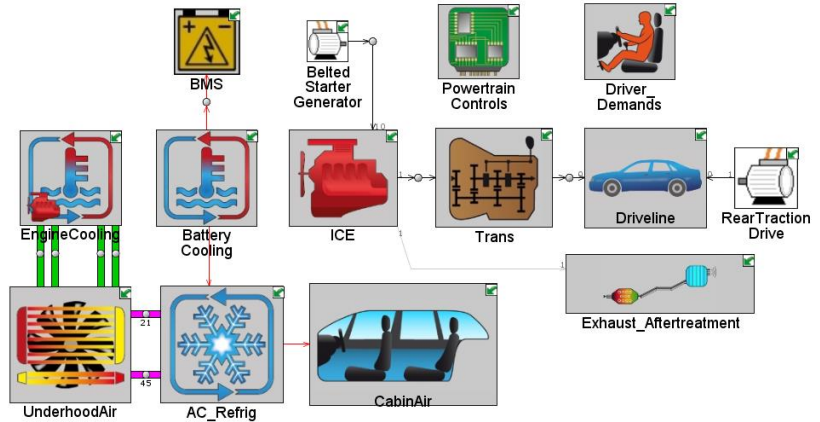
3D CFD Analysis

- Coolant/oil side 3D CFD flow and temperature analysis
- Conjugate heat transfer



Detailed cooling system development with component level heat transfer calculation for the engine

Coupling thermal systems and vehicle using GT-SUITE. Includes engine HT, motor HT, battery HT, oil circuit, coolant circuit, and HXs



3D Underhood, 3D CFD coolant/oil flow and CHT analysis

