

ADuC842

MicroConverter® Quick Reference Guide

INSTRUCTION SET

Arithmetic Operations		
	bytes	OSC Periods
ADD A,Rn	1	1
ADD A,@Ri	1	2
ADD A,direct	2	2
ADD A,#data	2	2
ADDC A,Rn	1	1
ADDC A,@Ri	1	2
ADDC A,direct	2	2
ADDC A,#data	2	2
SUBB A,Rn	1	1
SUBB A,@Ri	1	2
SUBB A,direct	2	2
SUBB A,#data	2	2
INC A	1	1
INC Rn	1	1
INC @Ri	1	2
INC direct	2	2
INC DPTR*	1	3
DEC A	1	1
DEC Rn	1	1
DEC @Ri	1	2
DEC direct	2	2
MUL AB	multiply A by B	1 9
DIV AB	divide A by B	1 9
DA A	decimal adjust	1 2

* INC DPTR increments the 24bit value DPP/DPH/DPL

Boolean Variable Manipulation		
	bytes	OSC Periods
CLR C	clear bit to zero	1 1
CLR bit		2 2
SETB C	set bit to one	1 1
SETB bit		2 2
CPL C	complement bit	1 1
CPL bit		2 2
ANL C,bit	AND bit with C	2 2
ANL C,/bit	AND (NOTbit) with C	2 2
ORL C,bit	OR bit with C	2 2
ORL C,/bit	OR (NOTbit) with C	2 2
MOV C,bit	move bit to bit	2 2
MOV bit,C		2 2
JC rel	jump if C set	2 3
JNC rel	jmp if C not set	2 3
JB bit,rel	jump if bit set	3 4
JNB bit,rel	jmp if bit not set	3 4
JBC bit,rel	jmp&clear if set	3 4

Program Branching			
	bytes	OSC Periods	
AJMP addr11	call subroutine	2 3	
LCALL addr16		3 4	
RET	return from sub.	1 4	
RETI	return from int.	1 4	
AJMP		2 3	
LJMP	addr16	jump	3 4
SJMP	rel	2 3	
JMP @A+DPTR	1 3		
JZ rel	jump if A = 0	2 3	
JNZ rel	jump if A not 0	2 3	
CJNE A,direct,rel	compare and	3 4	
CJNE A,#data,rel	jump if not	3 4	
CJNE @Ri,data,rel	equal	2 4	
DJNZ Rn,rel	decrement and	2 3	
DJNZ direct, rel	jump if not zero	3 4	
NOP	no operation	1 1	

INSTRUCTIONS THAT AFFECT FLAGS

ADD A,x	C = carry out of bit 7 AC = carry out of bit 3 OV = carry out of bit 6, but not 7	DA x	C = ($x > 100$ or C=1)
ADDC A,x	C = carry out of bit 7 AC = carry out of bit 3 OV = carry out of bit 6, but not 7	RRC A	C = ACC.7
SUBB A,x	C = borrow into bit 7 AC = borrow into bit 3 OV = borrow into bit 6, but not 7	RCA	C = ACC.0
MUL AB	C = 0	SETB C	C = 1
DIV AB	OV = result>255	CLR C	C = 0
	C = 0	ANL C,bit	C = C and bit
	OV = divide by zero	ANL C,/bit	C = C and NOTbit
		ORL C,bit	C = C or bit
		MOV C,bit	C = bit
		CJNE x,y,rel	C = x<y

PIN FUNCTIONS

Pin No.	Pin 1 Identifier	Function
1	56	P1.0 / ADC0 / T2
2	1	P1.1 / ADC1 / T2EX
3	2	P1.2 / ADC2
4	3	P1.3 / ADC3
5	4.5	AVDD
6	6.7,8	AGND
7	9	CREF
8	10	VREF
9	11	DAC0
10	12	DAC1
11	13	P1.4 / ADC4
12	14	P1.5 / ADC5 / SS
13	15	P1.6 / ADC6

Pin No.	Pin 1 Identifier	Function
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G03602-1-203 (PfA)

CODE MEMORY SPACE OPTIONS

INTERRUPT VECTOR ADDRESSES

Interrupt Bit	Interrupt Name	Vector Address	Priority within Level
PSMCON.5	Power Supply Monitor Interrupt	43h	1
WDS	WatchDog Timer Interrupt	5Bh	2
IE0	External Interrupt 0	03h	3
ADCI	End of ADC Conversion Interrupt	33h	4
TF0	Timer0 Overflow Interrupt	0Bh	5
IE1	External Interrupt 1	13h	6
TF1	Timer1 Overflow Interrupt	1Bh	7
ISPI/I2CI	SPI/I2C Interrupt	3Bh	8
RI/TI	UART Interrupt	23h	9
TF2/EXF2	Timer2 Interrupt	2Bh	10
TIMECON.2	Time Interval Counter Interrupt	53h	11

PRINTED IN U.S.A.

FUNCTIONAL BLOCK DIAGRAM

The functional block diagram illustrates the internal structure of the ADuC842. It features a central 8052 microcontroller core with 1-clock. Key peripheral components include a 12-bit ADC with an AIN MUX, TEMP sensor, and 2.5V bandgap reference; a DAC control section with DAC0 and DAC1; a 4Kx8 user SRAM and 62Kx8 program Flash/EE; a baudrate timer, downloader/debugger, and asynchronous serial port (UART); a synchronous serial interfaces (SPI & I2C); and various timers and oscillators. Power management includes a power supply monitor, single-pin emulator, and oscillator (OSC & PLL).

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