Multi-core microcontroller (MCU) family aimed at functional safety applications for car electronics

STMicroelectronics announced a new member in its multi-core microcontroller (MCU) family aimed at functional safety applications for car electronics. The new device combines compliance with the most stringent automotive safety standards (ISO 26262) and increased non-volatile memory size, giving a simple upward migration path from existing parts and strengthening ST's product line of fault-tolerant microcontrollers for mission-critical automotive applications.

The SPC56EL70 32-bit microcontroller is the newest member in ST's product line designed to cover a wide range of automotive applications that need to respect the automotive safety integrity levels (ASIL) that are now required, up to and including the most stringent ASIL D level. These requirements are now commonplace in critical systems such as anti-lock braking, electric power steering, active suspension and advanced driver assistance systems (ADAS).

The ISO 26262 functional safety standard defines the rules needed in order to avoid unreasonable risk due to hazards caused by malfunctioning of the complete electrical system. The microcontroller's role is extremely critical so all sections of the standard that are applicable have been evaluated for ST's automotive –safety devices.

ST's new single-chip automotive microcontroller combines two high-performance cores with 2MB Flash and 192kB internal RAM memory, three CAN (Controller Area Network) interfaces and an optimized peripheral set for safety and motor-control applications, supporting up to two brushless 3-phase motors. The dual-core architecture reduces duplication of components at a system level, lowering overall

system costs.

The architecture also provides unique flexibility by allowing the user to select lockstep or dual parallel processing (independent core operation) modes, enabling support of multiple safety architectures that the user can configure to achieve the required balance between safety and performance level.

The SPC56EL automotive microcontroller product line is part of the family of Power Architecture™ devices enabling integrators to use the 32-bit MCU core throughout powertrain, car body, chassis and safety systems. These devices support advanced functions, enable improved vehicle performance and economy, and deliver savings in development by promoting hardware and software reuse.

All the devices combine the scalable e200-core 32-bit Power Architecture with an application-optimized peripheral set and plentiful embedded Flash memory, to increase integration, maximize design reuse, shorten time to market, and reduce costs.

As part of the complete supply-chain strategy, this product line is manufactured in ST's in house embedded Flash (eFlash) process technology, which builds upon the Company's 20-year expertise in embedded Flash. The SPC56EL product line has an available memory range from 768 Kbytes to 2 Mbytes of Flash and is currently available in LQFP100 and LQFP144 package configurations. BGA257 versions are also planned in the near future.

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