

## CMOS 8-BIT MICROCONTROLLERS

T-49-19-08

## TMP90PM42F

## 1. OUTLINE AND CHARACTERISTICS

The TMP90PM42 is a high-speed advanced 8-bit micro controller applicable to a variety of equipment.

The TMP90PM42F is the PROM microcontroller with 32K×8bits PROM.

The programing for the internal PROM is achieved by using the general EPROM programmer (program condition: ROM SIZE=32K byte, TPW=1ms, VPP=12.5V) with the specified adapter socket.

The function of this device is exactly same as the TMP90CK42.

| PART No.  | ROM/PROM    | RAM       | PACKAGE |
|-----------|-------------|-----------|---------|
| TMP90CK42 | 24576×8 bit | 640×8 bit | QFP 100 |
| TMP90PM42 | 32768×8 bit | 640×8 bit | QFP 100 |

TOSHIBA

UNDER DEVELOPMENT

TMP90PM42

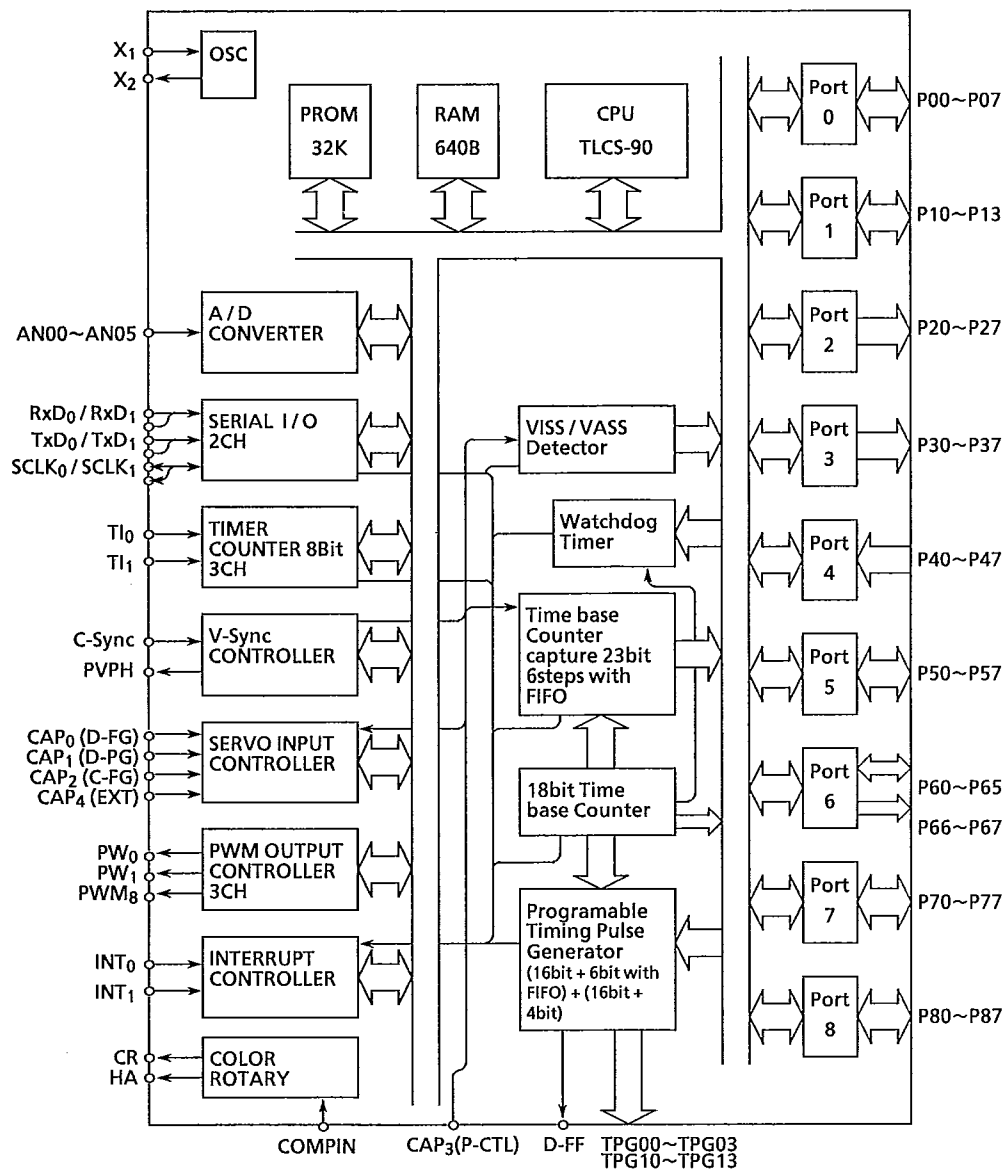


Figure 1 TMP90PM42 Block Diagram

**TOSHIBA**

UNDER DEVELOPMENT

TMP90PM42

## 2. PIN ASSIGNMENT AND FUNCTIONS

### 2.1 Pin Assignment

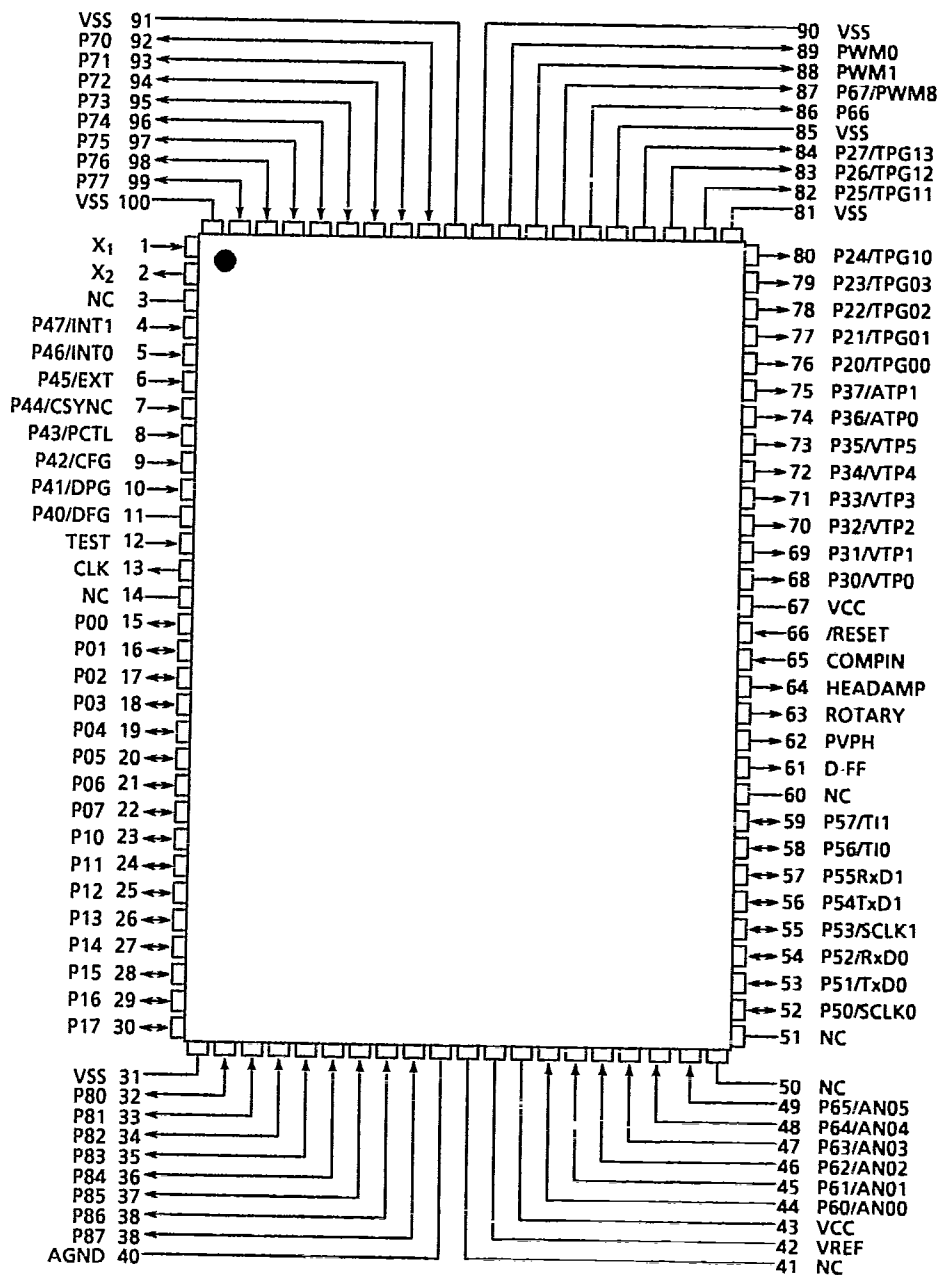


Figure 2 Pin-Assignment

## 2.2 Pin Names and Functions

The names of input/output pins and their functions are summarized in Table 2.2.

Table 2.2 Pin Names and Functions (1/2)

| Pin name                                          | No. of pins | I/O 3-state       | Function                                                                                                                        |
|---------------------------------------------------|-------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------|
| P00~P07                                           | 8           | I/O               | Port 0 : 8-bit I/O port. Input/output can be specified in bits.                                                                 |
| P10~P17                                           | 8           | I/O               | Port 1 : 8-bit I/O port. Input/output can be specified in bits.                                                                 |
| P20~P23 /<br>TPG00~TPG12                          | 4           | Output<br>3-state | Port 2 : 4-bit output port.<br>Timing pulse generator (TPG0) output: These pins are also used for TPG0-0 to TPG0-3 output pins. |
| P24~P26 /<br>TPG10~TPG12                          | 3           | Output<br>3-state | Port 2 : 3-bit output port.<br>Timing pulse generator (TPG1) output: These pins are also used for TPG1-0~TPG1-2 output pins.    |
| P27 /<br>TPG13                                    | 1           | Output<br>3-state | Port 2 : 1-bit output port.<br>Timing pulse generator (TPG1) output: These pins are also used for TPG1-3 output pins.           |
| P30~P35 /<br>VTP0~VTP5                            | 6           | Output            | Port 3 : 6-bit output port.<br>VTP output: This port outputs the setting data with the synchronized TPG0-5.                     |
| P36, P37 /<br>ATP0, ATP1                          | 2           | Output            | Port 3 : 2-bit output port.<br>ATP output: This port outputs the setting data with the synchronized TPG0-5.                     |
| P40~P45 /<br>DFG, DPG, CFG<br>PCTL, CSyuc,<br>EXT | 6           | Input             | Port 4 : 6-bit Input port.<br>Servo signal input: DFG, DPG, CFG, PCTL, CSync, EXT.                                              |
| P46, P47 /<br>INT0, INT1                          | 2           | Input             | Port 4 : 2-bit Input port.<br>Interrupt request pins: Rising edge and falling edge are programmable.                            |
| P50, P53 /<br>SCLK0, SCLK1                        | 2           | I/O               | Port 5 : 1-bit input/Output port. Input/Output can be specified in bits<br>Serial clock input/output 0 and 1.                   |
| P51, P54 /<br>TXD0, TXD1                          | 2           | I/O               | Port 5 : 1-bit input/output port. Input/Output can be specified in bits<br>Serial send data 0 and 1.                            |
| P52, P55 /<br>RXD0, RXD1                          | 2           | I/O               | Port 5 : 1-bit input/output port. Input/Output can be specified in bits<br>Serial receive data 0 and 1.                         |
| P56 /<br>TI0                                      | 1           | I/O               | Port 5 : 1-bit input/output port. Input/Output can be specified in bits<br>Timer 0 counter input.                               |
| P57 /<br>TI1                                      | 1           | I/O               | Port 5 : 1-bit input/output port. Input/Output can be specified in bits<br>Timer 1 counter input.                               |
| P60~P65 /<br>AN00~AN05                            | 6           | Input             | Port 6 : 6-bit input port.<br>Analog input: 6 analog inputs to A/d converter.                                                   |

Table 2.2 Pin Names and Functions (2/2)

| Pin name                        | No. of pins | I/O 3-state       | Function                                                                                                       |
|---------------------------------|-------------|-------------------|----------------------------------------------------------------------------------------------------------------|
| P66                             | 1           | Output            | Port 6 : 1-bit output port                                                                                     |
| P67 /<br>PWM8                   | 1           | Output            | Port 6 : 1-bit output port<br>Motor control output: 8-bit PWM output                                           |
| P70~P77                         | 8           | I/O               | Port 7 : 8-bit input/output port. Input/output can be specified in bits                                        |
| P80~P87                         | 8           | I/O               | Port 8 : 8-bit input/output port. Input/output can be specified in bits                                        |
| PWM0                            | 1           | Output            | Motor control output: 12-bit PWM output 0                                                                      |
| PWM1                            | 1           | Output            | Motor control output: 12-bit PWM output 1                                                                      |
| PVPH                            | 1           | Output<br>3-state | PVPH signal output port                                                                                        |
| D-FF                            | 1           | Output<br>3-state | Timing pulse generator (TPG0-5) OUTPUT PORT                                                                    |
| COPIN                           | 1           | Input             | Input to Color rotary circuits                                                                                 |
| ROTARY                          | 1           | Output            | Color rotary signal output                                                                                     |
| HEAD AMP                        | 1           | Output            | Head amplifier signal output                                                                                   |
| VREF                            | 1           | —                 | A/D converter reference voltage input                                                                          |
| AGND                            | 1           | —                 | A/D converter GND pin                                                                                          |
| CLK                             | 1           | Output            | Clock output: Outputs a pulse that is one-fourth the clock oscillating pulse frequency. Pulled up during reset |
| TEST                            | 1           | —                 | Test pin (normally pulled up)                                                                                  |
| RESET                           | 1           | Input             | Reset: Initializes TMP90PM42                                                                                   |
| X <sub>1</sub> / X <sub>2</sub> | 2           | I/O               | Quartz crystal oscillator connector pin                                                                        |
| Vss (GND)                       | 2           | —                 | GND pin (0V)                                                                                                   |
| Vcc                             | 1           | —                 | Power pin (+5V)                                                                                                |