



SOUTHWEST RESEARCH INSTITUTE



Gas and Diesel Engine Application Software

Problem

You need to get an engine running in a test cell using an open (rapid prototyping) ECU. You have no code, documentation or support from the engine OEM. Having selected the hardware, constructed a wiring harness and tested all of the I/O, you still need application software to get the engine started.

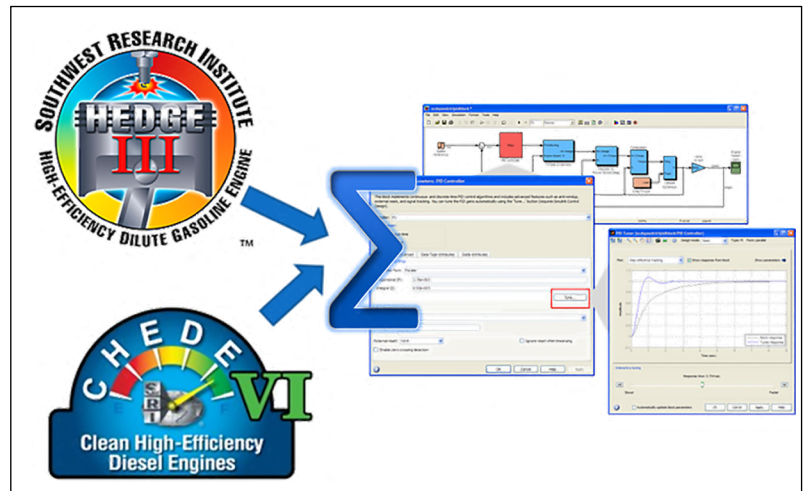
Solution

The Southwest Research Institute® (SwRI®) Ann Arbor Technical Center (AATC) offers engine control software to accelerate your open ECU development project. SwRI has integrated experience from years of engine R&D programs that all require similar underlying control features. These algorithms are available to run on any Simulink® compatible control system.

The Simulink source code is provided with no black boxes so your team can modify the code directly, or with SwRI's support. The software is intended for engineering research and development programs.

AATC's engineers are available to ensure your project timing goals are met by working on-site at your facility to configure the software to match your specific I/O and control system hardware and get your engine running as quickly as possible.

SwRI can also help develop initial calibration data using its Rapid Prototyping Electronic Control System (RPECS®) technology to benchmark production calibrations.



MATLAB®/Simulink source code¹ integrates SwRI's engine control know-how.

Result

SwRI's local Michigan engineers provide a temporary assist to get your test cell up and running -producing the data you need months sooner than developing code from scratch.

Features²

- GDI and common rail fuel pressure
- Cam phase
- Spark ignition timing and dwell
- Injection timing and duration/quantity
- Lambda (switcher and wide-band)
- Speed density, MAF, α -n
- Electronic throttle
- Common rail pressure
- Boost (VGT/waste-gate)
- Stopped/cranking/running – state machine³
- Emergency stop
- Input filters
- Keyboard overrides
- Limits on outputs
- Flexible PID compensator
- Speed/load tables

¹Standard (hardware agnostic) Simulink source code is delivered to the client

²Partial list of features already running on engines

³Does NOT require StateFlow™