THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte ELIE AYACHE

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Appeal No. 95-3920
Application No. 08/151,938[1]

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ON BRIEF

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Before URYNOWICZ, KRASS and CARMICHAEL, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1 through 11, all of the claims pending.

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[1] Application for patent filed November 15, 1993.

The invention is directed to a variable frequency clock for an electronic system. More particularly, the frequency of a system clock is reduced when a microprocessor has been idle for a predetermined time in order to decrease power dissipation.

Representative independent method claim 8 is reproduced as follows:

8. A method of reducing power dissipated by an electronic system, comprising the steps of:

monitoring a component of said system for a change in an output thereof from a logic “1" to logic “0" or vice versa; and

reducing the frequency of a clock of said system when said output is constant for a predetermined interval of time.

The examiner relies on the following references:

Carter et al. (Carter)	4,980,836	Dec. 25, 1990
Watts, Jr. et al. (Watts)	5,218,704	Jun. 8, 1993

Claims 1, 3 and 8 through 10 stand rejected under 35 U.S.C. 102(e) as anticipated by Watts. Additionally, claims 1 through 11 stand rejected under 35 U.S.C. 103 as unpatentable

over Watts. In a new ground of rejection entered in the principal answer, the examiner further rejects claims 1 through 11 under 35 U.S.C. 103 as unpatentable over Watts in view of Carter while claims 8 through 11 stand further rejected under 35 U.S.C. 103 as unpatentable over Carter in view of Watts.

Reference is made to the briefs and answers for the respective details of the positions of appellant and the examiner.

OPINION

We will sustain all of the stated rejections on appeal.

With regard to the rejection of claims 1, 3 and 8 through 10, the examiner has set forth a prima facie case of anticipation in showing that Watts discloses the provision of a timer reset pulse, the generation of a timeout pulse and the reduction of a system clock frequency.

With regard to claims 1 through 11, the examiner has set forth a prima facie case of obviousness by showing that while one might argue that Watts does not appear to show the claimed physical pulses, it was notorious to skilled artisans in the

data processing arts that a high level description as set forth by Watts "would be physically implemented using the physical pulses of the claimed invention." [principal answer - page 3].

With regard to the new grounds of rejection under 35 U.S.C. 103, the examiner sets forth a prima facie case of obviousness by pointing out that while Watts may not show a specific hardware realization of a timer reset or timeout pulse, when viewed in light of Carter, in the environment of stopping a system clock when peripherals have been inactive for a predetermined time, which discloses hardware implementations of the indicated claim limitations, the skilled artisan would have been led to the claimed invention.

While, in our view, the examiner has set forth reasonable cases of anticipation and obviousness, appellant's response is merely to attack the Watts reference as an improper reference against the instant claims because Watts is directed to *software* for changing the frequency of the clock rather than the *hardware* of the instant claimed invention. Appellant

calls the difference between Watts and the instant claimed invention "apples and oranges."

We disagree. We find no hardware in the instant claims described with such specificity that a software embodiment, as shown in Watts, would not be sufficient to describe the same functions set forth in the claims. For example, we find very little difference between mere rectangular boxes labeled "activity sensor" and "delay timer" in Figure 1 of the instant disclosure and flow diagram boxes in Watts labeled "determine activity level" and "Decrease T (OFF) Interval" (Figure 1).

The software, or flow diagrams, in Watts provides the artisan with everything he/she needs to implement the invention described in the instant claims. While appellant vociferously argues that the "abstractions" of Watts' software can not possibly provide for the hardware of the instant claims, we note that other than labeled rectangular boxes, appellant has shown no specific hardware. Boxes labeled "timer," "activity sensor," etc. describe merely the function which is to be obtained. They do not describe any specific hardware being used to implement any particular function. It is our view that from such a disclosure, appellant is in a

poor position to argue that the software implementation of Watts, which describes the functions and result to be obtained by the instant invention, does not anticipate, and/or make obvious, the instant claimed subject matter. We would further note that, in fact, Watts shows more specific hardware than does appellant. See Figure 3 of Watts. We also note, with some curiosity, that while appellant argues so strongly that the difference between Watts and the instant claimed invention is the use of "hardware" by the latter, instant claims 8 through 11 are directed to a method, containing no "hardware" at all.

Contrary to appellant's assertion, at page 6 of the principal brief, that "referring to a 'hardware implementation ... of Watts' is confusingly illogical," we find it very logical that the artisan implementing the process set forth by Watts in flow diagram form would clearly implement it with some type of hardware.

With regard to appellant's argument, at page 4 of the reply brief, that Carter is not combinable with Watts because Carter is directed to *stopping* the clock, we disagree. Watts teaches the reduction of clock frequency as in the instant

claimed invention. Carter was employed by the examiner merely to suggest to artisans that there are hardware implementations for operating on a system clock when peripherals have been inactive for a predetermined time. We believe that a hardware implementation of what is shown in Watts would have been obvious, by itself, to artisans, Carter being merely cumulative to what is already shown by Watts with regard to the instant claimed invention.

We find no convincing arguments by appellant in this record as to why Watts would not be applicable to the instant claimed subject matter in the manner applied by the examiner.

Accordingly, the examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

STANLEY M. URYNOWICZ, JR. Administrative Patent Judge	)	
ERROL A. KRASS Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
JAMES T. CARMICHAEL Administrative Patent Judge	)	

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