

Instruction Set

Data Transfer Operations

Instruction	bytes	OSC Pinmode
MOV A,Rn	1	1
MOV A,@Ri	1	2
MOV A,direct	2	2
MOV A,#data	2	2
MOV Rn,A	1	1
MOV Rn,direct	2	2
MOV Rn,#data	2	2
MOV direct,A	2	2
MOV direct,Rn	2	2
MOV direct,@Ri	2	2
MOV direct,direct	3	3
MOV direct,#data	3	3
MOV @Ri,A	1	2
MOV @Ri,direct	2	2
MOV @Ri,#data	2	2
MOV DPTR,#data16	3	3
MOVC A,@A+DPTR	1	4
MOVC A,@A+PC	1	4
MOVX A,@Ri	1	4
MOVX A,@DPTR	1	4
MOVX @Ri,A	1	4
MOVX @DPTR,A	1	4
PUSH direct	2	2
POP direct	2	2
XCH A,Rn	1	1
XCH A,@Ri	1	2
XCH A,direct	2	2
XCHD A,@Ri	1	2

Boolean Variable Manipulation

Instruction	bytes	OSC Pinmode
CLR C	1	1
CLR bit	2	2
SETB C	1	1
SETB bit	2	2
CPL C	1	1
CPL bit	2	2
ANL C,bit	2	2
ANL C,bit	2	2
ORL C,bit	2	2
ORL C,bit	2	2
MOV C,bit	2	2
MOV bit,C	2	2

Program Branching

Instruction	bytes	OSC Pinmode
ACALL addr11	2	3
LCALL addr16	3	4
RET	1	4
RETI	1	4
AJMP addr11	2	3
LJMP addr16	3	4
SJMP rel	2	3
JMP @A+DPTR	1	3
JC rel	2	3
JNC rel	2	3
JNB bit,rel	3	4
JNB bit,rel	3	4
JBC bit,rel	3	4
JZ rel	2	3
JNZ rel	2	3
CJNE A,direct,rel	3	4
CJNE A,#data,rel	3	4
CJNE Rn,#data,rel	3	4
CJNE @Ri,#data,rel	3	4
DJNZ Rn,rel	2	3
DJNZ direct,rel	3	4
NOP	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
ADDC A,x	C = carry out of bit 7 AC = carry out of bit 3 OV = carry out of bit 6, but not 7
SUBB A,x	C = borrow into bit 7 AC = borrow into bit 3 OV = borrow into bit 6, but not 7
MUL AB	C = 0 OV = (result>255)
DIV AB	C = 0 OV = divide by zero

Arithmetic Operations

Instruction	bytes	OSC Pinmode
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	1	9
DIV AB	1	9
DA A	1	2

Logical Operations

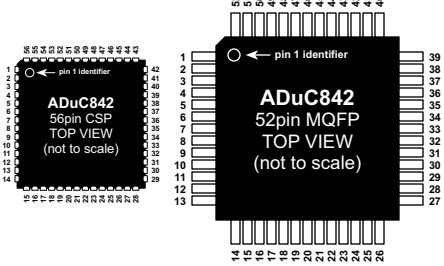
Instruction	bytes	OSC Pinmode
ANL A,Rn	1	1
ANL A,@Ri	1	2
ANL A,direct	2	2
ANL A,#data	2	2
ANL direct,A	2	2
ANL direct,#data	3	3
ORL A,Rn	1	1
ORL A,@Ri	1	2
ORL A,direct	2	2
ORL A,#data	2	2
ORL direct,A	2	2
ORL direct,#data	3	3
XRL A,Rn	1	1
XRL A,@Ri	1	2
XRL A,direct	2	2
XRL A,#data	2	2
XRL direct,A	2	2
XRL direct,#data	3	3
CLR A	1	1
CPL A	1	1
RL A	1	1
RLC A	1	1
RR A	1	1
RRC A	1	1
SWAP A	1	1

Legend

Rn	register addressing using R0-R7
@Ri	indirect addressing using R0 or R1
direct	8bit internal address (00h-FFh)
#data	8bit constant included in instruction
#data16	16bit constant included in instruction
bit	8bit direct address of bit
rel	signed 8bit offset
addr11	11bit address in current 2K page
addr16	16bit address
x	any of Rn, @Ri, direct, #data

Pin Functions

Pin	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

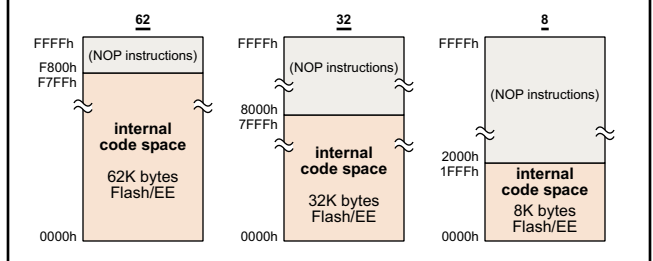


Pin	Function
14	16 P1.7 / ADC7
15	17 RESET
16	18 P3.0 / RxD
17	19 P3.1 / TxD
18	20 P3.2 / INT0
19	21 P3.3/INT1/MISO/PWM1
20	22 DVDD
21	23 DGND
22	24 P3.4 / T0 / PWM0 / PWM0 / EXTCLK
23	25 P3.5 / T1 / CONVST
24	26 P3.6 / WR
25	27 P3.7 / RD
26	28 SCLOCK

Pin	Function
27	29 SDATA / MOSI
28	30 P2.0 / A8 / A16
29	31 P2.1 / A9 / A17
30	32 P2.2 / A10 / A18
31	33 P2.3 / A11 / A19
32	34 XTAL1 (in)
33	35 XTAL2 (out)
34	36 DVDD
35	37,38 DGND
36	39 P2.4 / A12 / A20
37	40 P2.5 / A13 / A21
38	41 P2.6/A14/A22/PWM0
39	42 P2.7/A15/A23/PWM1

Pin	Function
40	43 EA
41	44 PSEN
42	45 ALE
43	46 P0.0 / AD0
44	47 P0.1 / AD1
45	48 P0.2 / AD2
46	49 P0.3 / AD3
47	50 DGND
48	51 DVDD
49	52 P0.4 / AD4
50	53 P0.5 / AD5
51	54 P0.6 / AD6
52	55 P0.7 / AD7

Code Memory Space Options

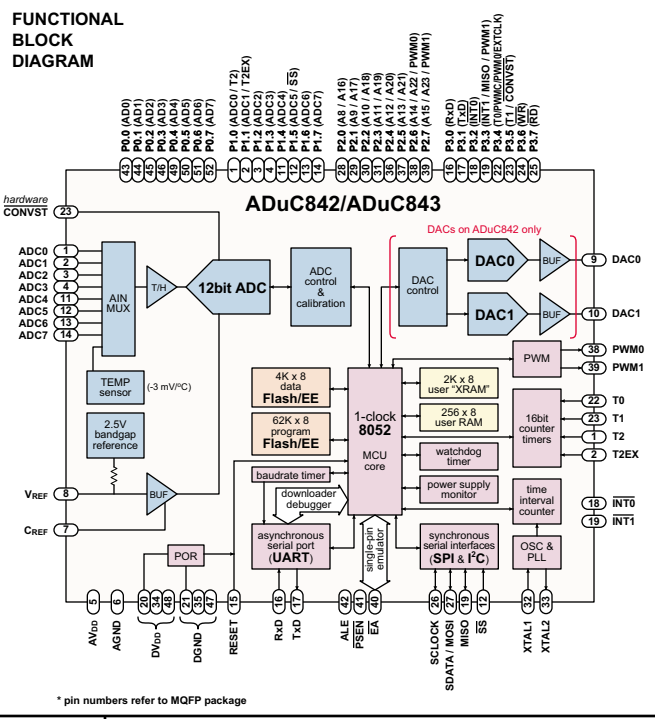


Interrupt Vector Addresses

Interrupt Bit	Interrupt Name	Vector Address	Relative Priority
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/I ² C Interrupt	3Bh	8
RI/TI	UART Interrupt	23h	9
TF2/EXF2	Timer2 Interrupt	2Bh	10
TIMECON.2	Time Interval Counter Interrupt	53h	11

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ADuC842/843 MicroConverter® Quick Reference Guide



A Precision Analog Flash MCU

The ADuC842/ADuC843 is:

- ADC:** 12bit, 5us, 8channel, self calibrating 0.5LSB INL & 70dB SNR
- DAC (ADuC842 only):** dual, 12bit, 15µs, voltage output <1LSB DNL
- Flash/EEPROM:** 62K bytes Flash/EE program memory 4K bytes Flash/EE data memory
- Microcontroller:** "single-cycle" 8052, up to 16.8MIPS 32 I/O lines, programmable PLL clock (131KHz to 16.8MHz with 32KHz crystal)
- Embedded Tools Support:** on-chip download/debug & single-pin emulation functions
- Other on-chip features:** temperature monitor, power supply monitor, watchdog timer, flexible serial interface ports, voltage reference, time interval counter, dual 8/16bit PWM, power-on-reset

