

# 8-bit Microcontrollers

## TLCS-870/X series

### TLCS-870/X (TMP88 × × × ×)

#### Basic functions

- **1M-byte memory space.**  
Variety of products ranging from those with no ROM to those with large size ROM are planned.
- **Architecture suitable for realtime control**  
: 0.25μs/instruction cycle at 16MHz  
: High-speed task switching, high-speed interrupt register save/restore by register bank switching  
: Up to 63 interrupt vectors
- **Low-voltage, high-speed operation ; low power consumption**  
: Wide range of operation voltage 2.7 to 5.5V (standard type)  
: Dual clock system, main-clock for high-speed operation (16MHz) and sub-clock for low power consumption (32.8kHz) ; 5 low power consumption modes.
- **Instruction sets for built-in controller : 842 instructions**  
: 1 byte jump/call instruction and memory to memory direct transfer/arithmetic instructions to improve memory efficiency  
: Variety of bit operation instructions (OR, AND, Exchange)  
: 16/20-bit transfer/calculation instructions  
: Multiplication (16×8) and division instructions  
: Enhanced arithmetic/logic, bit manipulation, and sign handling instructions.

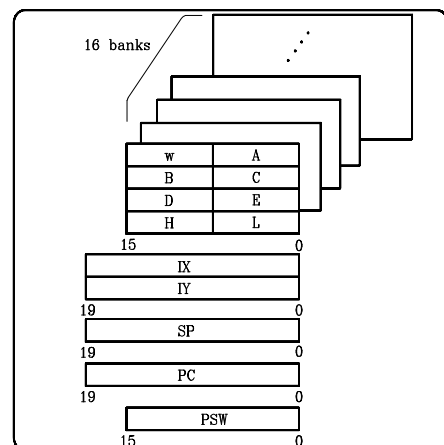
#### One-time PROM

: One-time PROM with features compatible with mask products.

#### Well-developed support environment

: Assembler  
: High-level language (C compiler, C-Like compiler)  
: High-level language debugger

#### Register model



## TLCS-870/X series Selection Guide

ROM (byte)	RAM (byte)	Product No.	Minimum Instruction Execution Time (μs)	Driver		USB	SIO Channels	UART Channels	I <sup>2</sup> C Bus Channels(Notes)	A/D Converter		Timer/Counter		Motor Control	External Memory Interface	E <sup>2</sup> PROM	Remote Control Pulse Detector	Watchdog Timer	Dual Clock	Clock Gear	Number of I/O Ports	Power Supply Voltage(V)	Operating Temperature (°C)	Built-in OTP	Package
				LED	VFT					LCD Function	Hub	8-bit Channels	10-bit Channels												
NA	512	*TMP88C060F	0.32/122 0.95/122	8			1	1	1	8	2	4		●	●	●	●	●	●	42	4.5~5.5 2.7~5.5	-40~85	-	QFP80 (12×12mm)	
4k		*TMP88C406N	0.67	4		1	1	1			2												4.5~5.5	*TMP88P806N	SDIP52
8k		*TMP88C806N		4		1	1	1			2													4.5~5.5	*TMP88PM21F/DF
16k		*TMP88CH21F/DF	0.32/122 0.95/122			40		1	1	8	2	2											47	4.5~5.5 2.7~5.5	*TMP88PM04N
24k	1k	*TMP88CH04N	0.25	2		1	4		1	1	2										42	4.5~5.5	*TMP88PS49N/F	SDIP64/Q FP64	
		TMP88CK48N/F		8			1	1	16	2	2	1									56				
32k	1k	TMP88CK49N/F	0.19	8				1	1	16	2	2	2											*TMP88PM04N	SDIP64
		*TMP88CM04N		2		1	4		1	1	2										42	4.5~5.5 2.7~5.5	*TMP88PM21F/DF	QFP80/LQ FP80 (12×12mm)	
		*TMP88CM21F/DF				40		1	1	8	2	2										47	4.5~5.5 2.7~5.5		
96k	2k	TMP88CM48N/F	0.25	8				1	1	16	2	2									56	4.5~5.5	TMP88PS49N/F	SDIP64/Q FP64	
		TMP88CM49N/F		8				1	1	16	2	2	2										4.5~5.5	*TMP88PU74F	QFP80
96k	2k	*TMP88CU74F	0.32/122	37			1			2											71	4.5~5.5 2.7~5.5	-30~70		QFP80

\* : Under development Note1: Product number suffix Type suffix N: Plastic shrink dual in-line package (SDIP)/ F:Plastic flat package (QFP)  
Note2: I<sup>2</sup>C bus circuit or SIO circuit can be selected in software.