

TOSHIBA
Leading Innovation >>>

TMPM330 family

> Upgrade your features by Toshiba's family concept!

Benefits:

- > High-Speed NANO™ Flash by Toshiba.
- > 128k byte up to 512k byte embedded Flash
- > High-performance for a low price.
- > Toshiba supports ARM® Cortex Microcontroller Software Interface Standard (CMSIS).



You can find further information about TOSHIBA's Cortex-M3 product family at:
<http://www.toshiba-components.com/microcontroller>

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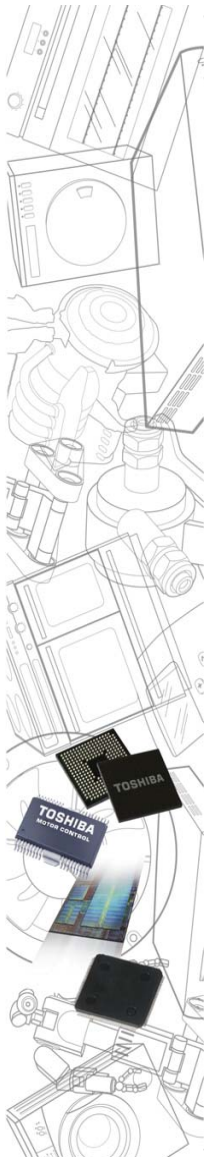
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Microcontroller

> **TMPM330 family**

- > **ARM® Cortex™-M3 based 32-bit MCU**
- > **128k to 512k byte Flash**
- > **High Speed NANO Flash™**
- > **32-bit performance for a low price**



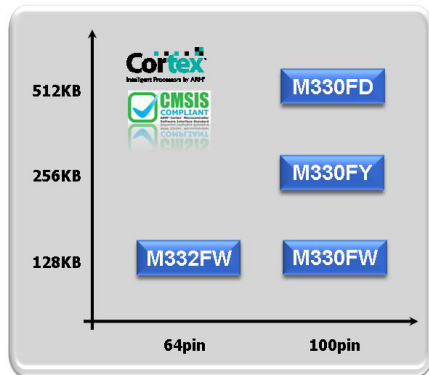
General Purpose Microcontrollers

100 pin 32 bit MCU • 512kbyte Flash • 32k byte RAM • High-Speed Flash • ADC ...

> **Introduction**

The TMPM330 general-purpose microcontroller family with ARM 32-bit CPU for embedded applications has an 12 channel fast 10-bit A/D converter, 10 channel 16-bit timer and several serial interfaces. Toshiba's original low-power consumption flash memory, NANO FLASH™, is used as on-chip ROM to enable high-performance, low power consumption operation with the ARM® Cortex™-M3 core.

Developed for embedded applications by ARM Ltd., the core adopted by Toshiba offers exceptional interrupt handling, high code efficiency and high-speed NANO™ Flash. Therefore, it can achieve 32-bit performance at cost levels equivalent to a 16-bit core. In addition, development tools for this core are available from many vendors.



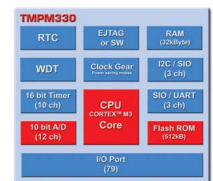
Target Applications:

- > Industrial Control
- > Measurement Equipment
- > Front Panel Control
- > Security/Alarm Control
- > Home Appliance
- > Battery Charger
- > Bar Code Reader
- > Heating Control
- > Building Control
- > TV Application
- > Factory Automation
- > Smart Metering
- > Solar Energy Control
- > Datalogger
- > Card Reader

> **Features**

Cortex-M3 Core

- > Operating voltage: Peripheral I/O=2.7~3.6V
- > Max. operating freq.: 40MHz (quadruple PLL)
- > Internal memory: FLASH : 128KB, 256KB, 512KB
RAM : 8KB, 16KB, 32KB
- > MAC: Executes 32 bit x 32 bit
-> 32 bit within 1clk cycle.
- > Debug circuit: EJTAG or SW (Serial Wire)
- > Power saving operation: Clock gear
(for dividing clock to 1/2, 1/4 or 1/8)
Standby mode (NORMAL/SLOW/SLEEP/STOP)



Built-in functions

- > 10 bit AD converter: 12ch (conversion time 2.0µs)
- > 16 bit timer: 10ch (free-running, compare output, PPG output, input capture)
- > Serial interface: SIO/UART : 3ch
I2C/SIO : 3ch
- > External interrupt : 8ch

> **Group Variations**

| | TMPM330FDFG | TMPM330FYFG | TMPM330FWFG | TMPM332FWUG |
|---------------|--|-------------|---------------------------------------|-------------|
| FLASH | 512KB | 256KB | 128KB | 128KB |
| RAM | 32KB | 16KB | 8KB | 8KB |
| 16 bit Timer | Out | 10ch | | 7ch |
| | In | Max. 6ch | | Max. 4ch |
| SIO/UART | 3ch | | 2ch | |
| I2C/SIO | 3ch | | 2ch | |
| A/D | 12ch | | 8ch | |
| Ex. Interrupt | 8ch | | 5ch | |
| I/O ports | 79 | | 45 | |
| Package | LQFP100 14 x 14 mm, 0.5 mm pitch | | LQFP64 10 x 10 mm, 0.5 mm pitch | |