APPLICATION BRIEF

Modular Zone Controller Kit 48V/12V

Modular Kit for 48V/12V Power Distribution and Gateway functionalities of a zone controller

Infineon's Zone Controller Kit (ZCK) is a reference design kit, enabling customers to quickly evaluate a multitude of Zone Controller functions, as well as supporting proof-of-concept bring-ups in a lab setting. The kit features a 48V and a 12V domain and supports a variety of use cases, such as power distribution, load actuation, 48V/12V power conversion, data routing, safety, and security. Through its modular approach, and by taking advantage of the intrinsic interoperability of Infineon's broad product portfolio, it supports car manufacturers in making sound architectural decisions and finally making a customized, cost-effective chipset selection.

System approach

- "Plug-n-play" modular zone controller kit for both 48V and 12V applications, featuring separate microcontroller and 48V/12V DC/DC boards that may be plugged on to evaluate system variations
- Comprehensive chipset selection of Infineon's devices to support typical architectural design decisions. Examples include analog vs. digital diagnosis, SPI vs. SPI daisy-chained control, integrated vs. discrete power distribution and motor control solutions, 48V vs. 12V endpoint evaluation, local vs. centralized microcontroller decision making
- Detailed evaluation of devices and features in Zone Controller system context, including I^2t, CLS, OCP, OVP, reverse polarity protection, I/O optimization, data routing, cyber security, etc.
- 48V and 12V domains within the same system for mixed-voltage test cases (e.g. 48V arcing, 48V to 12V short circuit), as well as independent voltage-domain testing (e.g. 48V load actuation and wire protection)



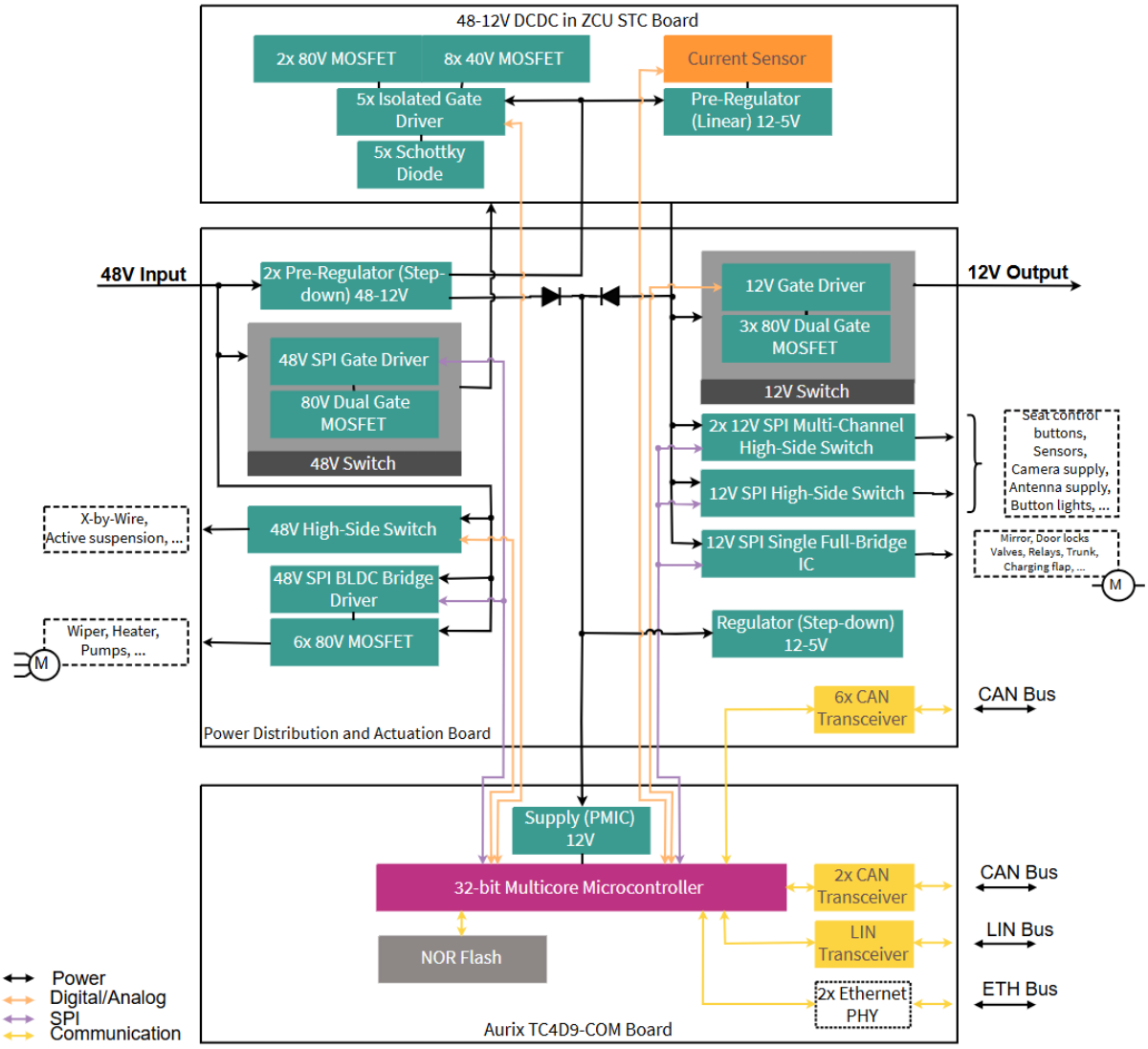
Highlight products

- AURIX™ TC4 microcontroller
- Semper™ NOR Flash
- OPTIREG™ power supply ICs (PMIC, 48V-12V, 12V-5V)
- TLE937x CAN transceivers
- TLE725x LIN transceiver
- 12V and 48V isolated and non-isolated EiceDRIVER™ gate driver ICs
- 12V and 48V OptiMOS™ MOSFETs (incl. 4x DualGate)
- 12V SPOC™ high-side switches
- 48V PROFET™ high-side switch
- Xensiv™ Current sensor
- 12V MOTIX™ integrated BDC motor control IC & 48V MOTIX™ BLDC SPI driver

System benefits

- Verified system for evaluation of various Zone Controller use cases with latest Infineon components
- Possibility for system variation due to modular concept (extension with additional DC/DC topologies and alternative microcontrollers on-going)
- Early support for development of zone controllers
- Highlight of chipset synergies and benefits

ZCK block diagram



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