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Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(H))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(in))

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(54) **Title:** REPETITIVE SINGLE CYCLE PULSE WIDTH MODULATION GENERATION

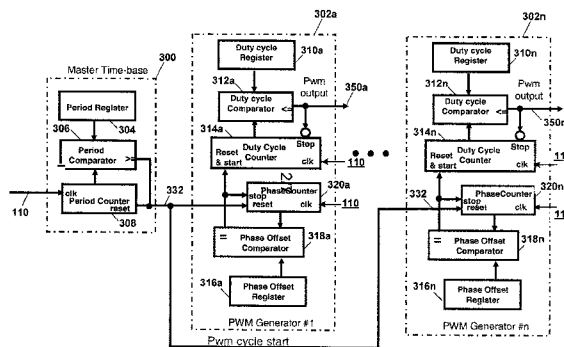


FIGURE 3

(57) **Abstract:** A plurality of pulse width modulation (PWM) generators are provided, each having a separate phase offset counter to create a phase shift instead of using either a time base counter preload value or an adder to create the phase shift offset relative to the PWM time base and the duty cycle. The phase shifting process is separated from the duty cycle generation process, thereby easing the task of preserving the duty cycle and phase relationships among the various PWM channels following an asynchronous external synchronization event. At least one master time base generates a PWM cycle start signal that resets the phase offset counters in each of the PWM generator circuits. The phase offset counter continues counting until it matches the respective phase offset value. At that time, the associated duty cycle counter is reset and restarted. The duty cycle continues until its count matches the specified duty cycle value at which time the duty cycle counter stops until reset by the terminal count from the phase offset counter. The output of the duty cycle comparators provide the output PWM signals as a repetitive series of single cycle PWM signals.



INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
H03K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal , WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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A	wo 2006/O23427 A2 (MICROCHI P TECH INC [US] ; KRIS BRYAN [US]) 2 March 2006 (2006-03-02) page 4, line 1 - page 10, line 30; figures la-6, 11, 13 -----	1-18
A	us 2009/002043 AI (KRIS BRYAN [US]) 1 January 2009 (2009-01-01) paragraph [0003] - paragraph [0042] ; figures 1-5 -----	1-18
A	US 6 658 583 B1 (KUDO MAKOTO [JP] ET AL) 2 December 2003 (2003-12-02) column 4, line 57 - column 9, line 15; figures la-5 -----	1-18

Further documents are listed in the continuation of Box C.

See patent family annex.

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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