



## **Toshiba releases new microcontrollers for motor control in consumer and industrial equipment**

New additions expand Toshiba's M4K and M470 groups of Arm® Cortex®-M4 MCUs for motor control

**Düsseldorf, Germany, 22<sup>nd</sup> January 2025** – Toshiba Electronics Europe GmbH ("Toshiba") has introduced seven new 32-bit microcontrollers with Arm® Cortex®-M4 cores, expanding its motor control MCU lineup. These devices are ideally suited for field-oriented control (FOC) of up to two AC motors, brushless DC (BLDC) motors and multiple types of inverter control such as variable frequency drives or servo drives.

All seven newly released devices feature CPU cores with a floating-point unit (FPU) and memory protection unit (MPU), an internal oscillator of 10MHz ( $\pm 1\%$ ), and a DMA controller (DMAC). They offer functional blocks for field oriented control of BLDC and PMSM motors such as advance-programmable motor drivers (A-PMD), advanced encoders 32-bit (A-ENC32), and high-speed/high-resolution 12-bit analog/digital converters. The devices feature UART, TSPI and I<sup>2</sup>C as integrated general communication interfaces. New microcontrollers come with self diagnosis functions for flash memory, RAM, ADC and Clock, helping designers achieve IEC 60730 Class B functional safety certification.

Six of the newly released devices constitute the new M4K group (1), which is included in Toshiba's [TXZ+™ Family](#) of MCUs. These microcontrollers operate at speeds up to 120MHz and have code flash memory options of 128KB or 256KB, and 18KB of RAM. The microcontrollers feature additionally an operational amplifier (OPAMP), operate at a voltage range of 2.7 to 5.5V, and are available in 0.5mm pitch LQFP64 (TMPM4K4FxBUG), 0.5mm pitch LQFP48 (TMPM4K2FxBDUG), and 0.8mm pitch LQFP44 (TMPM4K1FxBUG) packages.

The seventh new MCU, TMPM471F10FG, expands Toshiba's M470 group, included in the [TX04 Series](#). It operates at up to 160MHz and supports firmware over-the-air (FOTA) updates with its 1MB flash memory. The microcontroller operates at a voltage range of 4.5 to 5.5V and is available in a 0.5mm pitch LQFP100 package.

Documentation, sample software with actual usage examples, and driver software that controls the interfaces for each peripheral are available for free download from [Toshiba's website](#). [Evaluation boards](#) and [development environments](#) are provided in cooperation with various technology partners and with Arm® global ecosystem partners.

For more information about Toshiba's microcontrollers, please visit:

<https://toshiba.semicon-storage.com/eu/semiconductor/product/microcontrollers.html>

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Notes:

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In addition, TEE also offers Toshiba's SCiB™ battery cells and modules with lithium titanium oxide (LTO) for heavy-duty applications and Silicon Nitride (SiN) ceramic substrates used in power semiconductor modules, inverters and converters for their heat dissipation characteristics and strength.

TEE has its headquarters in Düsseldorf, Germany, with branch offices in France, Italy, Spain, Sweden and the United Kingdom providing marketing, sales and logistics services.

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