

CMOS SINGLE CHIP 8-BIT MICROCONTROLLER

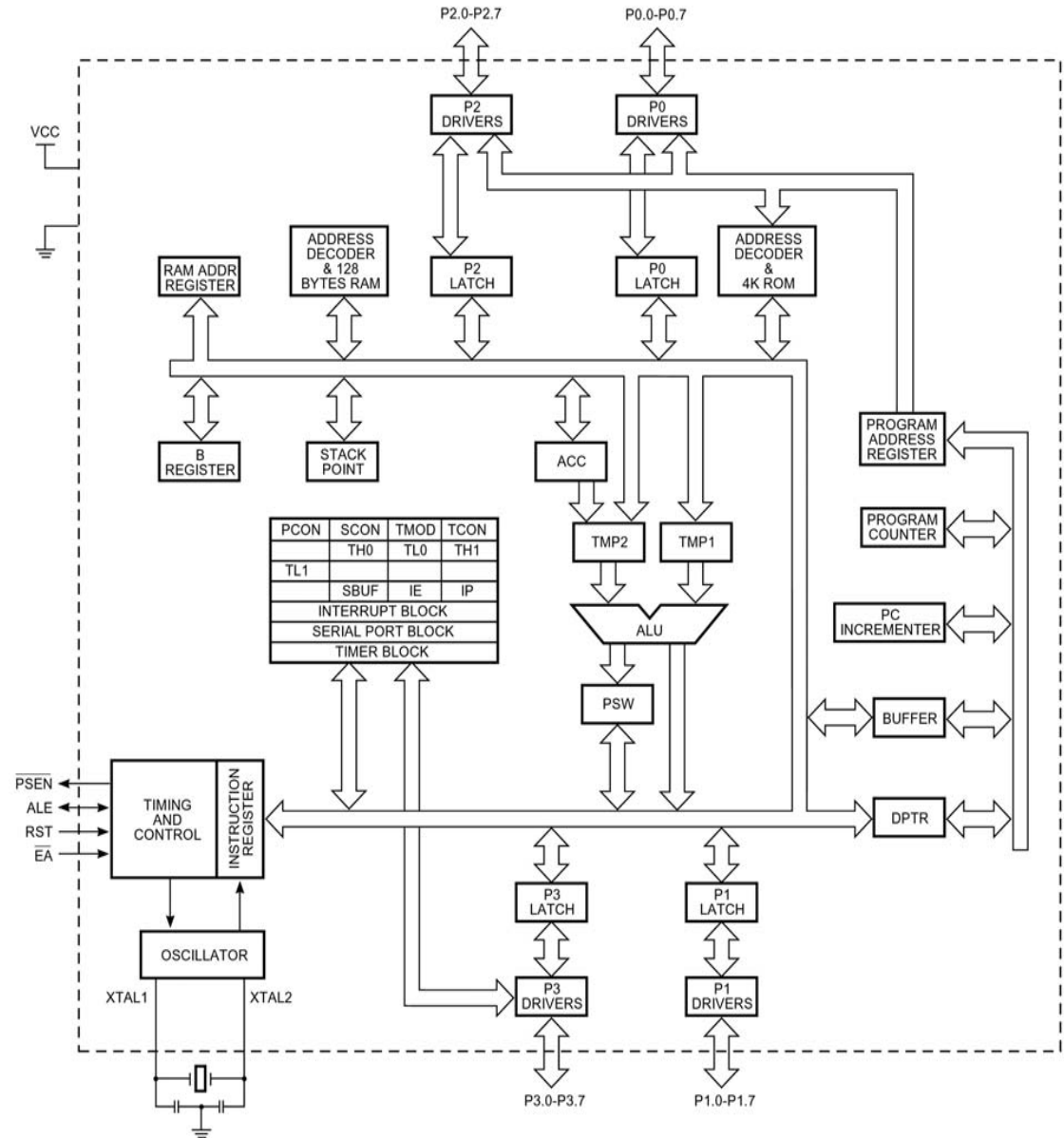
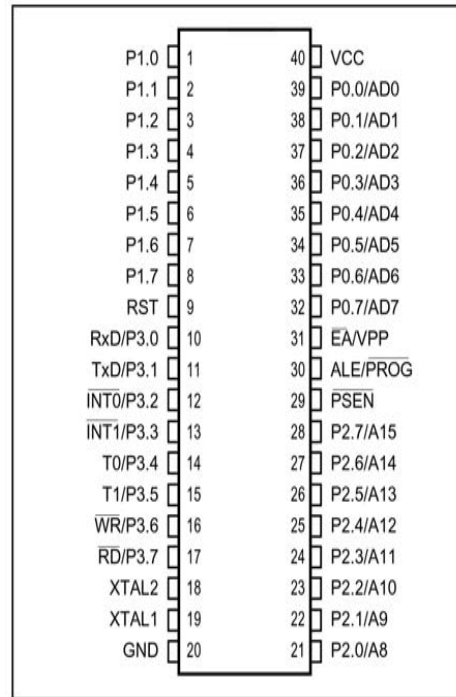
FEATURES

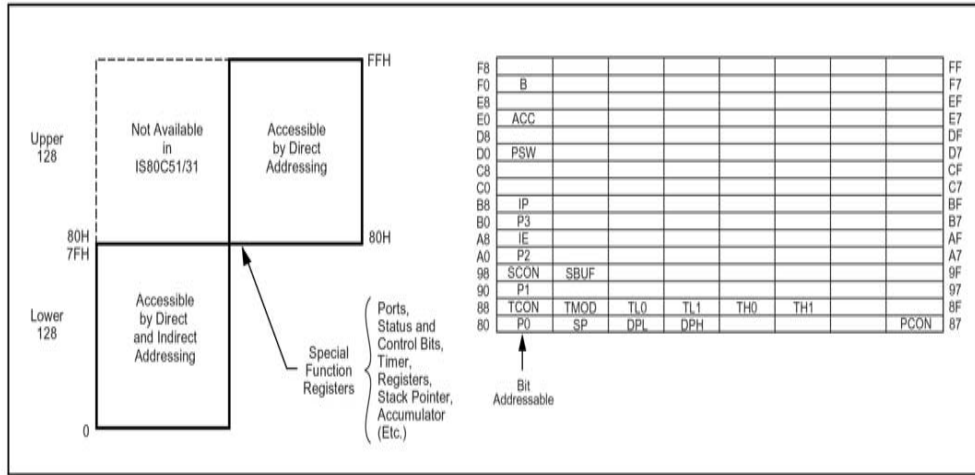
- 80C51 based architecture
- 4K x 8 ROM
- 128 x 8 RAM
- Two 16-bit Timer/Counters
- Full duplex serial channel
- Boolean processor
- Four 8-bit I/O ports, 32 I/O lines
- Memory addressing capability
 - 64K ROM and 64K RAM
- Power save modes:
 - Idle and power-down
- Six interrupt sources
- Most instructions execute in 0.3 μ s
- CMOS and TTL compatible
- Maximum speed: 40 MHz @ $V_{cc} = 5V$
- Industrial temperature available
- Packages available:
 - 40-pin DIP
 - 44-pin PLCC
 - 44-pin PQFP

GENERAL DESCRIPTION

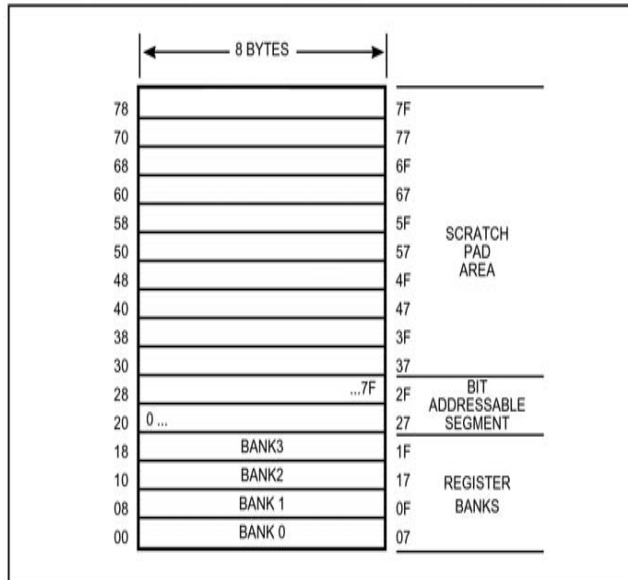
The *ISSI* IS80C51 and IS80C31 are high-performance microcontrollers fabricated using high-density CMOS technology. The CMOS IS80C51/31 is functionally compatible with the industry standard 80C51 microcontrollers.

The IS80C51/31 is designed with 4K x 8 ROM (IS80C51 only); 128 x 8 RAM; 32 programmable I/O lines; a serial I/O port for either multiprocessor communications, I/O expansion or full duplex UART; two 16-bit timer/counters; a six-source, two-priority-level, nested interrupt structure; and an on-chip oscillator and clock circuit. The IS80C51/31 can be expanded using standard TTL compatible memory.





Internal Data Memory and SFR Memory Map



Special Function Register

Symbol	Description	Direct Address	Bit Address, Symbol, or Alternative Port Function								Reset Value
ACC ⁽¹⁾	Accumulator	E0H	E7	E6	E5	E4	E3	E2	E1	E0	00H
B ⁽¹⁾	B register	F0H	F7	F6	F5	F4	F3	F2	F1	F0	00H
DPH	Data pointer (DPTR) high	83H									00H
DPL	Data pointer (DPTR) low	82H									00H
IE ⁽¹⁾	Interrupt enable	A8H	AF	AE	AD	AC	AB	AA	A9	A8	0XX00000B
IP ⁽¹⁾	Interrupt priority	B8H	—	—	—	PS	PT1	PX1	PT0	PX0	XXX00000B
P0 ⁽¹⁾	Port 0	80H	87	86	85	84	83	82	81	80	FFH
			P0.7	P0.6	P0.5	P0.4	P0.3	P0.2	P0.1	P0.0	
			AD7	AD6	AD5	AD4	AD3	AD2	AD1	AD0	
P1 ⁽¹⁾	Port 1	90H	97	96	95	94	93	92	91	90	FFH
			P1.7	P1.6	P1.5	P1.4	P1.3	P1.2	P1.1	P1.0	
P2 ⁽¹⁾	Port 2	A0H	A7	A6	A5	A4	A3	A2	A1	A0	FFH
			P2.7	P2.6	P2.5	P2.4	P2.3	P2.2	P2.1	P2.0	
			AD15	AD14	AD13	AD12	AD11	AD10	AD9	AD8	
P3 ⁽¹⁾	Port 3	B0H	B7	B6	B5	B4	B3	B2	B1	B0	FFH
			P3.7	P3.6	P3.5	P3.4	P3.3	P3.2	P3.1	P3.0	
			RD	WR	T1	T0	INT1	INT0	TXD	RXD	
PCON	Power control	87H	SMOD	—	—	—	GF1	GF0	PD	IDL	0XXX0000B
PSW ⁽¹⁾	Program status word	D0H	D7	D6	D5	D4	D3	D2	D1	D0	00H
SBUF	Serial data buffer	99H									XXXXXXXXB
SCON ⁽¹⁾	Serial controller	98H	9F	9E	9D	9C	9B	9A	99	98	00H
			SM0	SM1	SM2	REN	TB8	RB8	TI	RI	
SP	Stack pointer	81H									07H
TCON ⁽¹⁾	Timer control	88H	8F	8E	8D	8C	8B	8A	89	88	00H
			TF1	TR1	TF0	TR0	IE1	IT1	IE0	IT0	
TMOD	Timer mode	89H	GATE	C/T	M1	M0	GATE	C/T	M1	M0	00H
TH0	Timer high 0	8CH									00H
TH1	Timer high 1	8DH									00H
TLO	Timer low 0	8AH									00H
TL1	Timer low 1	8BH									00H

Note:

1. Denotes bit addressable.