



Quick Reference Guide

8-bit AVR Microcontroller Peripheral Integration

DIP

integrated voltage regulator

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Arduino

Product Family	Pin Count	Program Flash Memory (KB)	SRAM (KB)	Intelligent Analog							Waveform Control			
				ADC (# of bits)	ADC (# of channels)	Comparators	ADC Gain Stage	DAC (# of bits)	Temperature Sensor	Internal Voltage Reference	8-bit PWM	16-bit PWM	Quadrature Decoder	Waveform Extension
Integrated voltage regulator														
ATtiny4/5/9/10	6	0.5–1	0.032	10 ³	4 ⁽⁶⁾	✓						2		
ATtiny102/104	8/14	1	0.032	10	5/8	✓				✓		2		
ATtiny13A	8–20	1	0.064	10	4	✓						2		
ATtiny20/40	12–20	2/4	0.128/0.256	10	8/12	✓			✓			2	2	
ATtiny24A/44A/84A	14–20	2–8	Up to 0.512	10	8	✓	✓		✓	✓		2	2	
ATtiny25(V)/45(V)/85(V)	8–20	2–8	Up to 0.512	10	4	✓	✓		✓	✓		4		
ATtiny48/88	28–32	4/8	Up to 0.512	10	8	✓			✓	✓		1	1	
ATtiny87/167	20–32	8/16	0.512	10	11	✓			✓	✓		1	2	
ATtiny261A/461A/861A	20–32	2–8	Up to 0.512	10	11	✓	✓		✓	✓				
ATtiny20x/40x/80x/160x	8–24	2–16	Up to 1	10	12	✓			✓	✓		2		
ATtiny21x/41x/81x/161x/321x	8–24	2–32	Up to 2	10	12	✓		8	✓	✓			2	
ATtiny441/841	14–20	4/8	Up to 0.512	10	12	✓	✓		✓			1	2	
ATtiny1634	20	16	1	10	12	✓			✓	✓		2	2	
ATtiny2313A	20	2	0.128	–	–	✓				✓		2	2	
ATmega8A/16A/32A	28–44	8–32	1–2	10	8	✓						2	1	
ATmega8U2/16U2/32U2	32	8–32	0.5–1	–	–	✓			✓	✓		4	6	
ATmega16U4/32U4	32	16/32	1/2	10	12	✓			✓	✓		5		
ATmega48PB/88PB/168PB/328PB	32	4–32	0.5–2	10	8	✓			✓	✓		4	2/6 ⁽⁶⁾	
ATmega320x/480x	28–48	32–48	Up to 6	10	16	✓			✓	✓		4	3	
ATmega64A/128A	64	64–128	4	10	8	✓	✓			✓		2	6	
ATmega164PA/324PA/644PA/1284P	44	16–128	1–16	10	8	✓	✓			✓		4	2/2/4	
ATmega165PA/325PA/645P	44	16–64	1–4	10	8	✓				✓		4	6	
ATmega169PA/329PA/649P	64	16–64	1–4	10	8	✓				✓		2	2	
ATmega324PB	44	32	2	10	8	✓				✓		2	2	
ATmega640/1280/2560/1281/2561	64–100	64–256	8	10	8/16	✓	✓			✓		4	6/12	
ATmega3290PA/6490P	100	32–64	2–4	10	8	✓	✓			✓		2	2	
ATmega3250PA/6450P	100	32–64	2–4	10	8	✓	✓			✓		2	2	
ATxmega A1U Family	100	64–128	4–8	12	16	✓	✓	12	✓	✓		8	✓	✓
ATxmega A3U Family	64	64–256	4–16	12	16	✓	✓	12	✓	✓		7	✓	✓
ATxmega A4U Family	44–49	16–128	2–8	12	12	✓	✓	12	✓	✓		5	✓	✓
ATxmega B1/B3 Family	64–100	64–128	4–8	12	8	✓	✓		✓	✓		2/3	✓	✓
ATxmega C3/D3 Family	64	32–384	4–32	12	16	✓	✓		✓	✓		5	✓	✓
ATxmega C4/D4 Family	44–49	16–128	2–8	12	12	✓	✓		✓	✓		4	✓	✓
ATxmega E5 Family	32	8–32	1–4	12	16	✓	✓	12	✓	✓		3	✓	✓

1: LIN port also 2: Peripheral Touch Controller 3: Only on the ATtiny5/10 4: Not on the ATtiny212/214/412/414/416 5: Only on the ATmega1281/2561 6: Only on the ATmega328PB 7: Only on the C3 or

Peripheral Function Focus																										
Timing and Measurements				Logic, Crypto and Math			Safety and Monitoring				Communications						User Interface				System Flexibility					
Real-Time Counter	8-bit Timer/Counters	12-bit Timer Counter	16-bit Timer/Counter	CCL	MULT	Crypto (AES/DES)	CRC	POR	BOD	WDT	UART	USART	USB	I ² C	SPI	IRCOM	QTouch® Technology	QTouch Technology with PTC ⁽²⁾	LCD	External Bus Interface	DMA Channels	Event System	SleepWalking	Sleep Modes	picoPower® Technology	
			1					✓		✓							✓							4		
			2					✓		✓		1												4		
								✓	✓	✓							✓							3	✓	
	1		1					✓	✓	✓				1	1		✓							4		
	1		1					✓	✓	✓				1	1		✓							4	✓	
	2							✓	✓	✓				1	1									3		
	1		1					✓	✓	✓				1	1									3	✓	
	1		1					✓	✓	✓	1 ⁽¹⁾			1	2									4		
	1		1					✓	✓	✓				1	1		✓							4	✓	
✓			1	✓	✓		✓	✓	✓	✓		1 ⁽¹⁾		1	1							✓	✓	3	✓	
✓		1	1	✓	✓		✓	✓	✓	✓		1 ⁽¹⁾		1	1			✓ ⁽⁴⁾				✓	✓	3	✓	
	1		2					✓	✓	✓		2		1	1									4	✓	
	1		1					✓	✓	✓		2		1				✓						4	✓	
	1		1					✓	✓	✓		1		1	2									3	✓	
✓	2		1		✓			✓	✓	✓		1		1	1		✓							5		
✓	2		3		✓			✓	✓	✓		2	✓	2	2			✓						6		
✓	1		1		✓			✓	✓	✓		1	✓		1									6		
✓	2		1/3 ⁽³⁾		✓			✓	✓	✓		1/2 ⁽³⁾		1/2 ⁽³⁾	1/2 ⁽³⁾		✓	1 ⁽⁶⁾						6		
1			5	✓	✓		✓	✓	✓	✓	4			1	1								✓	3	✓	
	2		2		✓			✓	✓	✓		2		1	1		✓							6		
✓	2		1/1/2		✓			✓	✓	✓		2		1	1		✓							6	✓	
✓	2		3		✓			✓	✓	✓		3		2	2			✓						6	✓	
✓	2		1		✓			✓	✓	✓		1		1	1		✓		✓					5		
✓	2		1		✓			✓	✓	✓		1		1	1		✓	✓						5		
✓	2		4		✓			✓	✓	✓		2/4		1	1		✓			✓ ⁽⁵⁾				6		
✓	2		1		✓			✓	✓	✓		1		1	1		✓		✓					5		
✓	2		1		✓			✓	✓	✓		1		1	1		✓							5		
✓			8		✓	✓	✓	✓	✓	✓		8	✓	4	4	✓	✓				✓	4	✓	5	✓	
✓			7		✓	✓	✓	✓	✓	✓		7	✓	2	3	✓	✓					4	✓	5	✓	
✓			5		✓	✓	✓	✓	✓	✓		5	✓	2	2	✓	✓					4	✓	5	✓	
✓			2/3		✓	✓	✓	✓	✓	✓		1/2	✓	1	1	✓	✓		✓			2	✓	5	✓	
✓			5		✓		✓	✓	✓	✓		3	✓ ⁽⁷⁾	2	2	✓	✓							5	✓	
✓			4		✓		✓	✓	✓	✓		2	✓ ⁽⁷⁾	2	2	✓	✓							5	✓	
✓			3	✓	✓		✓	✓	✓	✓		2		1	1	✓	✓					4	✓	5	✓	

vd C4