


TLCS-870 Family TLCS-870/C1 Series		
8bit	<b>TMP89FH42UG</b> <b>TMP89FM42UG</b>	 44pin

## 8-bit microcontrollers delivering high functionality and performance in low-pin-count packages

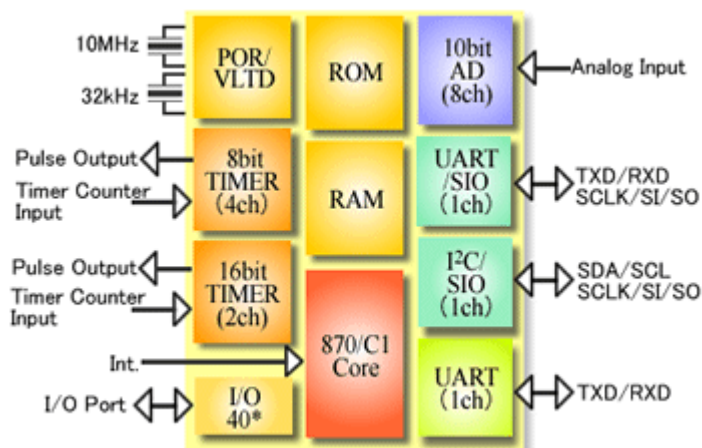
### Features

#### ● TLCS-870/C1 CPU Core

- Operating voltage
  - 4.3 to 5.5 V at 10 MHz
  - 2.7 to 5.5 V at 4.2 MHz
  - 2.2 to 5.5 V at 2 MHz
- Clock gear
  - 1/4, 1/2, 1/1

#### ● Built-in Functions

- Voltage detecting circuit  
(Two voltage levels detectable, reset or interrupt selectable)
- Power-on reset circuit
- 10-bit AD converter : 8 channels
- 8-bit timer : 4 channels
- 16-bit timer : 2 channels
- UART/SIO : 1 channel
- UART : 1 channel
- I<sup>2</sup>C/SIO : 1 channel  
(One SIO channel can be used at a time.)
- Built-in pull-up resistors
- On-chip debug function (Flash version only)



\*:Two pins are used for high-frequency oscillation and cannot be used as input/output ports.

#### ● Flash Memory Size

Part number	ROM(Flash)	RAM
TMP89FH42UG	16 Kbytes	2 Kbytes
TMP89FM42UG	32 Kbytes	2 Kbytes

#### ● Product Lineup

Part number	ROM	RAM
TMP89CH42UG	16 Kbytes	2 Kbytes
TMP89CM42UG	32 Kbytes	2 Kbytes

### Development Systems

#### ● Software Products

Toshiba Integrated Development Environment	C Compiler	SW89CN0-ZCC: 1 license SW89CN3-ZCC: 10 licenses
	Integrated Development Environment	SW00MN0-ZCC: 1 license SW00MN3-ZCC: 10 licenses The emulator comes with a single-seat download license.

#### ● Hardware Products

\*\*:Under development

On-Chip Debug Emulator	Emulator	BMP89A400010A-G
In-Circuit Emulator	Emulator	BMP89A300010A-G
	Emulation chip	TMP89C900XBG**

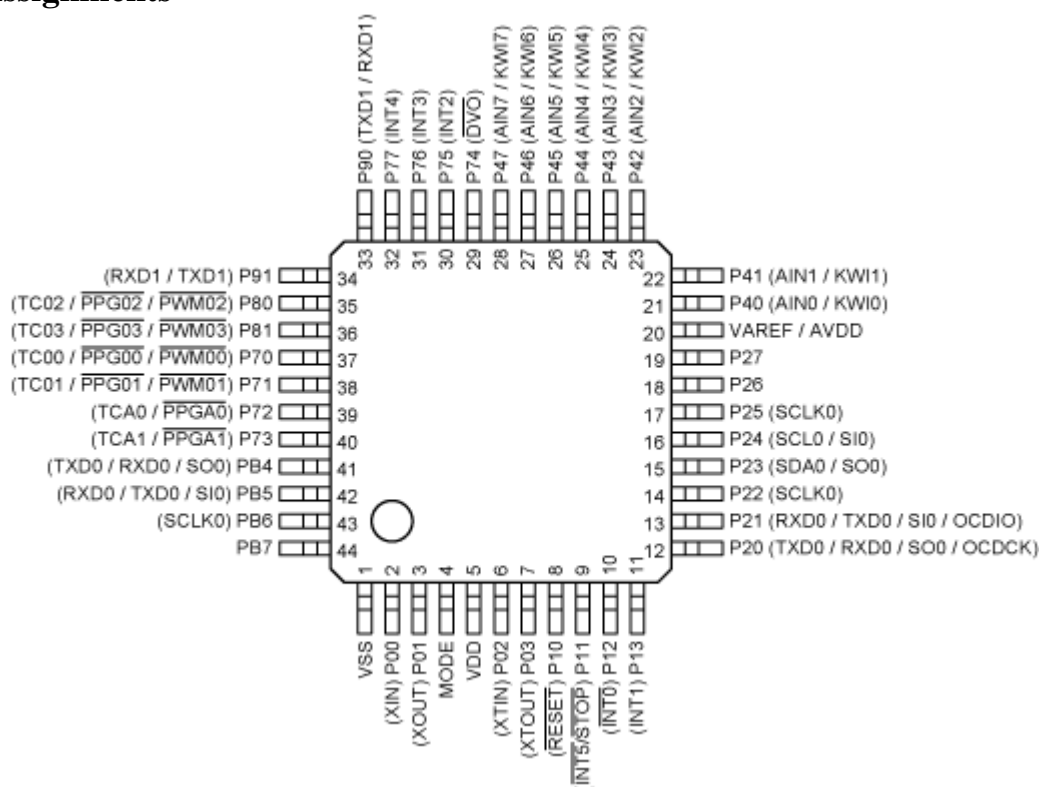
- › Use either an On-Chip Debug Emulator or an In-Circuit Emulator.
- › As to hardware products, additional accessories are also needed.

» For further information about Toshiba microcomputers and Toshiba microcomputer development systems, please visit <http://www.semicon.toshiba.co.jp/eng/product/micro/index.html>

» Contact the Toshiba sales representative for information about RoHS compliance before you purchase any components.

## Package Information

### ● Pin Assignments



Package name: LQFP44-P-1010-0.80B

\* This product uses the SuperFlash® technology under license of Silicon Storage Technology, Inc. Super Flash® is a registered trademark of Silicon Storage Technology, Inc.

- The information contained herein is subject to change without notice. 021023\_D
- Toshiba is continually working to improve the quality and reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the "Handling Guide for Semiconductor Devices", or "TOSHIBA Semiconductor Reliability Handbook" etc. 021023\_A
- The Toshiba products listed in this document are intended for use in general electronics applications (computer, personal equipment, office equipment, measuring equipment, industrial robotics, domestic appliances, etc.). These Toshiba products are neither intended nor warranted for use in equipment that requires extraordinarily high quality and/or reliability or a malfunction or failure of which may cause loss of human life or bodily injury ("Unintended Usage"). Unintended Usage include atomic energy control instruments, airplane or spaceship instruments, transportation instruments, traffic signal instruments, combustion control instruments, medical instruments, all types of safety devices, etc. Unintended Usage of Toshiba products listed in this document shall be made at the customer's own risk. 021023\_B
- The products described in this document shall not be used or embedded to any downstream products of which manufacture, use and/or sale are prohibited under any applicable laws and regulations. 060106\_Q
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA for any infringements of patents or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any patents or other rights of TOSHIBA or the third parties. 070122\_C
- Please contact your sales representative for product-by-product details in this document regarding RoHS compatibility. Please use these products in this document in compliance with all applicable laws and regulations that regulate the inclusion or use of controlled substances. Toshiba assumes no liability for damage or losses occurring as a result of noncompliance with applicable laws and regulations. 060819\_Z
- The products described in this document may include products subject to the foreign exchange and foreign trade laws. 021023\_F
- The products described in this document contain components made in the United States and subject to export control of the U.S. authorities. Diversion contrary to the U.S. law is prohibited. 021023\_G
- TOSHIBA has made this document deliberately in order to make its contents as accurate as possible. Nevertheless, if any trouble should occur due to any error contained in this document, TOSHIBA shall not have any liability therefore. Also, please keep in mind the precautions and conditions set forth in the "Instruction Manual or Operation Manual of TOSHIBA Products," or "The Precautions or Procedure Files described in the Installation Disk such as Floppy Disk or CD-ROM etc." Please constantly pay attention to the latest information on the TOSHIBA products which is to be released through the web page of TOSHIBA microcomputer development system. (<http://www.semicon.toshiba.co.jp/eng>) 060824\_N

# TOSHIBA

**TOSHIBA CORPORATION**

**Semiconductor Company**

<http://www.semicon.toshiba.co.jp/eng>

Copyright © 1995-2008 TOSHIBA CORPORATION, All Rights Reserved.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Toshiba:

[BMP89A400010A-G](#)