

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.

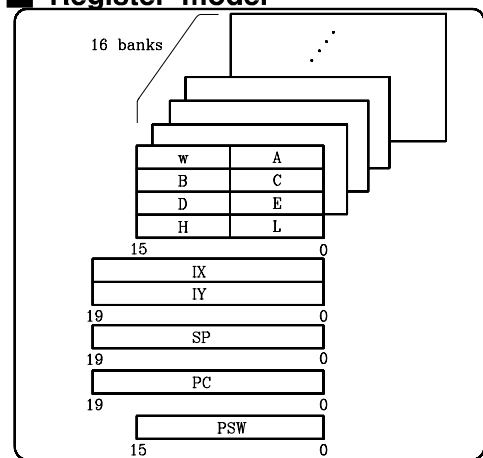
One-time PROM

: 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 ² C Bus Channels(Notes) | A/D Converter | Timer/Counter | Motor Control | External Memory Interface | E ² PROM | Watchdog Timer | Remote Control Pulse Detector | Dual Clock | Clock Gear | Number of I/O Ports | Power Supply Voltage(V) | Operating Temperature (°C) | Built-in OTP | Package |
|---------------|------------|----------------|---|--------|-----|-----|--------------|---------------|--------------------------------------|---------------|---------------|---------------|---------------------------|---------------------|----------------|-------------------------------|------------|------------|---------------------|-------------------------|----------------------------|-------------------------------|-------------------------------|
| | | | | LED | V/F | | | | | | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | |
| 16k | 24k | *TMP88CH21F/DF | 0.32/122 0.95/122 | | 40 | | 1 | 1 | | 8 | 2 | 2 | | | | | | | 47 | 4.5~5.5 2.7~5.5 | -40~85 | *TMP88PM21F/DF | QFP80/LQ FP80 (12×12mm) |
| | | *TMP88CH04N | 0.25 | 2 | | 1 | 4 | | 1 | 1 | 2 | | | | | | | | 42 | 4.5~5.5 | | *TMP88PM04N | SDIP64 |
| *TMP88CK48N/F | | 8 | | | | | 1 | 1 | | 16 | 2 | 2 | 1 | | | | | | 56 | | | *TMP88PS49N/F | SDIP64/Q FP64 |
| 32k | 1k | *TMP88CK49N/F | 0.25 | 8 | | | 1 | 1 | | 16 | 2 | 2 | 2 | | | | | | | | | | |
| | | *TMP88CM04N | | 2 | | 1 | 4 | | 1 | 1 | 2 | | | | | | | | 42 | | | | |
| | | *TMP88CM21F/DF | 0.32/122 0.95/122 | | | 40 | | 1 | 1 | | 8 | 2 | 2 | | | | | | 47 | 4.5~5.5 2.7~5.5 | *TMP88PM21F/DF | QFP80/LQ FP80 (12×12mm) | |
| 96k | 2k | *TMP88CM48N/F | 0.25 | 8 | | | 1 | 1 | | 16 | 2 | 2 | | | | | | | | | | | |
| | | *TMP88CM49N/F | | 8 | | | 1 | 1 | | 16 | 2 | 2 | 2 | | | | | | | | | | |
| 96k | 2k | *TMP88CU74F | 0.32/122 | 37 | | | 1 | | | 2 | | | | | | | | | 71 | 4.5~5.5 2.7~5.5 | -30~70 | *TMP88PU74F | QFP80 |

* : Under development Note1: Product number suffix Type suffix N: Plastic shrink dual in-line package (SDIP)/ F :Plastic flat package (QFP)
Note2: I²C bus circuit or SIO circuit can be selected in software.