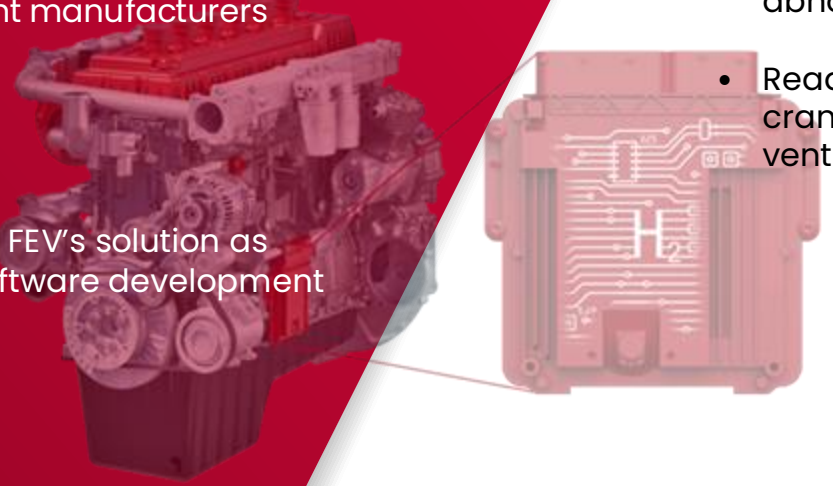
FEV Signature Solutions

Hydrogen engine control software

Boost up your hydrogen engine performance

FEV offers

- Outstanding software maturity:
  Proven under even extreme operating conditions in various vehicle application even with highest demand for transient performance
- High flexibility: Our SW has been used with both DI and/or PFI configurations and injectors from different manufacturers
- Hydrogen RCP engine control unit
- Prototype and series calibration support
- Fully white box option: Enables you to use FEV's solution as platform for your advanced H_2 control software development



Why FEV

- Complete engine control software with all H_2 - specific functionalities
- Combined NOx and knock limit modeling allows to precisely calibrate the transient performance and NOx trade-off to secure great drivability in combination with hard to measure emissions
- Advanced knock control with cylinder individual fueling adjustments to prevent occurrence of abnormal combustion
- Ready for vehicle operation including specific cranking and shutdown procedures or crank case ventilation control

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Selected reference projects

COMPREHENSIVE FEV H_2-ICE EXPERIENCE WITH DIFFERENT TECHNOLOGIES AND APPLICATIONS

1.0L Eco boost DI H2-ICE

(Engine Conversion)

WaVe 7.7L PFI H2-ICE

(Vehicle Demonstrator)

1.6L DI H2-ICE

(Engine Conversion)

Running with FEV SW & ECU

HyInnoICE 1.5L DI H2-ICE

(Vehicle Demonstrator)

Running with FEV SW & ECU

13L DI H2-ICE

(HD Demonstrator)

Running with FEV SW & ECU

10L PFI H2-ICE

(Engine Conversion)

Running with FEV SW & ECU

4.8L H2-ICE

(Prototype Backhoe Loader)

Running with FEV SW & ECU

2L DI H2-ICE

(Prototype Van)

7L DI H2-ICE

(Engine Conversion)

2L DI H2-ICE

(Racing - Dakar Rally)

Running with FEV SW & ECU

2.5L DI H2-ICE

(Engine Conversion)

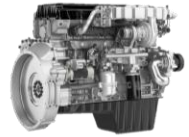
15L DI H2-ICE

(Engine Conversion)

Running with FEV SW & ECU

4.8L H2-ICE

(Genset Demonstrator)



15L PFI H2-ICE

(Engine Conversion)

6L PFI H2-ICE

(Prototype Vehicles)

- Passenger cars and light duty commercial vehicles
- Medium duty commercial vehicles
- Heavy duty commercial vehicles

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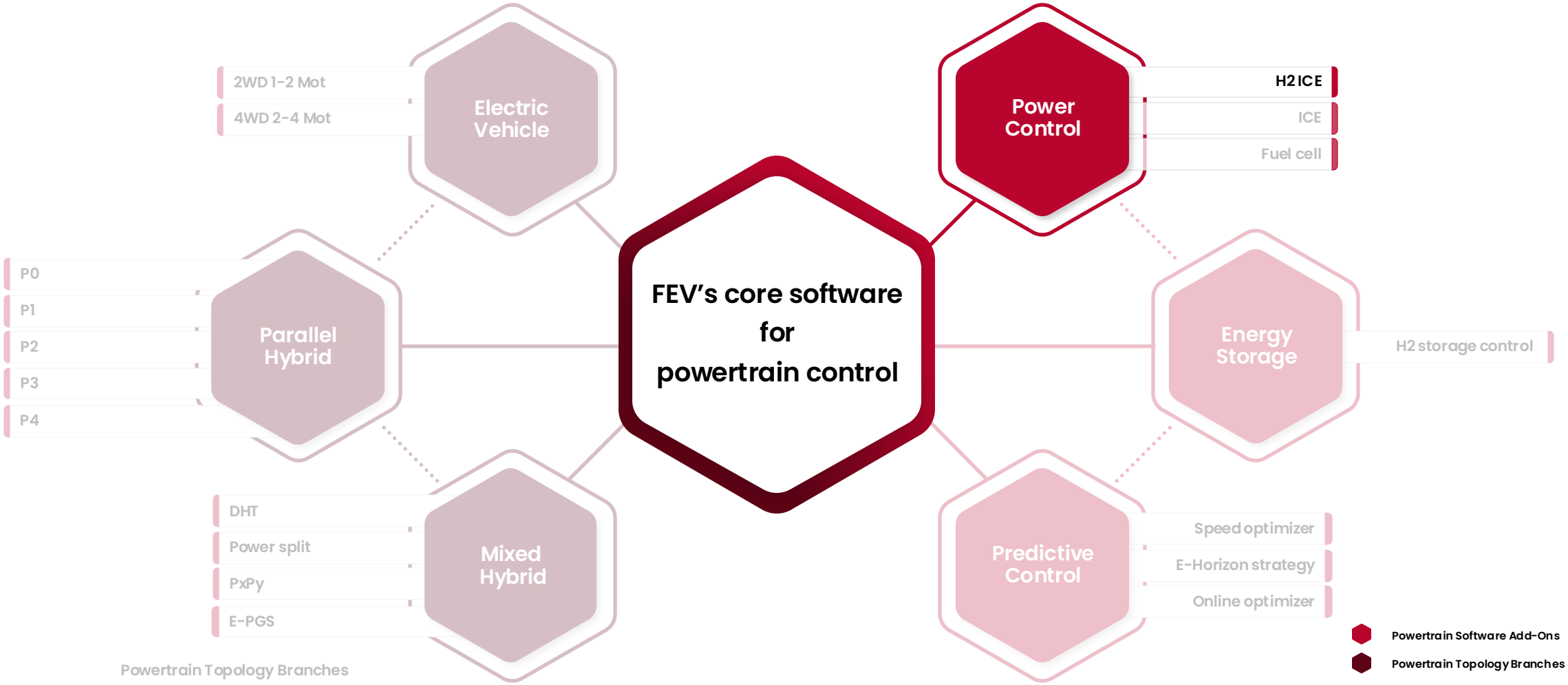
FEV's control functions
Developed, defined and approved in FEV's software landscape

H_2 ECU SOFTWARE AS PART OF FEV'S POWERTRAIN CONTROL SOFTWARE



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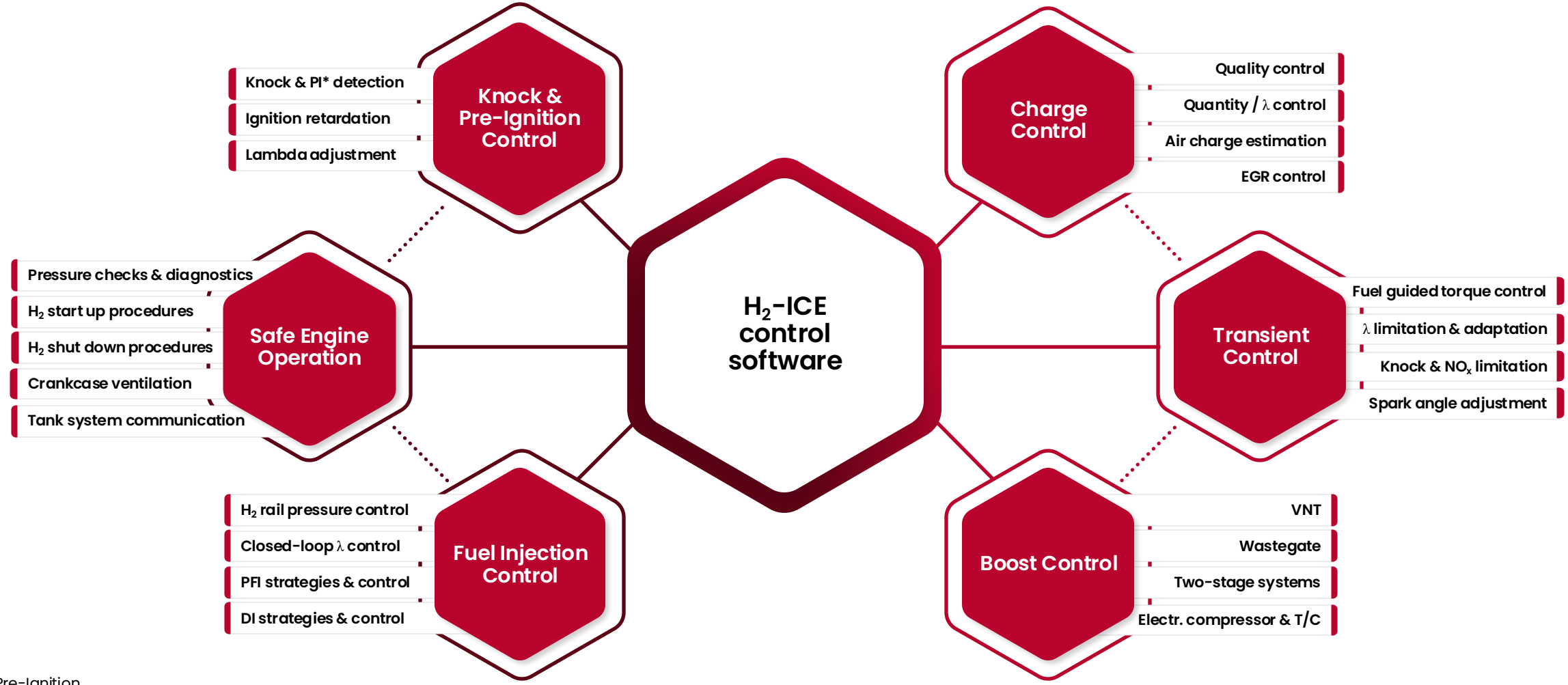

*Pre-Ignition

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FEV operates hydrogen combustion engines in test benches and vehicles using VeRa H_2 and FEV H_2 software

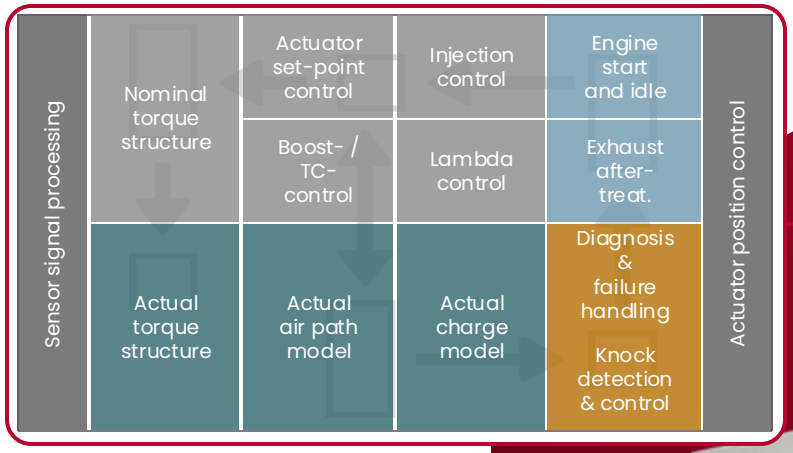
FEV H_2 ENGINE CONTROL DEVELOPMENT TOGETHER WITH VERA H_2

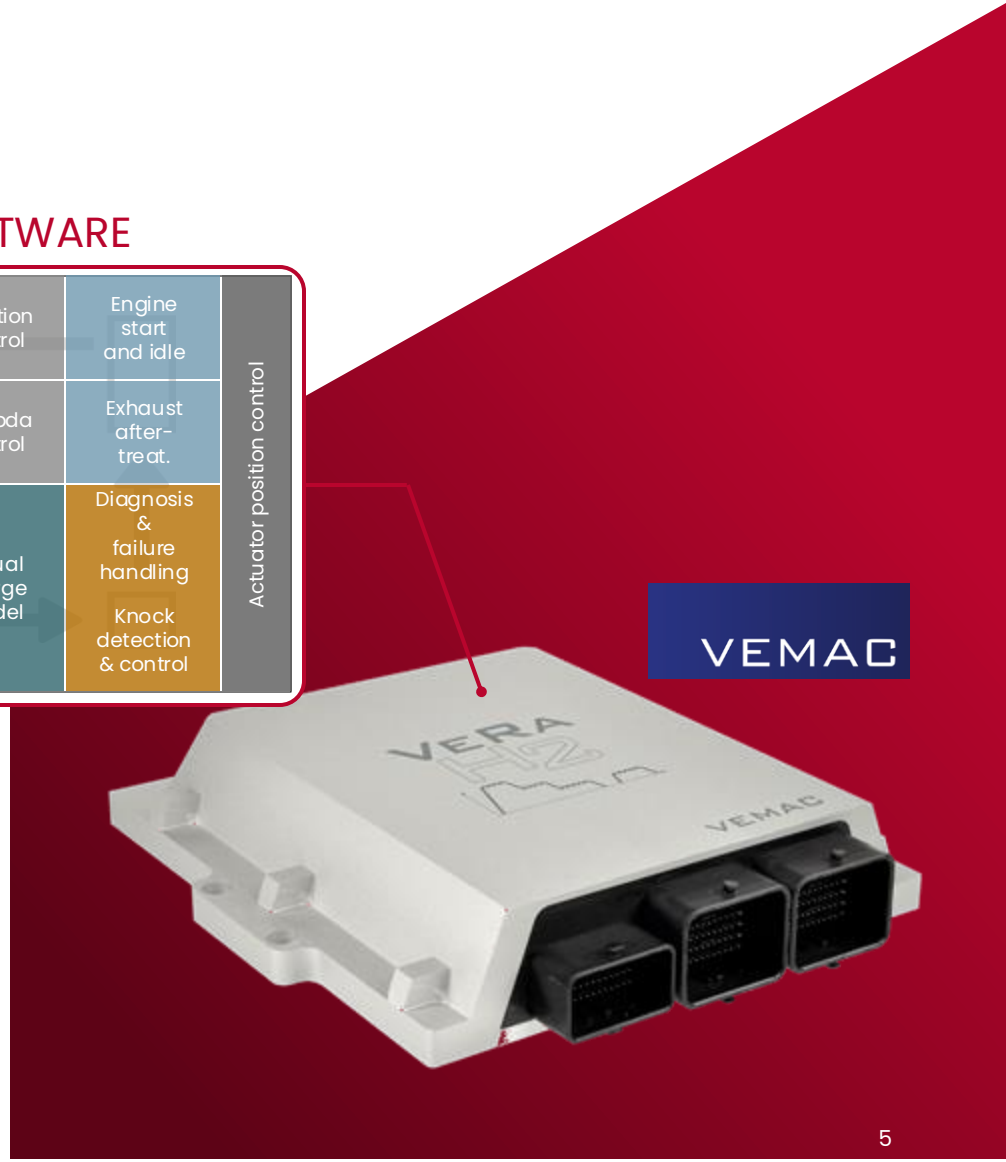
H_2-ready RCP engine control unit

- FEV H_2 ECU software
  - Full transient engine control
  - H_2 specific control strategies
  - Modular physical function library

- VEMAC VeRa H_2
  - Programming and calibration with automotive standard tools (e.g. INCA)
  - 8x solenoid injector with H_2-ready current profiles
  - Customizable I/O
  - Robust IP6K9K aluminum housing
  - RCP ECU for hydrogen demonstrator engines / vehicles / small series

FEV H_2 ECU SOFTWARE





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Get in touch with us for further information

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