ATI *ACCURATE TECHNOLOGIES*

Pi Innovo™

MATLAB® **Enabled**
MathWorks Partner

OpenECU M560
EV / HEV Supervisory Control

Versatile

- Designed to meet ISO26262 ASIL D functional safety requirements
- 112 pins of flexible I/O
- Integrated charging interface circuitry
- Truly open application-independent Simulink® development environment

High Performance

- Powerful NXP SPC5746 microprocessor and 4x CAN 2.0 channels
- Multiple H-bridges, low side drives and high side outputs
- Comprehensive fault diagnosis supporting functional safety as well as OBD requirements
- High level diagnostics fault reporting resident in platform software

Capable

- Designed for complex hybrid and EV applications
- High-quality rugged hardware designed for engine compartment mount
- Supports common calibration tools such as ATI Vision, ETAS INCA, and Vector CANape via CCP as well as Pi Innovo calibration tool PiSnoop
- Same proven hardware used for development can be used for volume production

OPEN ECU® By Pi Innovo

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Capabilities

HIGHLIGHTS		I/O SUMMARY	
Processor	SPC5746	Sensor Supplies	2x 5V @ 200mA
Clock Rate	160MHz	Input Pins	40
Code Space	up to 3MB	Output Pins	50
RAM Space	up to 256kB	Communication	4 x CAN 2.0 to main micro, 1x CAN to Secondary
Calibration Space	up to 256kB	**OUTPUTS**	
Secondary Processor	SPC560P34	H-Bridges	1x 10A, 2x 5A, 1x 3.2A
Clock Rate	64MHz	Low Current Low Side Drives	11x 100mA, 4x 400mA, 14x 700mA, 2x 1A
Total Flash Space	up to 192kB	High Current Low Side Drives	4x 2.2A, 1x 3.2A
Total RAM Space	up to 12kB	High Side Logic Outputs	2x 1mA
INPUTS		High Side Outputs	4x 700mA
Digital Inputs	9x switched, 3x PWM	**PHYSICAL**	
Analog Inputs	28	Dimensions	225x205x45mm (WxDxH)
INTERNAL FEATURES		Material	Aluminum
Partial Networking		Weight	1.1kg
Wake on CAN (2 channels)		Connectors	Molex 112pin (1x48, 2x32)
Wake on digital/PWM input		Vibration	ISO 16750 chassis mount
Pilot and CC2 pins		Environmental Protection	IP69K Sealed / Gore Vent
APPLICATION			
Location	Chassis/Passenger Compartment		
Supply Voltage	6.5 - 18V		

The M560 OpenECU is designed to support the most demanding EV / HEV supervisory control applications.

Since most supervisory controls demand the highest level of functional safety, the M560 was developed using ISO26262 processes.

The high performance SPC5746 microprocessor supported by the powerful 32-bit SPC560P34 secondary microprocessor provides for sophisticated, high-bandwidth rationality checking and system safety monitoring of full-authority vehicle control applications.
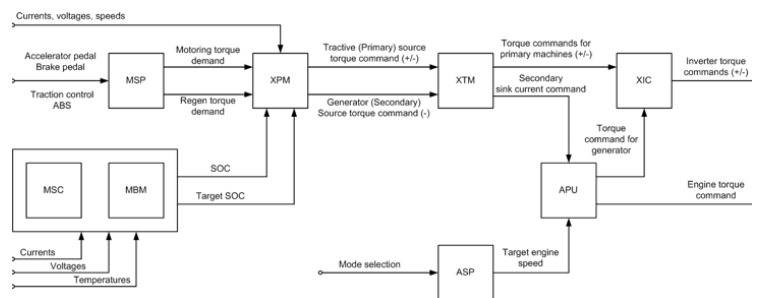
The M560 is designed to support EV / HEV supervisory control applications worldwide, the integrated charging circuitry eliminates the need for a separate charger interface module (Charging interface control application software not included.)

Due to its high quantity of customizable I/O, advanced microprocessor, safety oriented architecture and user friendly OpenECU Simulink application interface, the M560 is a great rapid prototyping platform for a broad range of applications.

Pi Innovo also offers a full set of model based strategies suitable to support most EV / HEV / NEV architectures allowing it to be taken all the way into production. Pi Innovo's systems, controls and software engineers are available to support application implementations from prototype to production.

ALL 4 MAJOR CHARGING INTERFACES SUPPORTED
CCS Type 1 (SAE J1772)USA
CCS Type 2 (IEC 61851-1)EURO
GB/T AC & DC (18487.1_2015 and 20234_2015)China
CHAdeMO – JEVS G105-1993Japan

Strategy Control Structure

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