



Microcontroller Solutions Group

Body Green Network Demo

Description

The increasing demand for new safety and comfort features in today's automobiles results in a significant increase in the complexity of onboard systems. This leads to a rise of power consumption as well as an increase in automotive weight and fuel consumption. One of the possible solutions besides dropping the weight, power consumption, and fuel consumption, is a decentralized system solution with support of advanced low-power modes. Our body green network demo shows the ability of Freescale devices to significantly reduce the power consumption of onboard systems by using the low-power modes of the microcontroller (MCU) and system basis chip (SBC).

Our broad portfolio of automotive microcontrollers, integrated circuits and sensors solutions, plus our growing enablement and technical support, helps you get back on track. We enable you to create the next breakthrough automotive designs for powertrain, body, chassis and safety, infotainment and telematics, and in-vehicle networking applications.

Applications

- Decentralized body controller
- Power-efficient body gateway
- Intelligent actuators
- Electric/hybrid cars
- Multi-network systems
- CAN/LIN gateway

Demo Features

- One MPC5517-based main controller unit with current consumption measurement and LCD display
- One MPC5517-based body controller unit with CAN/LIN gateway functionality
- Three MM912F634S-based LIN slave units (motor control application, LED board, light/temperature sensor unit)
- Three normal running demo modes
- Four low-power modes
- One advanced running mode
- Main controller unit and body controller unit software fully AUTOSAR based
- MC33905 SBC: ease of use through the SBC software package (ECO system)
- Pulse width modulation (PWM)-based LED intensity control
- Ability to decrease power consumption from 200 mA to 90 μ A

Key Features of Decentralized Solution

- Wiring and weight reduction
- Efficient upgrade of subsystems, easy replacement of fault units
- Support of power consumption/walk-up time scaling
- Utilization of confident spaces (MCU and analog die in one package)
- Easy subsystems diagnostics

MPC5517 Features

- Two 32-bit cores built on Power Architecture® technology with up to 1.5 MB of flash
- 16-channel direct memory access controller (eDMA)
- 12-bit ADC module, four serial peripheral interfaces (DSPI)
- On-chip FlexRay controller with up to six serial communication interfaces (eSCI)
- Up to six enhanced CAN modules
- Boot assist module supporting flash programming via CAN or eSCI
- STOP and SLEEP low-power modes

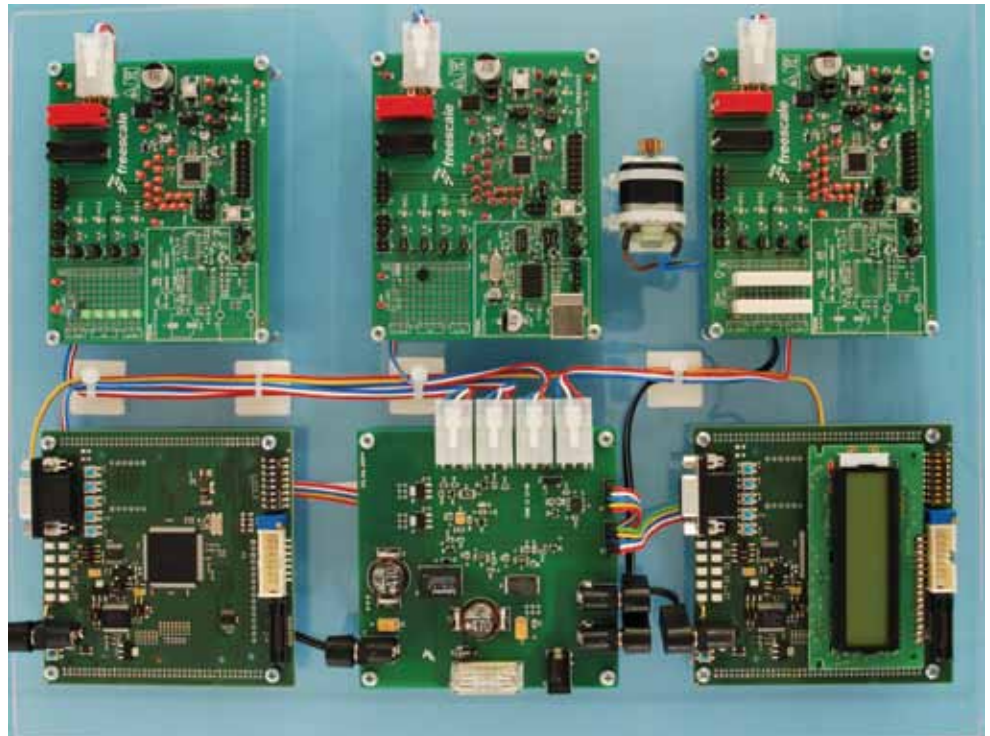
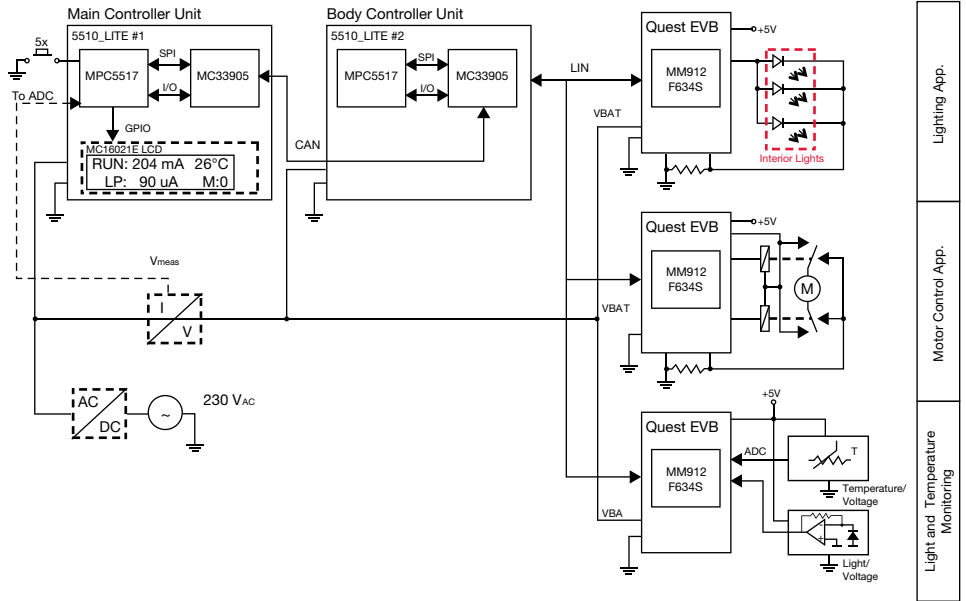
MM912F634S Features

- High-performance 16-bit S12 CPU with analog components in one package
- LIN 2.1 physical interface
- Current sensing module with selectable gain
- Two protected low-side outputs, two protected high-side outputs
- Two autonomous window watchdogs with dedicated oscillator
- Six high voltage inputs
- Two channel PWM modules for direct control of the high-side and low-side outputs
- 10-bit analog to digital converter
- System STOP and SLEEP low-power modes

MC33905 SBC Features

- 5V or 3.3V regulator with current, temperature and voltage protection
- Configuration and diagnostic accessible through the SPI
- One CAN and up to two LIN transceivers
- Window watchdog, two configurable input/output pins
- Very low quiescent current in low-power modes
- STOP (Vdd ON) and SLEEP (Vdd Off) modes

Body Green Network Demo Block Diagram



Body Green Network Demo

Learn More:

For current information about Freescale products and documentation, please visit www.freescale.com/automotive.