

Power management optimized ICs for STM32 microprocessors in industrial applications

STPMIC1L and STPMIC2L deliver single-chip power supply, monitoring and protection

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STMicroelectronics' [STPMIC1L](#) and [STPMIC2L](#) power-management ICs (PMICs) help designers leverage the embedded-processing muscle of ST's Arm® Cortex®-A microprocessors (MPUs) in performance-oriented industrial applications.



New optimized PMICs with monitoring and protection for STM32 MPUs



STMicroelectronics' new power-management ICs for MPUs

Tailored for the 32-bit STM32MP1x and 64-bit STM32MP2x series, the new PMICs deliver cost-effective power and protection while saving board space, simplifying hardware design, and minimizing the bill of materials. With multiple fixed and adjustable LDOs and DC/DC buck converters for all MPU power rails, each PMIC also contains an LDO suited to powering external DDR DRAM.

The PMICs target equipment such as point-of-sale (POS) terminals, network gateways, home-automation systems, edge-processing platforms, printers, barcode scanners, and metering systems. With their extended junction temperature rating from -40°C to 125°C, the devices withstand harsh environments in applications like industrial controls, thermostats, and smart-factory devices.

The STPMIC1L for the STM32MP1 series has two DC/DC buck converters and four LDOs, one LDO for DRAM, and two external pins for power control. The STPMIC2L for the STM32MP2 series has three DC/DC buck converters and seven LDOs for the 64-bit MCUs, one DRAM LDO, and three pins for power control. Each has a large input voltage range, from 2.8V to 5.5V, easing the design of equipment powered from a low-voltage AC/DC wall adaptor, USB outlet, or Li-ion or Li-Po batteries.

The buck converters of these PMICs implement adaptive constant on-time (COT) to ensure fast

transient response, as well as supporting dynamic voltage scaling for optimal efficiency. Safety and protection include programmable output discharge modes, selectable overcurrent protection (OCP), and power-rail monitoring. The PMICs also handle power-up/down sequencing and meet the MPUs' accuracy and settling-time specifications.

Two evaluation boards, STEVAL-PMIC1LKV1 and STEVAL-PMIC2LKV1, are available to help engineers kick-start their projects and accelerate development. Each has a dedicated graphical user interface that eases configuring and monitoring the PMIC on the evaluation board and setting up the NVM parameters.

Both STPMIC1L and STPMIC2L are fully supported by the STM32 MPU ecosystem, in OpenSTLinux.

Both devices are in production now. The STPMIC1L is available in a 4mm x 4mm 28-pin VFQFPN package from \$1.34, and the STPMIC2L in 5mm x 5mm VFQFPN40 from \$1.77, for orders of 1000 pieces.

For more information, please visit www.st.com/STPMIC1L-2L

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