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What is "Embedded - Microcontrollers"?

"Embedded - Microcontrollers" refer to small, integrated circuits designed to perform specific tasks within larger systems. These microcontrollers are essentially compact computers on a single chip, containing a processor core, memory, and programmable input/output peripherals. They are called "embedded" because they are embedded within electronic devices to control various functions, rather than serving as standalone computers. Microcontrollers are crucial in modern electronics, providing the intelligence and control needed for a wide range of applications.

Applications of "Embedded - Microcontrollers"

Details	
Product Status	Not For New Designs
Core Processor	8051
Core Size	8-Bit
Speed	25MHz
Connectivity	SMBus (2-Wire/I²C), UART/USART
Peripherals	POR, PWM, WDT
Number of I/O	8
Program Memory Size	4KB (4K x 8)
Program Memory Type	OTP
EEPROM Size	-
RAM Size	256 x 8
Voltage - Supply (Vcc/Vdd)	1.8V ~ 3.6V
Data Converters	-
Oscillator Type	Internal
Operating Temperature	-40°C ~ 85°C (TA)
Mounting Type	Surface Mount
Package / Case	10-VFDFN Exposed Pad
Supplier Device Package	11-QFN (3x3)
Purchase URL	https://www.e-xfl.com/product-detail/silicon-labs/c8051t603-gmr

3. Pin Definitions

Table 3.1. Pin Definitions for the C8051T600/1/2/3/4/5

Name	QFN11 Pin	SOIC14 Pin	Type	Description
V_{DD}	3	7		Power Supply Voltage.
GND	11	3		Ground.
$\overline{RST}$ /	8	14	D I/O	Device Reset. Open-drain output of internal POR or V_{DD} monitor.
C2CK			D I/O	Clock signal for the C2 Debug Interface.
P0.7 /	10	2	D I/O or A In	Port 0.7.
C2D			D I/O	Bi-directional data signal for the C2 Debug Interface.
P0.0 /	1	5	D I/O or A In	Port 0.0.
VREF			A In	External VREF input.
P0.1	2	6	D I/O or A In	Port 0.1.
P0.2 /	4	8	D I/O or A In	Port 0.2.
V_{PP}			A In	V_{PP} Programming Supply Voltage.
P0.3 /	5	10	D I/O or A In	Port 0.3.
EXTCLK			A I/O or D In	External Clock Pin. This pin can be used as the external clock input for CMOS, capacitor, or RC oscillator configurations.
P0.4	6	12	D I/O or A In	Port 0.4.
P0.5	7	13	D I/O or A In	Port 0.5.
P0.6 /	9	1	D I/O or A In	Port 0.6.
CNVSTR			D In	ADC0 External Convert Start Input.
NC	—	4,9,11		No Connection.

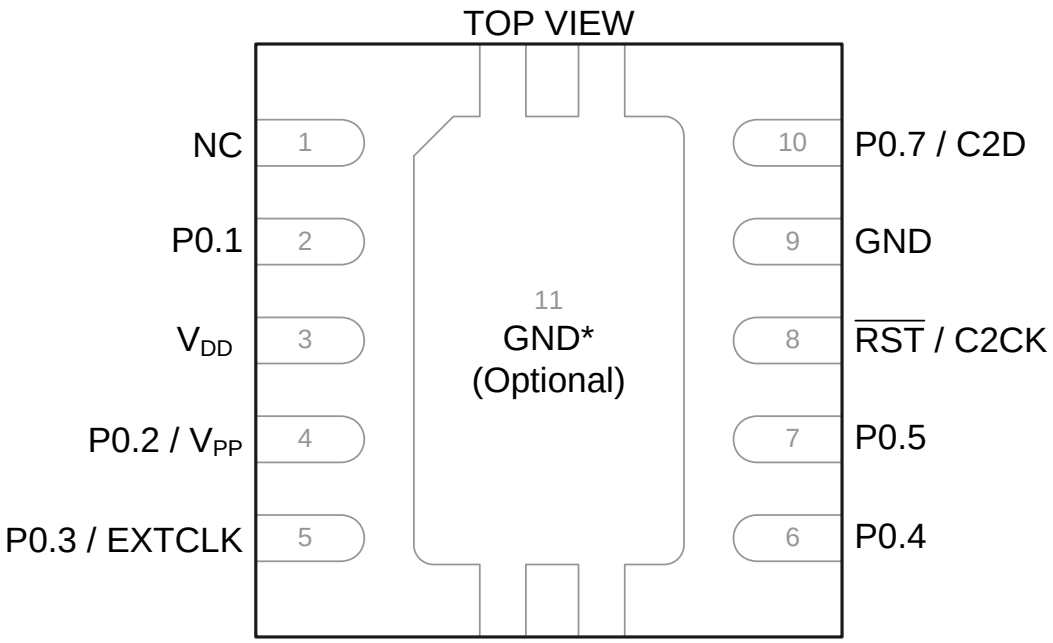

Figure 3.3. C8051T606-GM QFN11 Pinout Diagram (Top View)

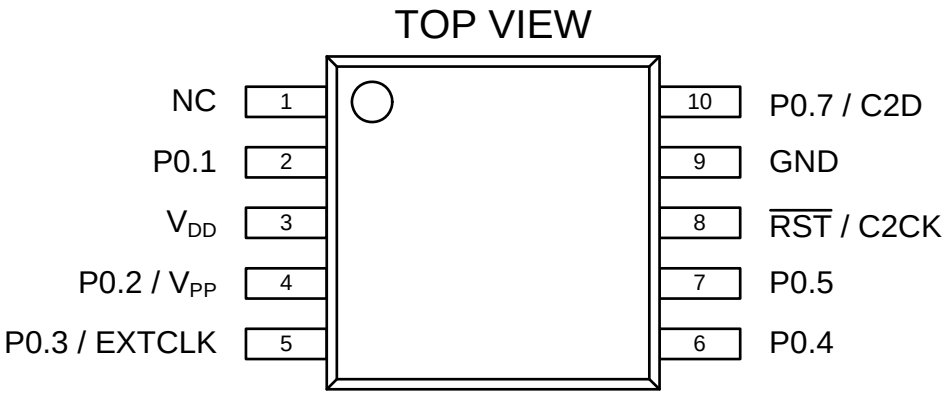

Figure 3.4. C8051T606-GT MSOP10 Pinout Diagram (Top View)

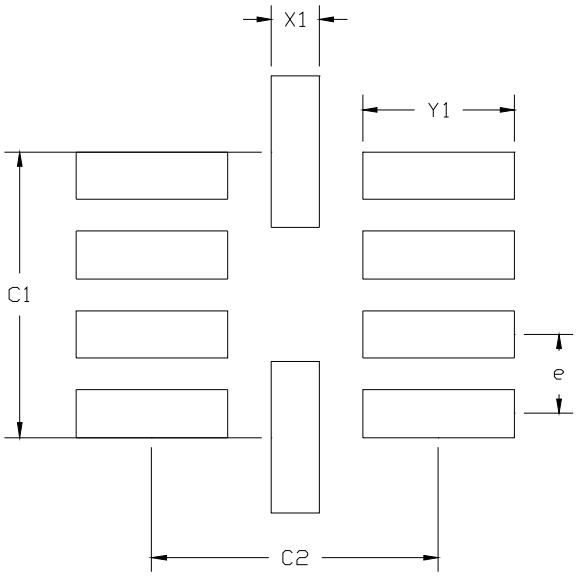

Figure 7.2. QFN-10 PCB Land Pattern

Table 7.2. QFN-10 PCB Land Pattern Dimensions

Dimension	Min	Max
e	0.50 BSC.	
C1	1.70	1.80
C2	1.70	1.80

Dimension	Min	Max
X1	0.20	0.30
Y1	0.85	0.95

Notes:

General

1. All dimensions shown are in millimeters (mm) unless otherwise noted.
2. Dimensioning and Tolerancing is per the ANSI Y14.5M-1994 specification.
3. This Land Pattern Design is based on IPC-SM-782 guidelines.
4. All dimensions shown are at Maximum Material Condition (MMC). Least Material Condition (LMC) is calculated based on a Fabrication Allowance of 0.05mm.

Solder Mask Design

5. All metal pads are to be non-solder mask defined (NSMD). Clearance between the solder mask and the metal pad is to be 60 µm minimum, all the way around the pad.

Stencil Design

6. A stainless steel, laser-cut and electro-polished stencil with trapezoidal walls should be used to assure good solder paste release.
7. The stencil thickness should be 0.125 mm (5 mils).
8. The ratio of stencil aperture to land pad size should be 1:1 for the perimeter pads.

Card Assembly

9. A No-Clean, Type-3 solder paste is recommended.
10. The recommended card reflow profile is per the JEDEC/IPC J-STD-020 specification for Small Body Components.

8.2. Electrical Characteristics

Table 8.2. Global Electrical Characteristics

–40 to +85 °C, 25 MHz system clock unless otherwise specified.

Parameter	Conditions	Min	Typ	Max	Units
Supply Voltage (Note 1)	Regulator in Normal Mode Regulator in Bypass Mode	1.8 1.7	3.0 1.8	3.6 1.9	V V
C8051T600/1/2/3/4/5 Digital Supply Current with CPU Active	V_{DD} = 1.8 V, Clock = 25 MHz V_{DD} = 1.8 V, Clock = 1 MHz V_{DD} = 3.0 V, Clock = 25 MHz V_{DD} = 3.0 V, Clock = 1 MHz	— — — —	4.3 2.0 5.0 2.4	6.0 — 6.0 —	mA mA mA mA
C8051T600/1/2/3/4/5 Digital Supply Current with CPU Inactive (not accessing EPROM)	V_{DD} = 1.8 V, Clock = 25 MHz V_{DD} = 1.8 V, Clock = 1 MHz V_{DD} = 3.0 V, Clock = 25 MHz V_{DD} = 3.0 V, Clock = 1 MHz	— — — —	1.7 0.5 1.8 0.6	2.5 — 2.6 —	mA mA mA mA
C8051T600/1/2/3/4/5 Digital Supply Current (shutdown)	Oscillator not running (stop mode), Internal Regulator Off	—	1	—	µA
	Oscillator not running (stop or suspend mode), Internal Regulator On	—	450	—	µA
C8051T606 Digital Supply Current with CPU Active	V_{DD} = 1.8 V, Clock = 25 MHz V_{DD} = 1.8 V, Clock = 1 MHz V_{DD} = 3.0 V, Clock = 25 MHz V_{DD} = 3.0 V, Clock = 1 MHz	— — — —	4.6 1.9 5.0 1.9	6.0 — 6.0 —	mA mA mA mA
C8051T606 Digital Supply Current with CPU Inactive (not accessing EPROM)	V_{DD} = 1.8 V, Clock = 25 MHz V_{DD} = 1.8 V, Clock = 1 MHz V_{DD} = 3.0 V, Clock = 25 MHz V_{DD} = 3.0 V, Clock = 1 MHz	— — — —	1.7 0.35 1.8 0.36	2.5 — 2.6 —	mA mA mA mA
C8051T606 Digital Supply Current (shutdown)	Oscillator not running (stop mode), Internal Regulator Off	—	1	—	µA
	Oscillator not running (stop or suspend mode), Internal Regulator On	—	300	—	µA
Digital Supply RAM Data Retention Voltage		—	1.5	—	V
Specified Operating Temperature Range		–40	—	+85	°C
SYSCLK (system clock frequency)	(Note 2)	0	—	25	MHz

Notes:

1. Analog performance is not guaranteed when V_{DD} is below 1.8 V.
2. SYSCLK must be at least 32 kHz to enable debugging.
3. Supply current parameters specified with Memory Power Controller enabled.

Table 8.11. Comparator Electrical Characteristics

V_{DD} = 3.0 V, –40 to +85 °C unless otherwise noted.

Parameter	Conditions	Min	Typ	Max	Units
Response Time: Mode 0, Vcm* = 1.5 V	CP0+ – CP0– = 100 mV	—	240	—	ns
	CP0+ – CP0– = –100 mV	—	240	—	ns
Response Time: Mode 1, Vcm* = 1.5 V	CP0+ – CP0– = 100 mV	—	400	—	ns
	CP0+ – CP0– = –100 mV	—	400	—	ns
Response Time: Mode 2, Vcm* = 1.5 V	CP0+ – CP0– = 100 mV	—	650	—	ns
	CP0+ – CP0– = –100 mV	—	1100	—	ns
Response Time: Mode 3, Vcm* = 1.5 V	CP0+ – CP0– = 100 mV	—	2000	—	ns
	CP0+ – CP0– = –100 mV	—	5500	—	ns
Common-Mode Rejection Ratio		—	1	4	mV/V
Positive Hysteresis 1	CP0HYP1–0 = 00	—	0	1	mV
Positive Hysteresis 2	CP0HYP1–0 = 01	2	5	8	mV
Positive Hysteresis 3	CP0HYP1–0 = 10	5	10	14	mV
Positive Hysteresis 4	CP0HYP1–0 = 11	11	20	28	mV
Negative Hysteresis 1	CP0HYN1–0 = 00	—	0	1	mV
Negative Hysteresis 2	CP0HYN1–0 = 01	2	5	8	mV
Negative Hysteresis 3	CP0HYN1–0 = 10	5	10	14	mV
Negative Hysteresis 4	CP0HYN1–0 = 11	11	20	28	mV
Inverting or Non-Inverting Input Voltage Range		–0.25	—	V_{DD} + 0.25	V
Input Offset Voltage		–7.5	—	7.5	mV
Power Specifications					
Power Supply Rejection		—	0.5	—	mV/V
Powerup Time		—	10	—	µs
Supply Current at DC	Mode 0	—	26	50	µA
	Mode 1	—	10	20	µA
	Mode 2	—	3	6	µA
	Mode 3	—	0.5	2	µA

Note: Vcm is the common-mode voltage on CP0+ and CP0–.

SFR Definition 9.1. ADC0CF: ADC0 Configuration

Bit	7	6	5	4	3	2	1	0
Name	AD0SC[4:0]					AD0LJST	AD08BE	AMP0GN0
Type	R/W					R/W	R/W	R/W
Reset	1	1	1	1	1	0	0	1

SFR Address = 0xBC

Bit	Name	Function
7:3	AD0SC[4:0]	**ADC0 SAR Conversion Clock Period Bits.** SAR Conversion clock is derived from system clock by the following equation, where *AD0SC* refers to the 5-bit value held in bits AD0SC4–0. SAR Conversion clock requirements are given in the ADC specification table. $AD0SC = \frac{SYSCLK}{CLK_{SAR}} - 1$ **Note:** If the Memory Power Controller is enabled (MPCE = '1'), AD0SC must be set to at least "00001" for proper ADC operation.
2	AD0LJST	**ADC0 Left Justify Select.** 0: Data in ADC0H:ADC0L registers are right-justified. 1: Data in ADC0H:ADC0L registers are left-justified. **Note:** The AD0LJST bit is only valid for 10-bit mode (AD08BE = 0).
1	AD08BE	**8-Bit Mode Enable.** 0: ADC operates in 10-bit mode (normal). 1: ADC operates in 8-bit mode. **Note:** When AD08BE is set to 1, the AD0LJST bit is ignored.
0	AMP0GN0	**ADC Gain Control Bit.** 0: Gain = 0.5 1: Gain = 1

9.4.1. Window Detector Example

Figure 9.4 shows two example window comparisons for right-justified data, with ADC0LTH:ADC0LTL = 0x0080 (128d) and ADC0GTH:ADC0GTL = 0x0040 (64d). The input voltage can range from 0 to VREF x (1023/1024) with respect to GND, and is represented by a 10-bit unsigned integer value. In the left example, an AD0WINT interrupt will be generated if the ADC0 conversion word (ADC0H:ADC0L) is within the range defined by ADC0GTH:ADC0GTL and ADC0LTH:ADC0LTL (if 0x0040 < ADC0H:ADC0L < 0x0080). In the right example, and AD0WINT interrupt will be generated if the ADC0 conversion word is outside of the range defined by the ADC0GT and ADC0LT registers (if ADC0H:ADC0L < 0x0040 or ADC0H:ADC0L > 0x0080). Figure 9.5 shows an example using left-justified data with the same comparison values.

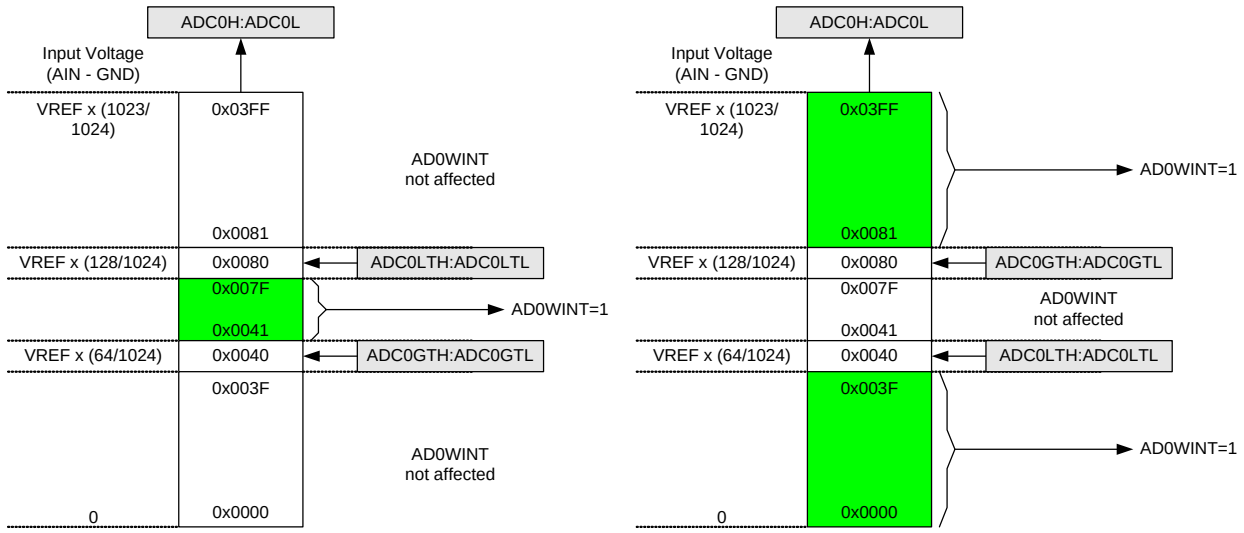

Figure 9.4. ADC Window Compare Example: Right-Justified Data

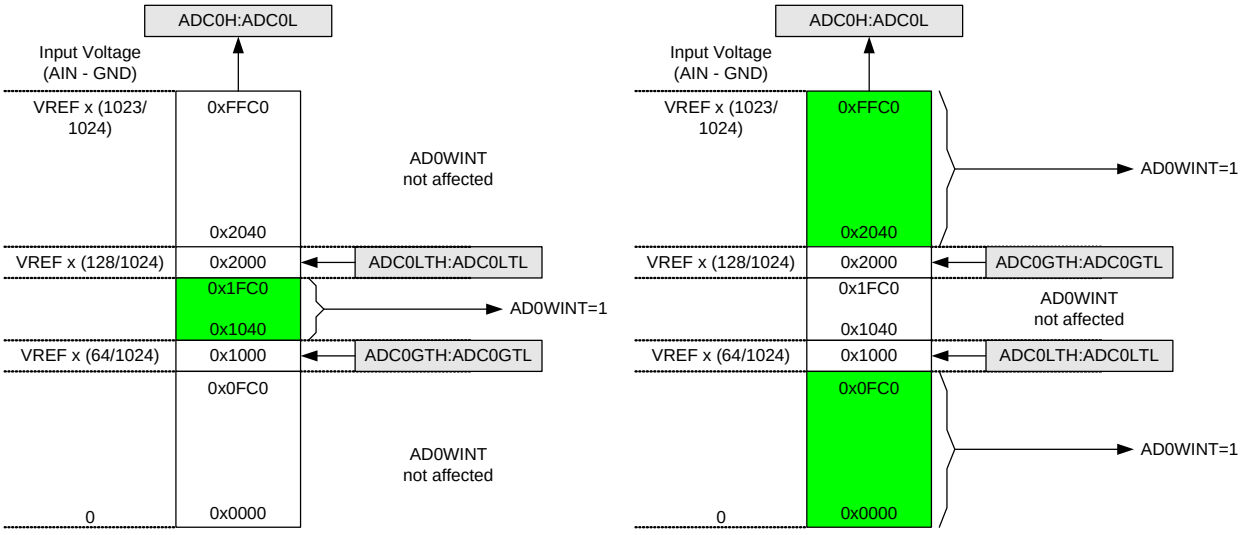

Figure 9.5. ADC Window Compare Example: Left-Justified Data

10. Temperature Sensor (C8051T600/2/4 only)

An on-chip temperature sensor is included on the C8051T600/2/4, which can be directly accessed via the ADC multiplexer. To use the ADC to measure the temperature sensor, the ADC mux channel should be configured to connect to the temperature sensor. The temperature sensor transfer function is shown in Figure 10.1. The output voltage (V_{TEMP}) is the positive ADC input when the ADC multiplexer is set correctly. The TEMPE bit in register REF0CN enables/disables the temperature sensor, as described in SFR Definition 11.1. While disabled, the temperature sensor defaults to a high impedance state and any ADC measurements performed on the sensor will result in meaningless data. Refer to Table 8.8 for the slope and offset parameters of the temperature sensor.

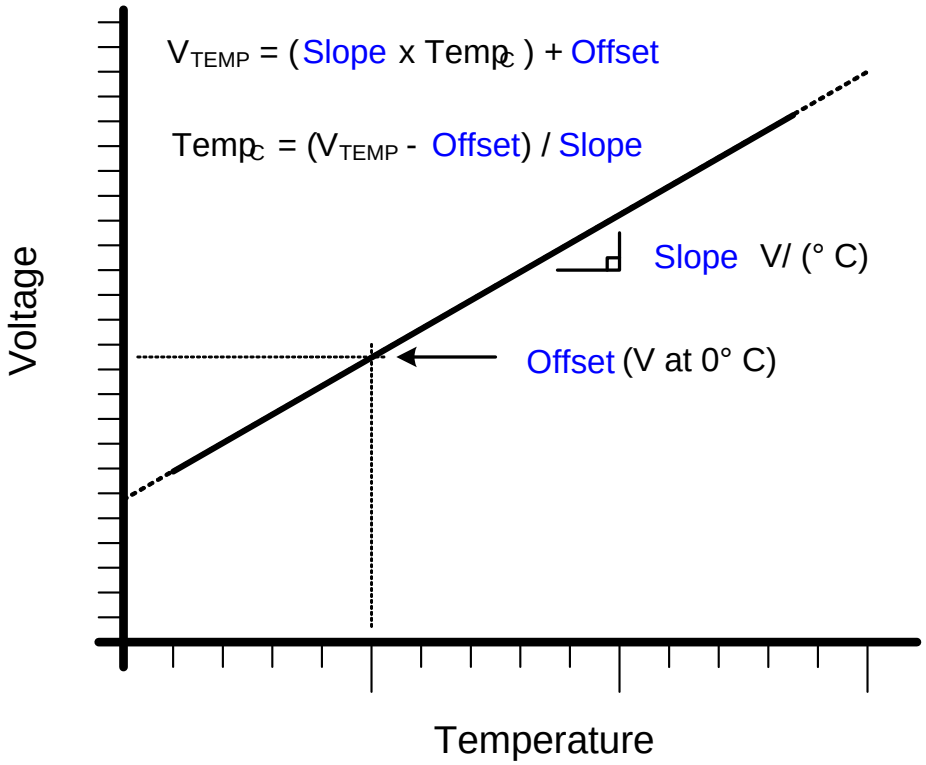

Figure 10.1. Temperature Sensor Transfer Function

10.1. Calibration

The uncalibrated temperature sensor output is extremely linear and suitable for relative temperature measurements (see Table 8.8 on page 35 for specifications). For absolute temperature measurements, offset and/or gain calibration is recommended. A single-point offset measurement of the temperature sensor is performed on each device during production test. The registers TOFFH and TOFFL, shown in SFR Definition 10.1 and SFR Definition 10.2 represent the output of the ADC when reading the temperature sensor at 0 °C, and using the internal regulator as a voltage reference.

Figure 10.2 shows the typical temperature sensor error assuming a 1-point calibration at 0 °C. **Parameters that affect ADC measurement, in particular the voltage reference value, will also affect temperature measurement.**

SFR Definition 17.5. IT01CF: INT0/INT1 Configuration

Bit	7	6	5	4	3	2	1	0
Name	IN1PL	IN1SL[2:0]			IN0PL	IN0SL[2:0]		
Type	R/W	R/W			R/W	R/W		
Reset	0	0	0	0	0	0	0	1

SFR Address = 0xE4

Bit	Name	Function
7	IN1PL	**$\overline{\text{INT1}}$ Polarity.** 0: $\overline{\text{INT1}}$ input is active low. 1: $\overline{\text{INT1}}$ input is active high.
6:4	IN1SL[2:0]	**$\overline{\text{INT1}}$ Port Pin Selection Bits.** These bits select which Port pin is assigned to $\overline{\text{INT1}}$. Note that this pin assignment is independent of the Crossbar; $\overline{\text{INT1}}$ will monitor the assigned Port pin without disturbing the peripheral that has been assigned the Port pin via the Crossbar. The Crossbar will not assign the Port pin to a peripheral if it is configured to skip the selected pin. 000: Select P0.0 001: Select P0.1 010: Select P0.2 011: Select P0.3 100: Select P0.4 101: Select P0.5 110: Select P0.6 111: Select P0.7
3	IN0PL	**$\overline{\text{INT0}}$ Polarity.** 0: $\overline{\text{INT0}}$ input is active low. 1: $\overline{\text{INT0}}$ input is active high.
2:0	IN0SL[2:0]	**$\overline{\text{INT0}}$ Port Pin Selection Bits.** These bits select which Port pin is assigned to $\overline{\text{INT0}}$. Note that this pin assignment is independent of the Crossbar; $\overline{\text{INT0}}$ will monitor the assigned Port pin without disturbing the peripheral that has been assigned the Port pin via the Crossbar. The Crossbar will not assign the Port pin to a peripheral if it is configured to skip the selected pin. 000: Select P0.0 001: Select P0.1 010: Select P0.2 011: Select P0.3 100: Select P0.4 101: Select P0.5 110: Select P0.6 111: Select P0.7

22. Port Input/Output

Digital and analog resources are available through eight I/O pins on the C8051T600/1/2/3/4/5, or six I/O pins on the C8051T606. Port pins P0.0-P0.7 can be defined as general-purpose I/O (GPIO), assigned to one of the internal digital resources, or assigned to an analog function as shown in Figure 22.1. Port pin P0.7 is shared with the C2 Interface Data signal (C2D). The designer has complete control over which functions are assigned, limited only by the number of physical I/O pins. This resource assignment flexibility is achieved through the use of a Priority Crossbar Decoder. Note that the state of a Port I/O pin can always be read in the P0 port latch, regardless of the crossbar settings.

The crossbar assigns the selected internal digital resources to the I/O pins based on the Priority Decoder (Figure 22.3 and Figure 22.4). The registers XBR1 and XBR2, defined in SFR Definition 22.2 and SFR Definition 22.3, are used to select internal digital functions.

All Port I/Os are 5 V tolerant (refer to Figure 22.2 for the Port cell circuit). The Port I/O cells are configured as either push-pull or open-drain in the Port Output Mode registers (P0MDOUT). Complete Electrical Specifications for Port I/O are given in Section “8. Electrical Characteristics” on page 30.

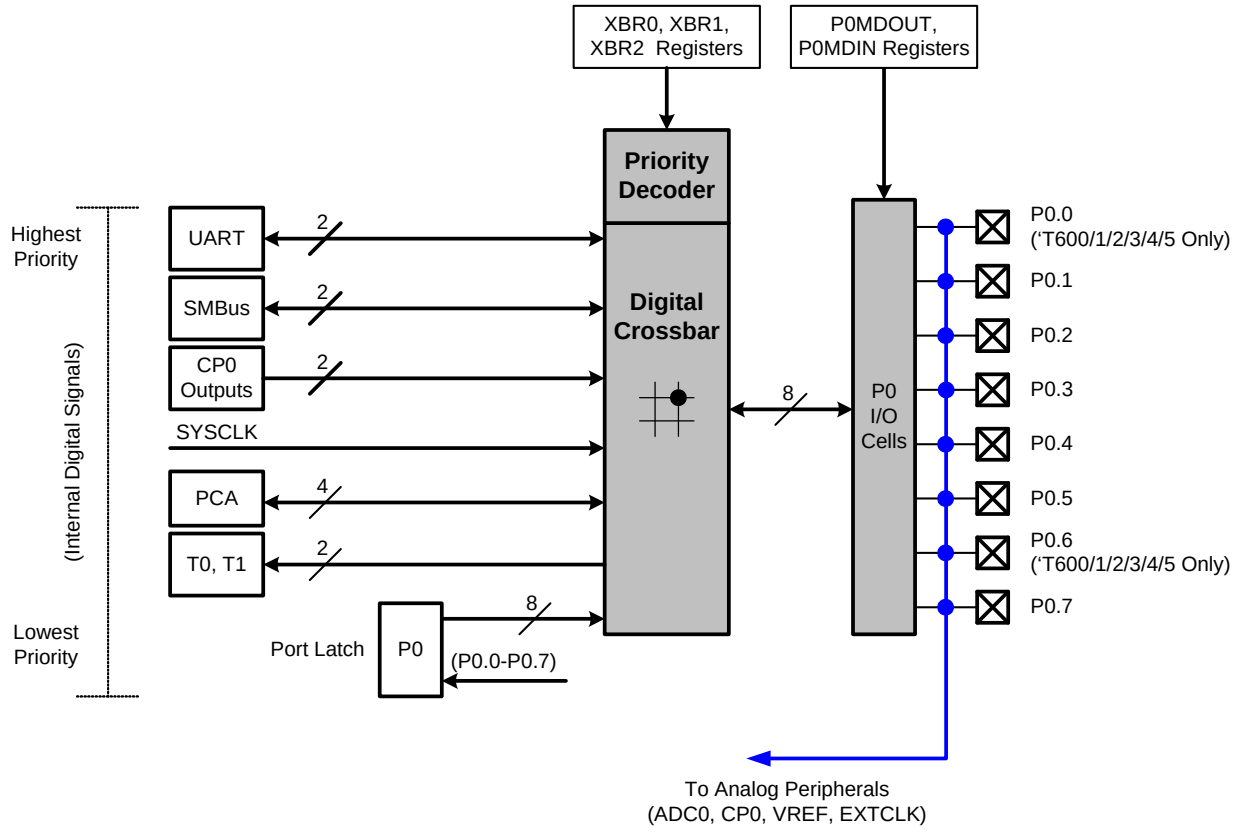

Figure 22.1. Port I/O Functional Block Diagram

22.2.3. Assigning Port I/O Pins to External Digital Event Capture Functions

External digital event capture functions can be used to trigger an interrupt or wake the device from a low power mode when a transition occurs on a digital I/O pin. The digital event capture functions do not require dedicated pins and will function on both GPIO pins (XBR0 = 1) and pins in use by the crossbar (XBR0 = 0). External digital event capture functions cannot be used on pins configured for analog I/O. Table 22.3 shows all available external digital event capture functions.

Table 22.3. Port I/O Assignment for External Digital Event Capture Functions

Digital Function	Potentially Assignable Port Pins	SFR(s) used for Assignment
External Interrupt 0	P0.0–P0.7	IT01CF
External Interrupt 1	P0.0–P0.7	IT01CF

22.5. Special Function Registers for Accessing and Configuring Port I/O

The Port I/O pins are accessed through the special function register P0, which is both byte addressable and bit addressable. When writing to this SFR, the value written is latched to maintain the output data value at each pin. When reading, the logic levels of the Port's input pins are returned regardless of the XBRn settings (i.e., even when the pin is assigned to another signal by the crossbar, the Port register can always read its corresponding Port I/O pin). The exception to this is the execution of the read-modify-write instructions that target the Port 0 Latch register as the destination. The read-modify-write instructions include ANL, ORL, XRL, JBC, CPL, INC, DEC, or DJNZ for any usage. However, when the destination is an individual bit in P0, the read-modify-write instructions include MOV, CLR, or SETB. For all read-modify-write instructions, the value of the latch register (not the pin) is read, modified, and written back to the SFR.

The XBR0 register allows the individual Port pins to be assigned to digital functions or skipped by the crossbar. All Port pins used for analog functions, GPIO, or dedicated digital functions should have their XBR0 bit set to 1.

The Port input mode of the I/O pins is defined using the Port 0 Input Mode register (P0MDIN). Each Port cell can be configured for analog or digital I/O. This selection is required even for the digital resources selected in the XBRn registers and is not automatic.

The output driver characteristics of the I/O pins are defined using the Port 0 Output Mode register (P0MDOUT). Each Port Output driver can be configured as either open drain or push-pull. This selection is required even for the digital resources selected in the XBRn registers and is not automatic. The only exception to this is the SMBus (SDA, SCL) pins, which are configured as open-drain regardless of the P0MDOUT settings.

SFR Definition 22.4. P0: Port 0

Bit	7	6	5	4	3	2	1	0
Name	P0[7:0]							
Type	R/W							
Reset	1	1	1	1	1	1	1	1

SFR Address = 0x80; Bit-Addressable

Bit	Name	Description	Write	Read
7:0	P0[7:0]	**Port 0 Data.** Sets the Port latch logic value or reads the Port pin logic state in Port cells configured for digital I/O.	0: Set output latch to logic LOW. 1: Set output latch to logic HIGH.	0: P0.n Port pin is logic LOW. 1: P0.n Port pin is logic HIGH.
		Note: Bits 6 and 0 on the C8051T606 are read-only.		

SFR Definition 24.2. SBUF0: Serial (UART0) Port Data Buffer

Bit	7	6	5	4	3	2	1	0
Name	SBUF0[7:0]							
Type	R/W							
Reset	0	0	0	0	0	0	0	0

SFR Address = 0x99

Bit	Name	Function
7:0	SBUF0[7:0]	**Serial Data Buffer Bits 7–0 (MSB–LSB).** This SFR accesses two registers; a transmit shift register and a receive latch register. When data is written to SBUF0, it goes to the transmit shift register and is held for serial transmission. Writing a byte to SBUF0 initiates the transmission. A read of SBUF0 returns the contents of the receive latch.

25.1. Timer 0 and Timer 1

Each timer is implemented as a 16-bit register accessed as two separate bytes: a low byte (TL0 or TL1) and a high byte (TH0 or TH1). The Counter/Timer Control register (TCON) is used to enable Timer 0 and Timer 1 as well as indicate status. Timer 0 interrupts can be enabled by setting the ET0 bit in the IE register (Section “17.2. Interrupt Register Descriptions” on page 82); Timer 1 interrupts can be enabled by setting the ET1 bit in the IE register (Section “17.2. Interrupt Register Descriptions” on page 82). Both counter/timers operate in one of four primary modes selected by setting the Mode Select bits T1M1–T0M0 in the Counter/Timer Mode register (TMOD). Each timer can be configured independently. Each operating mode is described below.

25.1.1. Mode 0: 13-bit Counter/Timer

Timer 0 and Timer 1 operate as 13-bit counter/timers in Mode 0. The following describes the configuration and operation of Timer 0. However, both timers operate identically, and Timer 1 is configured in the same manner as described for Timer 0.

The TH0 register holds the eight MSBs of the 13-bit counter/timer. TL0 holds the five LSBs in bit positions TL0.4–TL0.0. The three upper bits of TL0 (TL0.7–TL0.5) are indeterminate and should be masked out or ignored when reading. As the 13-bit timer register increments and overflows from 0x1FFF (all ones) to 0x0000, the timer overflow flag TF0 in TCON is set and an interrupt will occur if Timer 0 interrupts are enabled.

The C/T0 bit in the TMOD register selects the counter/timer's clock source. When C/T0 is set to logic 1, high-to-low transitions at the selected Timer 0 input pin (T0) increment the timer register (refer to Section “22.3. Priority Crossbar Decoder” on page 111 for information on selecting and configuring external I/O pins). Clearing C/T selects the clock defined by the T0M bit in register CKCON. When T0M is set, Timer 0 is clocked by the system clock. When T0M is cleared, Timer 0 is clocked by the source selected by the Clock Scale bits in CKCON (see SFR Definition 25.1).

Setting the TR0 bit (TCON.4) enables the timer when either GATE0 in the TMOD register is logic 0 or the input signal INT0 is active as defined by bit IN0PL in register IT01CF (see SFR Definition 17.5). Setting GATE0 to 1 allows the timer to be controlled by the external input signal INT0 (see Section “17.2. Interrupt Register Descriptions” on page 82), facilitating pulse width measurements

TR0	GATE0	INT0	Counter/Timer
0	X	X	Disabled
1	0	X	Enabled
1	1	0	Disabled
1	1	1	Enabled
Note: X = Don't Care			

Setting TR0 does not force the timer to reset. The timer registers should be loaded with the desired initial value before the timer is enabled.

TL1 and TH1 form the 13-bit register for Timer 1 in the same manner as described above for TL0 and TH0. Timer 1 is configured and controlled using the relevant TCON and TMOD bits just as with Timer 0. The input signal INT0 is used with Timer 1; the /INT1 polarity is defined by bit IN1PL in register IT01CF (see SFR Definition 17.5).

SFR Definition 25.4. TL0: Timer 0 Low Byte

Bit	7	6	5	4	3	2	1	0
Name	TL0[7:0]							
Type	R/W							
Reset	0	0	0	0	0	0	0	0

SFR Address = 0x8A

Bit	Name	Function
7:0	TL0[7:0]	**Timer 0 Low Byte.** The TL0 register is the low byte of the 16-bit Timer 0.

SFR Definition 25.5. TL1: Timer 1 Low Byte

Bit	7	6	5	4	3	2	1	0
Name	TL1[7:0]							
Type	R/W							
Reset	0	0	0	0	0	0	0	0

SFR Address = 0x8B

Bit	Name	Function
7:0	TL1[7:0]	**Timer 1 Low Byte.** The TL1 register is the low byte of the 16-bit Timer 1.

26.3.2. Software Timer (Compare) Mode

In Software Timer mode, the PCA counter/timer value is compared to the module's 16-bit Capture/Compare register (PCA0CPHn and PCA0CPLn). When a match occurs, the Capture/Compare Flag (CCFn) in PCA0CN is set to logic 1. An interrupt request is generated if the CCFn interrupt for that module is enabled. The CCFn bit is not automatically cleared by hardware when the CPU vectors to the interrupt service routine, and must be cleared by software. Setting the ECOMn and MATn bits in the PCA0CPMn register enables Software Timer mode.

Important Note about Capture/Compare Registers: When writing a 16-bit value to the PCA0 Capture/Compare registers, the low byte should always be written first. Writing to PCA0CPLn clears the ECOMn bit to 0; writing to PCA0CPHn sets ECOMn to 1.

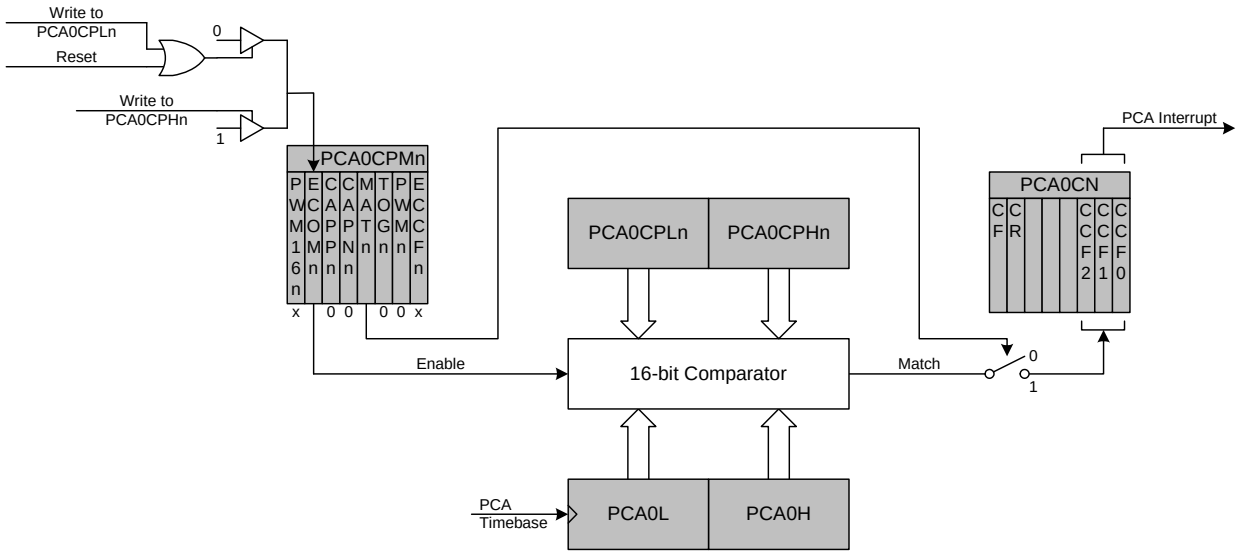

Figure 26.5. PCA Software Timer Mode Diagram

C2 Register Definition 27.2. DEVICEID: C2 Device ID

Bit	7	6	5	4	3	2	1	0
Name	DEVICEID[7:0]							
Type	R/W							
Reset	0	0	0	1	0	1	1	1

C2 Address: 0x00

Bit	Name	Function
7:0	DEVICEID[7:0]	**Device ID.** This read-only register returns the 8-bit device ID: 0x10 = C8051T600/1/2/3/4/5 0x1B = C8051T606

C2 Register Definition 27.3. REVID: C2 Revision ID

Bit	7	6	5	4	3	2	1	0
Name	REVID[7:0]							
Type	R/W							
Reset	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies

C2 Address: 0x01

Bit	Name	Function
7:0	REVID[7:0]	**Revision ID.** This read-only register returns the 8-bit revision ID. For example: 0x00 = Revision A.

C2 Register Definition 27.4. DEVCTL: C2 Device Control

Bit	7	6	5	4	3	2	1	0
Name	DEVCTL[7:0]							
Type	R/W							
Reset	0	0	0	0	0	0	0	0

C2 Address: 0x02

Bit	Name	Function
7:0	DEVCTL[7:0]	**Device Control Register.** This register is used to halt the device for EPROM operations via the C2 interface. Refer to the EPROM chapter for more information.

C2 Register Definition 27.5. EPCTL: EPROM Programming Control Register

Bit	7	6	5	4	3	2	1	0
Name	EPCTL[7:0]							
Type	R/W							
Reset	0	0	0	0	0	0	0	0

C2 Address: 0xDF

Bit	Name	Function
7:0	EPCTL[7:0]	**EPROM Programming Control Register.** This register is used to enable EPROM programming via the C2 interface. Refer to the EPROM chapter for more information.

C2 Register Definition 27.12. CRC2: CRC Byte 2

Bit	7	6	5	4	3	2	1	0
Name	CRC[23:16]							
Type	R/W							
Reset	0	0	0	0	0	0	0	0

C2 Address: 0xAB

Bit	Name	Function
7:0	CRC[23:16]	**CRC Byte 2.** See Section “20.3. Program Memory CRC” on page 99.

C2 Register Definition 27.13. CRC3: CRC Byte 3

Bit	7	6	5	4	3	2	1	0
Name	CRC[31:24]							
Type	R/W							
Reset	0	0	0	0	0	0	0	0

C2 Address: 0xAC

Bit	Name	Function
7:0	CRC[31:24]	**CRC Byte 3.** See Section “20.3. Program Memory CRC” on page 99.