The comparison value. If enabled, the interrupt service routine can be updated relatively buffer OCR0x register. Set up OC0x Pin data direction register as an output a comparison signal to obtain an output OC0x Waveform. Frequency of the waveform following formula can be calculated:

$$f_{oc0xfpwm} = f_{sys} / (N * (1 + TOP))$$

among them, N It represents the prescale factor (1 , 8 , 64 , 256 or 1024). when TCNT0 with OCR0x Compare match, the waveform generator to set (clear) OC0x Signal, when TCNT0 When cleared, the waveform generator will be cleared (set) OC0x Signal in order to produce PWM wave. thus OCR0x The extremes will produce special PWM Waveform. when OCR0x Set as 0x00 , The output of PWM For each (1 + TOP) There is a clock count of a narrow spike. when OCR0x When set to the maximum value, the output waveform for sustained high or low.

Phase correction PWM mode

When set WGM0 [2: 0] = 1 or 5 When the timer counter 0 Enter phase correction PWM Max mode, counting TOP Respectively MAX (0xFF)or OCR0A . Bidirectional counter operation by BOTTOM Increments to TOP And then descending to BOTTOM , Then repeat this operation. Count reaches TOP with BOTTOM Have to change direction when the count value TOP or BOTTOM On average only stay a count clock. In the process increments or decrements the count value TCNT0 versus OCR0x Match, the comparison signal output OC0x It will be set or cleared, depending on the comparison output mode COM0x setting. Compared with the one-way operation, bidirectional operation obtainable maximum operation frequency, but its excellent symmetry is more suitable for motor control. Phase correction PWM Mode, when the count reaches BOTTOM When set TOV0 Flag when the count reaches TOP When the buffer is updated to compare the value of the comparison value. If enabled, the interrupt service routine can be updated relatively buffer OCR0x register. Set up OC0x Pin data direction register as an output a comparison signal to obtain an output OC0x Waveform. Frequency of the waveform following formula can be calculated:

$$f_{oc0xpcpwm} = f_{sys} / (N * TOP * 2)$$

among them, N It represents the prescale factor (1 , 8 , 64 , 256 or 1024). In up-counting process, when TCNT0 versus OCR0x Match, the waveform generator will be cleared (set) OC0x signal. In the process of counting down, when TCNT0 versus OCR0x When the match is set to the waveform generator (clear) OC0x signal. thus OCR0x The extremes will produce a special PWM wave. when OCR0x When set to the maximum or minimum value, OC0x Output signal will remain low or high.

In order to ensure that the output PWM Wave symmetry of both sides of the minimum value, a compare match does not occur, there will be two cases flipping OC0x signal. The first case is when OCR0x Value by the maximum value 0xFF When changes to other data. when OCR0x The maximum value, the count value reaches the maximum, OC0x The same output result of the comparison in the previous match count in descending, i.e. holding OC0x constant. At this value will be updated relatively new OCR0x The value of the (non 0xFF), OC0x Value will remain set until the comparison match occurs ascending counting flip. at this time OC0x Signal to the minimum value as the center is not symmetrical, requiring the TCNT0 Flip reaches the maximum value OC0x Signal, namely when the comparator inverting no match occurs OC0x A first of the signal. The second case is when TCNT0 From the ratio OCR0x Counting high value, and thus will miss the compare match, thereby causing an asymmetric situation generated. Also you need to flip OC0x Signal to achieve symmetry of both sides of the minimum.

PWM Automatically shutdown and restart of output

When set TCCR0A Register DOC0x Bit is high, PWM When auto-off feature is enabled, the trigger condition is met, the hardware clears the corresponding output COM0x Bits, PWM output signal OC0x And its output pin is disconnected, the switching to a common IO Output achieved PWM Automatically shut down the output. At this time, the state of the output pin by a general IO To control the output.