

Opcode Map for the AVR processor, in alphabetical order

ADC	0001-11rd-dddd-rrrr	ADD	0000-11rd-dddd-rrrr	ADIW	1001-0110-KKdd-KKKK
AND	0010-00rd-dddd-rrrr	ANDI	0111-KKKK-dddd-KKKK	ASR	1001-010d-dddd-0101
BCLR	1001-0100-1sss-1000	BLD	1111-100d-dddd-0bbb	BRBC	1111-01kk-kkkk-ksss
BRBS	1111-00kk-kkkk-ksss	BRCC	1111-01kk-kkkk-k000	BRCS	1111-00kk-kkkk-k000
BREAK	1001-0101-1001-1000	BREQ	1111-00kk-kkkk-k001	BRGE	1111-01kk-kkkk-k100
BRHC	1111-01kk-kkkk-k101	BRHS	1111-00kk-kkkk-k101	BRID	1111-01kk-kkkk-k111
BRIE	1111-00kk-kkkk-k111	BRLO	1111-00kk-kkkk-k000	BRLT	1111-00kk-kkkk-k100
BRMI	1111-00kk-kkkk-k010	BRNE	1111-01kk-kkkk-k001	BRPL	1111-01kk-kkkk-k010
BRSH	1111-01kk-kkkk-k000	BRTC	1111-01kk-kkkk-k110	BRTS	1111-00kk-kkkk-k110
BRVC	1111-01kk-kkkk-k011	BRVS	1111-00kk-kkkk-k011	BSET	1001-0100-0sss-1000
BST	1111-101d-dddd-0bbb	CALL	1001-010k-kkkk-111k kkkk-kkkk-kkkk-kkkk	CBI	1001-1000-AAAA-Abbb
CBR	0111-KKKK-dddd-KKKK (~K, ANDI)	CLC	1001-0100-1000-1000	CLH	1001-0100-1101-1000
CLI	1001-0100-1111-1000	CLN	1001-0100-1010-1000	CLR	0010-01dd-dddd-dddd (2xRd, EOR)
CLS	1001-0100-1100-1000	CLT	1001-0100-1110-1000	CLV	1001-0100-1011-1000
CLZ	1001-0100-1001-1000	COM	1001-010d-dddd-0000	CP	0001-01rd-dddd-rrrr
CPC	0000-01rd-dddd-rrrr	CPI	0011-KKKK-dddd-KKKK	CPSE	0001-00rd-dddd-rrrr
DEC	1001-010d-dddd-1010	DES	1001-0100-KKKK-1011	EICALL	1001-0101-0001-0001
EIJMP	1001-0100-0001-1001	ELPMZO	1001-0101-1101-1000	ELPMZ	1001-000d-dddd-0110
ELPMZ+	1001-000d-dddd-0111	EOR	0010-01rd-dddd-rrrr	FMUL	0000-0011-0ddd-1rrr
FMULS	0000-0011-1ddd-0rrr	FMULSU	0000-0011-1ddd-1rrr	ICALL	1001-0101-0000-1001
IJMP	1001-0100-0000-1001	IN	1011-0AA d-dddd-AAAA	INC	1001-010d-dddd-0011
JMP	1001-010k-kkkk-110k kkkk-kkkk-kkkk-kkkk	LD, X	1001-000d-dddd-1100	LD, X+	1001-000d-dddd-1101
LD, -X	1001-000d-dddd-1110	LD, Y	1000-000d-dddd-1000	LD, Y+	1001-000d-dddd-1001
LD, -Y	1001-000d-dddd-1010	LDD, Yq	10q0-qq0d-dddd-1qqq	LD, Z	1000-000d-dddd-0000
LD, Z+	1001-000d-dddd-0001	LD, -Z	1001-000d-dddd-0010	LDD, Zq	10q0-qq0d-dddd-0qqq
LDI	1110-KKKK-dddd-KKKK	LDS	1001-000d-dddd-0000 kkkk-kkkk-kkkk-kkkk	LDS7	1010-0kkk-dddd-kkkk
LPMZO	1001-0101-1100-1000	LPMZ	1001-000d-dddd-0100	LPMZ+	1001-000d-dddd-0101
LSL	0000-11dd-dddd-dddd (2xRd, ADD)	LSR	1001-010d-dddd-0110	MOV	0010-11rd-dddd-rrrr
MOVW	0000-0001-dddd-rrrr	MULU	1001-11rd-dddd-rrrr	MULS	0000-0010-dddd-rrrr
MULSU	0000-0011-0ddd-0rrr	NEG	1001-010d-dddd-0001	NOP	0000-0000-0000-0000
OR	0010-10rd-dddd-rrrr	ORI	0110-KKKK-dddd-KKKK	OUT	1011-1AAr-rrrr-AAAA
POP	1001-000d-dddd-1111	PUSH	1001-001d-dddd-1111	RCALL	1101-kkkk-kkkk-kkkk
RET	1001-0101-0000-1000	RETI	1001-0101-0001-1000	RJMP	1100-kkkk-kkkk-kkkk
ROL	0001-11dd-dddd-dddd (2xRd, ADC)	ROR	1001-010d-dddd-0111	SBC	0000-10rd-dddd-rrrr
SBCI	0100-KKKK-dddd-KKKK	SBI	1001-1010-AAAA-Abbb	SBIC	1001-1001-AAAA-Abbb
SBIS	1001-1011-AAAA-Abbb	SBIW	1001-0111-KKdd-KKKK	SBR	0110-KKKK-dddd-KKKK
SBRC	1111-110r-rrrr-0bbb	SBRS	1111-111r-rrrr-0bbb	SEC	1001-0100-0000-1000
SEH	1001-0100-0101-1000	SEI	1001-0100-0111-1000	SEN	1001-0100-0010-1000
SER	1110-1111-dddd-1111	SES	1001-0100-0100-1000	SET	1001-0100-0110-1000
SEV	1001-0100-0011-1000	SEZ	1001-0100-0001-1000	SLEEP	1001-0101-1000-1000
SPMZ0	1001-0101-1110-1000	SPMZ	1001-0101-1110-1000	SPMZ+	1001-0101-1111-1000
ST, X	1001-001r-rrrr-1100	ST, X+	1001-001r-rrrr-1101	ST, -X	1001-001r-rrrr-1110
ST, Y	1000-001r-rrrr-1000	ST, Y+	1001-001r-rrrr-1001	ST, -Y	1001-001r-rrrr-1010
STD, Yq	10q0-qq1r-rrrr-1qqq	ST, Z	1000-001r-rrrr-0000	ST, Z+	1001-001r-rrrr-0001
ST, -Z	1001-001r-rrrr-0010	STD, Zq	10q0-qq1r-rrrr-0qqq	STS	1001-001d-dddd-0000 kkkk-kkkk-kkkk-kkkk
STS7	1010-1kkk-dddd-kkkk	SUB	0001-10rd-dddd-rrrr	SUBI	0101-KKKK-dddd-KKKK
SWAP	1001-010d-dddd-0010	TST	0010-00dd-dddd-dddd (2xRd, AND)	WDR	1001-0101-1010-1000

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NOP	0000-0000-0000-0000	MOVW	0000-0001-dddd-rrrr	MULS	0000-0010-dddd-rrrr
MULSU	0000-0011-0ddd-0rrr	FMUL	0000-0011-0ddd-1rrr	FMULS	0000-0011-1ddd-0rrr
FMULSU	0000-0011-1ddd-1rrr	CPC	0000-01rd-dddd-rrrr	SBC	0000-10rd-dddd-rrrr
LSL	0000-11dd-dddd-dddd (2xRd, ADD)	ADD	0000-11rd-dddd-rrrr	CPSE	0001-00rd-dddd-rrrr
CP	0001-01rd-dddd-rrrr	SUB	0001-10rd-dddd-rrrr	ROL	0001-11dd-dddd-dddd (2xRd, ADC)
ADC	0001-11rd-dddd-rrrr	TST	0010-00dd-dddd-dddd (2xRd, AND)	AND	0010-00rd-dddd-rrrr
CLR	0010-01dd-dddd-dddd (2xRd, EOR)	EOR	0010-01rd-dddd-rrrr	OR	0010-10rd-dddd-rrrr
MOV	0010-11rd-dddd-rrrr	CPI	0011-KKKK-dddd-KKKK	SBCI	0100-KKKK-dddd-KKKK
SUBI	0101-KKKK-dddd-KKKK	ORI	0110-KKKK-dddd-KKKK	SBR	0110-KKKK-dddd-KKKK
ANDI	0111-KKKK-dddd-KKKK	CBR	0111-KKKK-dddd-KKKK (~K, ANDI)	LD, Z	1000-000d-dddd-0000
LD, Y	1000-000d-dddd-1000	ST, Z	1000-001r-rrrr-0000	ST, Y	1000-001r-rrrr-1000
LDS	1001-000d-dddd-0000 kkkk-kkkk-kkkk-kkkk	LD, Z+	1001-000d-dddd-0001	LD, -Z	1001-000d-dddd-0010
LPMZ	1001-000d-dddd-0100	LPMZ+	1001-000d-dddd-0101	ELPMZ	1001-000d-dddd-0110
ELPMZ+	1001-000d-dddd-0111	LD, Y+	1001-000d-dddd-1001	LD, -Y	1001-000d-dddd-1010
LD, X	1001-000d-dddd-1100	LD, X+	1001-000d-dddd-1101	LD, -X	1001-000d-dddd-1110
POP	1001-000d-dddd-1111	STS	1001-001d-dddd-0000 kkkk-kkkk-kkkk-kkkk	PUSH	1001-001d-dddd-1111
ST, Z+	1001-001r-rrrr-0001	ST, -Z	1001-001r-rrrr-0010	ST, Y+	1001-001r-rrrr-1001
ST, -Y	1001-001r-rrrr-1010	ST, X	1001-001r-rrrr-1100	ST, X+	1001-001r-rrrr-1101
ST, -X	1001-001r-rrrr-1110	SEC	1001-0100-0000-1000	IJMP	1001-0100-0000-1001
SEZ	1001-0100-0001-1000	EIJMP	1001-0100-0001-1001	SEN	1001-0100-0010-1000
SEV	1001-0100-0011-1000	SES	1001-0100-0100-1000	SEH	1001-0100-0101-1000
SET	1001-0100-0110-1000	SEI	1001-0100-0111-1000	BSET	1001-0100-0sss-1000
CLC	1001-0100-1000-1000	CLZ	1001-0100-1001-1000	CLN	1001-0100-1010-1000
CLV	1001-0100-1011-1000	CLS	1001-0100-1100-1000	CLH	1001-0100-1101-1000
CLT	1001-0100-1110-1000	CLI	1001-0100-1111-1000	BCLR	1001-0100-1sss-1000
DES	1001-0100-KKKK-1011	RET	1001-0101-0000-1000	ICALL	1001-0101-0000-1001
EICALL	1001-0101-0001-0001	RETI	1001-0101-0001-1000	SLEEP	1001-0101-1000-1000
BREAK	1001-0101-1001-1000	WDR	1001-0101-1010-1000	LPMZO	1001-0101-1100-1000
ELPMZO	1001-0101-1101-1000	SPMZ	1001-0101-1110-1000	SPMZ0	1001-0101-1110-1000
SPMZ+	1001-0101-1111-1000	COM	1001-010d-dddd-0000	NEG	1001-010d-dddd-0001
SWAP	1001-010d-dddd-0010	INC	1001-010d-dddd-0011	ASR	1001-010d-dddd-0101
LSR	1001-010d-dddd-0110	ROR	1001-010d-dddd-0111	DEC	1001-010d-dddd-1010
JMP	1001-010k-kkkk-110k kkkk-kkkk-kkkk-kkkk	CALL	1001-010k-kkkk-111k kkkk-kkkk-kkkk-kkkk	ADIW	1001-0110-KKdd-KKKK
SBIW	1001-0111-KKdd-KKKK	CBI	1001-1000-AAAA-Abbb	SBIC	1001-1001-AAAA-Abbb
SBI	1001-1010-AAAA-Abbb	SBIS	1001-1011-AAAA-Abbb	MULU	1001-11rd-dddd-rrrr
LDS7	1010-0kkk-dddd-kkkk	STS7	1010-1kkk-dddd-kkkk	IN	1011-0AA d-dddd-AAAA
OUT	1011-1AAr-rrrr-AAAA	LDD, Zq	10q0-qq0d-dddd-0qqq	LDD, Yq	10q0-qq0d-dddd-1qqq
STD, Zq	10q0-qq1r-rrrr-0qqq	STD, Yq	10q0-qq1r-rrrr-1qqq	RJMP	1100-kkkk-kkkk-kkkk
RCALL	1101-kkkk-kkkk-kkkk	SER	1110-1111-dddd-1111	LDI	1110-KKKK-dddd-KKKK
BRCS	1111-00kk-kkkk-k000	BRLO	1111-00kk-kkkk-k000	BREQ	1111-00kk-kkkk-k001
BRMI	1111-00kk-kkkk-k010	BRVS	1111-00kk-kkkk-k011	BRLT	1111-00kk-kkkk-k100
BRHS	1111-00kk-kkkk-k101	BRTS	1111-00kk-kkkk-k110	BRIE	1111-00kk-kkkk-k111
BRBS	1111-00kk-kkkk-ksss	BRCC	1111-01kk-kkkk-k000	BRSH	1111-01kk-kkkk-k000
BRNE	1111-01kk-kkkk-k001	BRPL	1111-01kk-kkkk-k010	BRVC	1111-01kk-kkkk-k011
BRGE	1111-01kk-kkkk-k100	BRHC	1111-01kk-kkkk-k101	BRTC	1111-01kk-kkkk-k110
BRID	1111-01kk-kkkk-k111	BRBC	1111-01kk-kkkk-ksss	BLD	1111-100d-dddd-0bbb
BST	1111-101d-dddd-0bbb	SBRC	1111-110r-rrrr-0bbb	SBRS	1111-111r-rrrr-0bbb