

## ATMega registers and address ranges

### Registers

Name	LDI	Alternate Name	Usage	Saved By	Function arguments	Return Values
r0	no	<u>tmp_reg</u>	temporary			
r1	no	<u>zero_reg</u>	zero			
r2	no			callee		
r3	no			callee		
r4	no			callee		
r5	no			callee		
r6	no			callee		
r7	no			callee		
r8	no			callee	argument 8	
r9	no			callee	argument 8	
r10	no			callee	argument 7	
r11	no			callee	argument 7	
r12	no			callee	argument 6	
r13	no			callee	argument 6	
r14	no			callee	argument 5	
r15	no			callee	argument 5	
r16	yes			callee	argument 4	
r17	yes			callee	argument 4	
r18	yes			caller	argument 3	64 bit
r19	yes			caller	argument 3	64 bit
r20	yes			caller	argument 2	64 bit
r21	yes			caller	argument 2	64 bit
r22	yes			caller	argument 1	32/64 bit
r23	yes			caller	argument 1	32/64 bit
r24	yes			caller	argument 0	8/16/32/64 bit
r25	yes			caller	argument 0	8*/16/32/64 bit
r26	yes	X (lo)		caller		
r27	yes	X (hi)		caller		
r28	yes	Y (lo)	frame pointer	callee		
r29	yes	Y (hi)	frame pointer	callee		
r30	yes	Z (lo)	PROGMEM pointer	caller		
r31	yes	Z (hi)	PROGMEM pointer	caller		

\*always zero

SP	<u>SP_L</u>	stack pointer
SP	<u>SP_H</u>	stack pointer
SREG	<u>SREG</u>	status register

### Address ranges

RAM address	IO address	Description
0x0000 – 0x001F	n/a	32 general purpose registers
0x0020 – 0x003F	0x0000 – 0x001F	32 IO registers, bit accessible
0x0040 – 0x005F	0x0020 – 0x003F	32 IO registers, byte accessible
0x0060 – 0x00FF	n/a	160 Extended IO registers
0x0100 -	n/a	RAM