



# M670

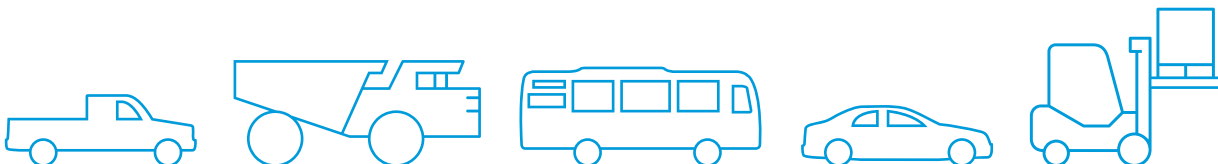
## OpenECU<sup>TM</sup> Versatile OpenECU Designed with Engine Control in Mind

### Versatile

- Designed to allow for customization:  
96 of 154 I/O circuits can be modified to meet application-specific needs
- Truly open application-independent  
Simulink<sup>®</sup> development environment
- Optional daughter board



Ideal for light, commercial and off-highway vehicles.



# M670

## Versatile OpenECU™ Designed with Engine Control in Mind

### High Performance

- Architecture to support applications requiring high safety integrity levels
- High level diagnostics fault reporting resident in platform software
- Designed to meet latest emissions standards including EURO VI and Tier 4
- Powerful Freescale MPC5674F microprocessor and 4 CAN 2.0 channels

### Capable

- High-quality rugged hardware designed for engine compartment environments
- Supports common calibration tools such as ATI Vision, ETAS INCA, and Vector CANape via CCP as well as Dana calibration tool PiSnoop
- Same proven hardware used for development can be used for low volume production

Capabilities			
Highlights		I/O Summary	
Processor	MPC5674F	Actuator Supplies	2 x 10A
Clock Rate	264MHz	Sensor Supplies	4 @ 5V @ 250mA
Code Space	3MB	Input Pins	59
RAM Space	128KB	Output Pins	53
Calibration Space	128KB	Communication	4 x CAN 2.0
Inputs		Outputs	
Digital Inputs	5 (low frequency); 3 (high frequency)	H-Bridges	2 x 10A full bridge OR 4 X 10A half bridge & 1 x 5A full bridge
Analog Inputs	17	Low Current Low Side Drives	4 x 0.2A & 5 x 0.5A
Temperature Sensors	5 Thermistor and 4 RTD	Current Controlled	8 x 2A
Knock Sensor	2	Low Side Drives	
Lambda Sensor	2 UEGO (Bosch LSU 4.9) & 2 HEGO	High Current Low Side Drives	2 x 6A/4A (peak/hold) & 1 x 8A
Camshaft	4 x Hall	Sparks (smart coil)	8 x 5V
Crankshaft	1 x Hall or VR	Injectors	8 x 25A/15A (peak/hold) or 8 x 4A saturating
Internal features		High Side Drives	2 (Inj Boost) & 2 x 10A (VBatt)
Programmable injector boost power supply up to 65V		Physical	
Wake on CAN		Dimensions	266 x 299 x 56.5mm
Application		Material	Aluminum
Location	Engine Compartment / Chassis	Weight	1.6kg
Supply Voltage	6.5 - 36V	Connectors	MOLEX 2 x 53pin & 1 x 48pin
Optional daughter card features		Vibration	ISO 16750
Available for adding functionality: Flexray, LIN, etc.		Environmental Protection	IP67 Sealed / Gore Vent

Injector Drive Options		
Typical application	Injector Drive Circuit Specifications	Model
PFI Saturating Injectors	• 8 x 4A saturating injectors	M670S
PFI Peak & Hold Injectors	• 8 x 6A / 4A peak/hold injectors	M670B
GDI / CRD Boosted Injectors	• 8 x 25A / 15A peak / hold injectors • Software configurable boost power supply up to 65V • 120W of internal power	M670B

### Additional Engine Control Features:

- E-GAS monitoring safety architecture including secondary microprocessor
- Internal diagnostics fault reporting for crank, spark, injection UEGO, knock
- 8 smart spark coil (additional digital outputs become available if not used)
- Lambda sensor- 2 UEGO (Bosch LSU 4.9) and 2 HEGO
- Crankshaft sensor- 1 x Hall or VR
- Camshaft- 4 x Hall
- Measurement of selected inputs in time and angular domains
- Optional - VertiCal Base Boards designed to enable the use of new enhanced automotive calibration and debug tools
- Multiple memory configurations available

Due to its high quantity of customizable I/O, advanced Freescale microprocessor, safety oriented architecture and user friendly OpenECU™ Simulink application interface, the M670 is a great rapid prototyping platform for a broad range of applications:

- Autonomous vehicles
- Stability Control (ABS / TCS / ESC)
- Active chassis (suspension, ride height)
- Automatic transmission
- Hybrid supervisory controls

## OpenECU.com

### Application Policy

Capacity ratings, features, and specifications vary depending upon the model and type of service. Application approvals must be obtained from Dana; contact your representative for application approval. We reserve the right to change or modify our product specifications, configurations, or dimensions at any time without notice.

### Dana Plymouth Technology Center

47047 West Five Mile Road  
Plymouth, MI 48170  
Tel: +1 (734) 656 0140 Fax: +1 (734) 656-0141  
OpenECU.com

