

> 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>

TOSHIBA
Leading Innovation >>>

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**

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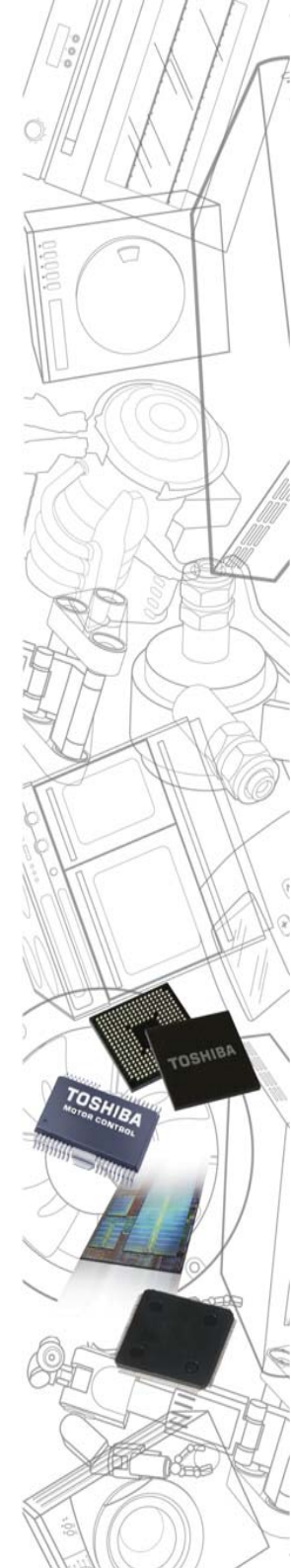
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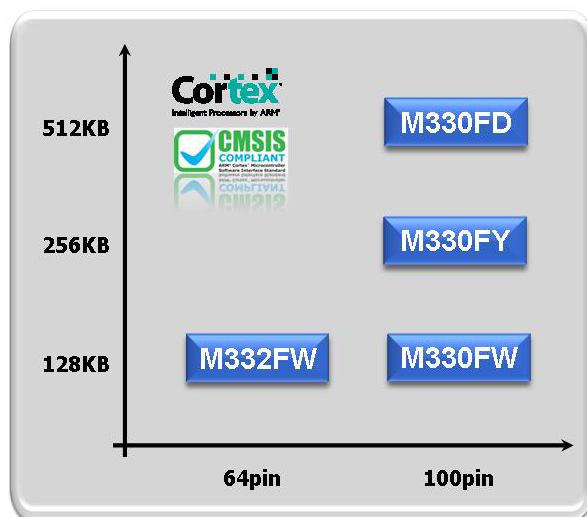
General Purpose Microcontrollers

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.



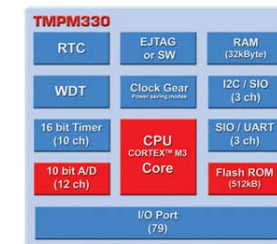
Target Applications:

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