

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 26

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte VIVEK G. PAWAR, SRIKANTH NATARAJAN,
and C. SRINIVASAN

Appeal No. 1999-2681
Application No. 08/656,998

ON BRIEF

Before FLEMING, DIXON, and LEVY, **Administrative Patent Judges**.
DIXON, **Administrative Patent Judge**.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1-7, which are all of the claims pending in this application.

We REVERSE.

BACKGROUND

The appellants' invention relates to a knowledge driven simulation time and data reduction technique. The system compares the simulated values to the desired values to determine any discrepancy. If the discrepancy is greater than a predetermined amount, the simulation is stopped thereby saving time. An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced below.

1. A simulator for simulating a digital circuit, comprising:

an input circuit for inputting a plurality of test patterns to describe the characteristics of the digital circuit and for inputting a plurality of input signals to test the operation of digital circuit and a plurality of output signals to describe the expected output of the digital circuit based on the plurality of input signals;

an applying circuit to apply the input signals to test the operation of the digital circuit to said test patterns to describe the characteristics of the digital circuit to form a simulated output signal to indicate a response based on said test patterns;

a comparator circuit to compare said simulated output signal with the output signals to describe the expected output of the digital circuit based on the plurality of input signals to determine a difference between the simulated output signal and said output signals, wherein the operation of the simulation is stopped if said difference is greater than a threshold difference.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Simoudis et al. (Simoudis)	5,016,204	May 14, 1991
Hyduke	5,051,938	Sep. 24, 1991

Appeal No. 1999-2681
Application No. 08/656,998

Claims 1-7 stand rejected under 35 U.S.C. § 103 as being unpatentable over Hyduke in view of Simoudis.

Rather than reiterate the conflicting viewpoints advanced by the examiner and appellants regarding the above-noted rejections, we make reference to the examiner's answer (Paper No. 25, mailed Feb. 22, 1999) for the examiner's reasoning in support of the rejections, and to appellants' brief (Paper No. 24, filed Nov. 24, 1998) for appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by appellants and the examiner. As a consequence of our review, we make the determinations which follow.

Appellants arguments are quite brief and broad with respect to the individual references. (See brief at pages 3-4.) The totality of appellants arguments are repeated below:

The present invention provides advantages not heretofore achieved of eliminating the idle time that is spent waiting for the next set of input conditions.

Appeal No. 1999-2681
Application No. 08/656,998

It is respectfully submitted that Hyduk[e] does not disclose or suggest the presently claimed invention including the comparator circuit to compare the simulated output signal with the output signals to describe the expected output of the digital circuit and wherein the operation of the simulation is stopped if the difference is greater than a threshold value.

Applicants agree with the Examiner that Hyduk[e] does not require the simulation to stop if the difference has exceeded a threshold [sic, threshold] as claimed, as evidenced by page 3, lines 14-16 of the Final Office Action.

Hyduk[e] could not achieve the above mentioned advantages.

Furthermore, Simoudis does not disclose or suggest the presently claimed invention including the comparator circuit to compare the simulated output signal with the output signals to describe the expected output of the digital circuit to determine the difference between the simulated output value and the output signal wherein the operation of the simulation is stopped if the difference is greater than a threshold value.

Simoudis discloses the operation when the discrepancies and the discrepancy causes are disjoint and when the discrepancies and the discrepancy causes are related. Under such conditions, Simoudis discloses a particular operation. However, this operation does not include stopping the simulation, and consequently, Simoudis does not disclose the presently claimed invention.

Despite requests, no prior art has been produced as required by § 2144.03 of the MPEP. How can this aspect be well known when the Examiner cannot show this aspect in a single reference. It is not well known, and the Examiner is only using this faulty reasoning because no art can be found. No prior art exists.

None of the applied prior art references discloses or suggests the presently claimed invention including stopping the operation of the simulation if the difference is greater than a threshold value.

There is only one place that this is taught, and this is in the Applicants' specification. The Examiner has used impermissible hindsight to reject

Appeal No. 1999-2681
Application No. 08/656,998

Applicants' claims. Applicants respectfully request the Honorable Board to reverse the Examiner's rejections.

In our view appellants arguments are quite broad and merely address the teachings of the references individually. We do not find these arguments persuasive. Appellants also argue and state that the examiner has relied upon hindsight in the rejection, but the argument does not provide an analysis of basis for this conclusion. Therefore, we do not find this argument persuasive. In light of appellants arguments, we have reviewed the examiner rejection to determine if the examiner has established a ***prima facie*** case of obviousness.

In our view, the examiner's statement of the rejection is similarly brief and fairly sweeping. (See answer at pages 3-5.) The examiner's statement of the rejection reiterates the examiner's position that it would have been obvious to one of ordinary skill in the art at the time of the invention to stop the simulation. The examiner repeats the citations to columns 2, 7, 8 and 9 of Simoudis to support the contention that the skilled artisan would have been motivated to stop or halt the simulation. In our view, the portions of Simoudis relied upon by the examiner does not support this contention. Furthermore, the examiner seems to be of the opinion that when a simulation system changes from a simulation mode of operation to a redesign mode, then the simulation is stopped or that it would have been obvious to skilled artisans to stop the simulation. (See answer at page

Appeal No. 1999-2681
Application No. 08/656,998

5.) We disagree with the examiner conclusions in the statement of the rejection.

Furthermore, the examiner has not set forth any convincing line of reasoning or statement of motivation to combine the teachings of the two references in the statement of the rejection.

While the examiner maintains that Simoudis teaches halting the execution, the examiner does not identify a teaching until page 7 of the answer in the response to argument section. The examiner cites to columns 1-2 of Simoudis to teach "halting the execution cycle." This is discussed with respect to the background of the invention and three other related patent applications of Simoudis which matured into U.S. Patent 5,218,557, U.S. Patent 5,283,857 and U.S. Patent 5,101,362, but no further explanation or discussion with respect to the simulation is mentioned. Similar to the examiner's statement of the rejection, there is no statement of a motivation to combine this teaching with those of Hyduke. Therefore, the examiner has not established a *prima facie* case of obviousness. Therefore, we cannot sustain the rejection of claims 1-7 under 35 U.S.C. § 103.

Furthermore, we have reviewed the teachings of these three patents which are incorporated into Simoudis, but we find no express teaching or suggestion of stopping or halting a simulation process. In our view, these three patents generally teach and suggest the redesign procedure in combination with the simulation and analysis of circuit operation, but these references provide no express teaching or suggestion of stopping or halting a

Appeal No. 1999-2681
Application No. 08/656,998

simulation process. Since the examiner has not established a motivation for the combination of the teachings, and the examiner has admitted that Hyduke alone is lacking and does not suggest the stopping of the simulation as a result of the comparison, the examiner has not established a *prima facie* case of obviousness. Therefore, we cannot sustain the rejection of claims 1-7 under 35 U.S.C. § 103.

The examiner also mentions a Patent to Smith 4,644,487, but the examiner has not applied this teaching in the rejection. As set forth in **In re Hoch**, 428 F.2d 1341, 1342 n. 3, 166 USPQ 406, 407 n. 3 (CCPA 1970), "[w]here a reference is relied on to support a rejection, whether or not in a 'minor capacity,' there would appear to be no excuse for not positively including the reference in the statement of the rejection." The examiner's action in citing Smith is therefore inappropriate. Accordingly, we have not considered it in our evaluation.

Appeal No. 1999-2681
Application No. 08/656,998

CONCLUSION

To summarize, the decision of the examiner to reject claims 1-7 under 35 U.S.C. § 103 is reversed.

REVERSED

MICHAEL R. FLEMING)	
Administrative Patent Judge)	
)	
)	
)	
)	
)	BOARD OF PATENT
JOSEPH L. DIXON)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
)	
)	
)	
STUART S. LEVY)	
Administrative Patent Judge)	

JD/RWK

Appeal No. 1999-2681
Application No. 08/656,998

TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265