

# Timer Registers

EE 264  
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## Summary of Registers

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
TCTL1 \$1020	OM2	OL2	OM3	OL3	OM4	OL4	OM5	OL5
TCTL2 \$1021			EDG1B	EDG1A	EDG2B	EDG2A	EDG3B	EDG3A
TMSK1 \$1022	OC1I	OC2I	OC3I	OC4I	OC5I	IC1I	IC2I	IC3I
TFLG1 \$1023	OC1F	OC2F	OC3F	OC4F	OC5F	IC1F	IC2F	IC3F
TMSK2 \$1024	TOI	RTII	PAOVI	PAII			PR1	PR0
TFLG2 \$1025	TOF	RTIF	PAOVF	PIAF				

## For each OC or IC pin...

- ◆ Pin on port A
- ◆ 16-bit Register to indicate the time
  - IC: Time that the input event occurred
  - OC: Time that the output changes
- ◆ 2-bit register to indicate function
  - IC: Event that is to be captured (EDG)
  - OC: Action to take on output pin (OM)
- ◆ Flag that indicates event has happened
- ◆ Interrupt enable that creates an interrupt after event has happened
- ◆ Interrupt vector for the interrupt

## Meaning of OM / EDG

Value	EDGxB EDGxA	OMx OLx
00	Disabled	Disabled
01	Rising Edge	Toggle Output
10	Falling Edge	Clear Output
11	Either Edge	Set Output

## Mapping of pins and interrupts

Register	Port A Pin Number	Interrupt Vector
TOC1	PA7	FFE8, FFE9
TOC2	PA6	FFE6, FFE7
TOC3	PA5	FFE4, FFE5
TOC4	PA4	FFE2, FFE3
TOC5	PA3	FFE0, FFE1
TIC1	PA2	FFEE, FFEF
TIC2	PA1	FFEC, FFED
TIC3	PA0	FFEA, FFEB

## Timer / OC / IC Registers

Register	MS Byte	LS Byte
Timer Counter (TCNT)	\$100E	\$100F
Input Capture 1	\$1010	\$1011
Input Capture 2	\$1012	\$1013
Input Capture 3	\$1014	\$1015
Output Compare 1	\$1016	\$1017
Output Compare 2	\$1018	\$1019
Output Compare 3	\$101A	\$101B
Output Compare 4	\$101C	\$101D
Output Compare 5	\$101E	\$101F