

FEV Signature Solutions

Accelerated Function Development: Rapid Control Prototyping (RCP)



Skip the series development queue and accelerate with the RCP fast track!

FEV offers

- ▶ Integration of Rapid Controls Prototyping Hardware and Software in any kind of E/E system based on our unique development suite for different hardware platforms
- ▶ Testing and validation of your ideas, realized by FEV experts on automotive RCP control hardware.
- ▶ Replacement of series Electronic Control Units with RCP hardware to integrate white box models and modifiable content for third party control access
- ▶ End-to-End RCP Services: Modeling, integration & vehicle validation
- ▶ AI based testing and integration support, reducing customization effort and time



Why FEV

- ▶ **Proven expertise:** 45+ years of automotive engineering excellence, trusted by global OEMs and Tier-X suppliers to deliver innovative, production-ready solutions with deep domain expertise
 - State-of-the-Art toolchain for different hardware platforms, such as dSPACE MABX, Speedgoat RealTime and others
 - Agile function development processes that benefit from extensive series development expertise while keeping shortest software update/turnaround times
- ▶ **Customer-centric solutions:** Transparent and customizable, enabling you to extend, integrate, and scale your own development
- ▶ **Ready to go:** Available hardware systems ready for customization in stock & flexible rental service for hardware systems with continued technical support and maintenance

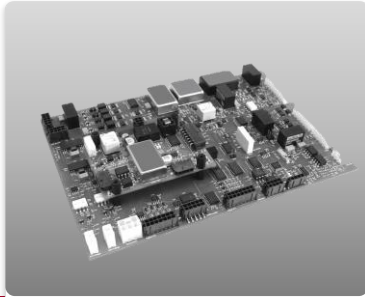
Reference projects

SELECTED PROJECTS THAT BENEFIT FROM RCP CONTROLS APPLICATION

- Passenger cars and light duty commercial vehicles
- Heavy duty commercial vehicles
- Non-Road Mobile Machinery

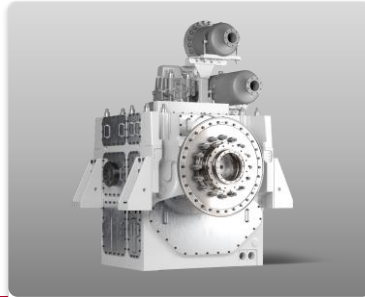
Demo Vehicle with RCP ECU  HEV Wheel Loader Concept Vehicle	A+B-Sample with FEV RCP  Hyllion - Range Extender HD Truck Series Development	Demo Vehicle with RCP ECU  P2P3 HEV Concept Car	Demo Vehicle with RCP ECU  JCB - 4.8L H2-ICE Genset Demonstrator	A-Sample with FEV RCP  P2P2.5P4 PHEV Series Development
Demo Vehicle with RCP ECU  POP4 Sports Car Series Development	Demo Vehicle with RCP ECU  P1P4 Super Sports Car Concept Car	A+B-Sample with FEV RCP  P2 Mini-Van Series Development	Demo Vehicle with RCP ECU  POP2 Diesel Hybrid LCV Concept Car	
Demo Fleet with RCP ECU  JCB - 4.8L H2-ICE Prototype Backhoe Loader	Demo Vehicle with RCP ECU  HyInnoICE - 1.5L DI H2-ICE Vehicle Demonstrator	Running with FEV SW & ECU  13L DI H2-ICE HD Demonstrator Machine	Benchmark Example  Benchmark RCP Measurement Equipment	Running with FEV SW & ECU  2.5L DI H2-ICE (Engine Conversion)

Find out where your application can benefit from our RCP-solutions



Flexible Powerstage (e.g. Injector Testing)

- ▶ Test components without the need for a dedicated control unit
- ▶ Use RCP powerstages to evaluate injection profiles
- ▶ Analyze spray patterns and injection behavior



Single Cylinder Testing

- ▶ Develop flexible control strategies for single-cylinder engines
- ▶ Maintain a stable control hardware setup across varying electric engine components



(Early) Engine Testing

- ▶ Begin engine testing right after design completion
- ▶ Use RCP systems independently of finalized engine hardware
- ▶ Enable seamless transition into early testing phases



Demonstrator Vehicle Development

- ▶ Implement new control concepts rapidly in demo vehicles
- ▶ Unavailable series control hardware is replaced with RCP systems
- ▶ Use RCP for A and B Sample commissioning

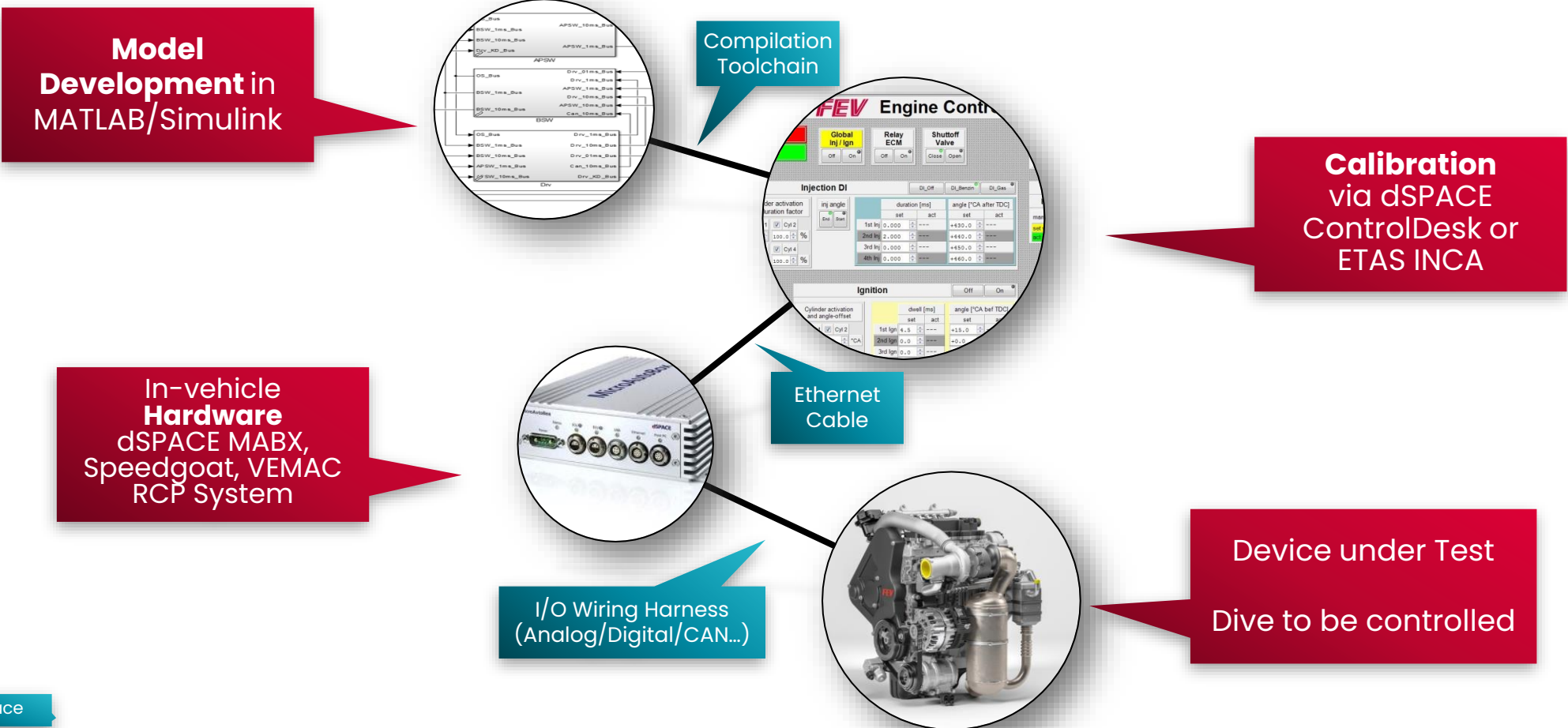


Benchmark Measurements

- ▶ Integrate RCP systems deeply into benchmarking workflows
- ▶ Perform crankshaft-synchronous measurements
- ▶ Conduct full third-party engine testing using RCP systems



How our Systems are Connected and Controlled

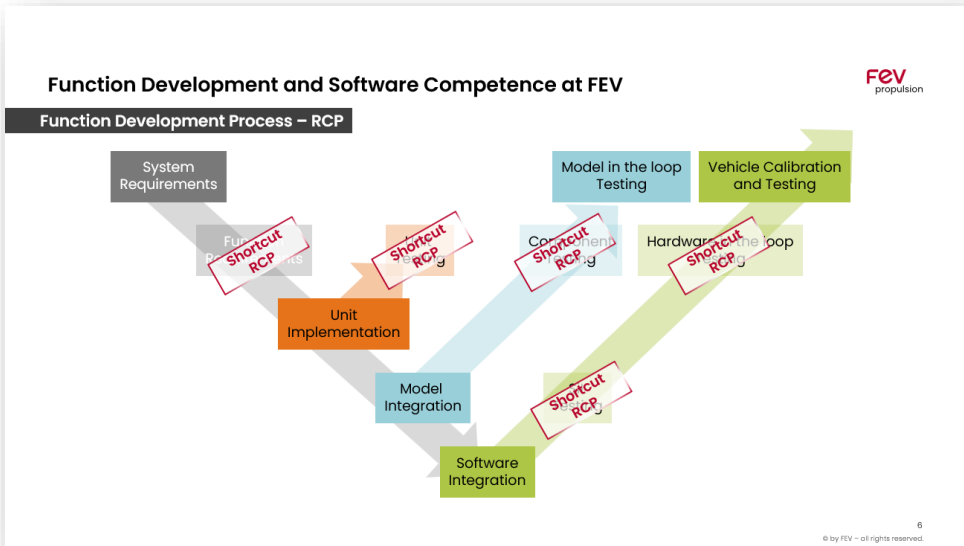


Interface
Component

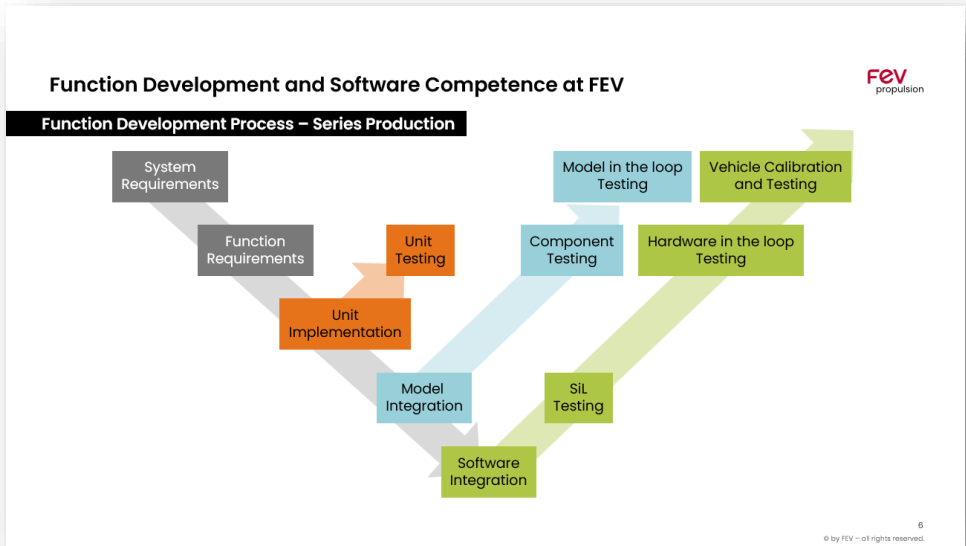
FEV offers managing the complete process or single development steps

FUNCTION DEVELOPMENT PROCESS TAILORING – FROM DEMONSTRATOR TO SERIES

Agile Concept Development



Proven Series Development Process



Get in touch with us for further information



[www.fev.com/en/
signature-solutions](http://www.fev.com/en/signature-solutions)