

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

Paper No. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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**Ex parte** DEAN PAUL KOSSIVES,  
FAN REN, and  
KING LIEN TAI

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Appeal No. 2001-1115  
Application No. 08/946,693

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ON BRIEF

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Before PAWLIKOWSKI, MOORE and POTEATE **Administrative Patent**  
**Judges.**

PAWLIKOWSKI, **Administrative Patent Judge.**

**DECISION ON APPEAL**

This is an appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 12 through 21. We do not include claims 10 and 11 in this appeal.<sup>1</sup>

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<sup>1</sup>In the Substitute Brief filed on August 30, 2002, on page 2, appellants indicate that claims 10 and 11 have been withdrawn from consideration in this appeal. Accordingly, appellants only appeal the decision regarding claims 12 through 21. In Paper No. 19, the examiner acknowledged receipt of the Substitute Brief that was filed on August 30, 2002. The examiner also entered the after final amendment that was mailed on April 3, 2000. In that amendment, appellants cancelled claims 10 and 11. Therefore, claims 12

A copy of claim 12 is set forth below, with text in bold for emphasis only:

12. Integrated circuit device comprising:
- a. an integrated circuit (IC) chip,
  - b. a series of IC solder bonding sites on said integrated circuit chip,
  - c. at least one integrated circuit device contact located between each of said series of IC solder bonding sites and the next in said series of IC solder sites,
  - d. an interconnection substrate (IS) overlying at least said series of IC solder bonding sites, and attached to said integrated circuit chip,
  - e. a series of IS solder bonding sites on said interconnection substrate, said IS solder bonding sites aligned with said series of IC solder bonding sites,
  - f. a series of solder interconnections between said series of IC solder bonding sites and said series of IS solder bonding sites, and
  - g. an electrical connection comprising a printed circuit conductor exclusively interconnecting said series of IS solder bonding sites.**

Claims 10 through 12 stand rejected under 35 U.S.C. § 112, first paragraph (enablement).<sup>2</sup>

Claims 10, 11, and 15 stand rejected under 35 U.S.C. § 103 as being unpatentable over Marcantonio in view of Rostoker.

Claims 12 through 14 and 16 stand rejected under 35 U.S.C.

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through 21 are the appealed claims. We use the Substitute Brief in this decision.

<sup>2</sup> On page 6 of the brief, appellants state "apparently claims 10-21 was intended" in this rejection. However, our review of the final Office action of Paper No. 11 indicates that the examiner rejected only claims 10-12 in

§ 103 as being unpatentable over Marcantonio.

Claims 17 through 19 stand rejected under 35 U.S.C. § 103 as being unpatentable over Marcantonio and further in view of Agarwala.

Claim 20 stands rejected under 35 U.S.C. § 103 as being unpatentable over Marcantonio in view of Nagase.

Claim 21 stands rejected under 35 U.S.C. § 103 as being unpatentable over Marcantonio in view of Streit and further in view of appellants' admitted prior art as set forth in appellants' Figure 2.

#### **OPINION**

I. The U.S.C. § 112, first paragraph rejection (enablement) and Claim Interpretation

On page 2 of Paper No. 11, the examiner rejected claim 12 (as well as claims 10 and 11), stating that the specification does not disclose item g. of claim 12.

On pages 7 through 10 of the brief, appellants argue item g. of claim 12 (as well as item g. of claim 21) is enabled by appellants' specification. Appellants state that Figure 15 shows a printed circuit conductor 55 that exclusively interconnects the series or plurality of IS Solder bonding sites 64. Appellants also refer to Figure 13 as illustrating the same. Appellants also refer to page 10, lines 9 and 10 of their specification which states "an alternative arrangement using an interconnection substrate flip chip module as a pure crossover interconnection is shown in Fig. 14." Appellants argue that one skilled in the art would understand this to mean that the crossover exclusively interconnects crossover sites and nothing

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this rejection. Hence, we consider claim 12 in this rejection (claims 10 and 11 having been cancelled).

else. Appellants argue that there is no other reasonable meaning for "pure crossover interconnection." (Brief, page 9.)

The first paragraph of 35 U.S.C. § 112, with regard to enablement, requires that the specification enable a person having ordinary skill in the art to make and use the claimed invention. Further, enablement requires that the specification teach those having ordinary skill in the art to make and use the invention without "undue experimentation." In re Vaeck, 947 F.2d 488, 495-96, 20 USPQ2d 1483, 1444-45 (Fed. Cir. 1991). Also, it is well settled that the examiner has the burden of providing a reasonable explanation, supported by the record as a whole, why the assertions as to the scope of objective enablement set forth in the specification are in doubt, including reasons why the description of the invention in the specification would not have enabled one of ordinary skill in this art to practice the claimed invention without undue experimentation, in order to establish a prima facie case under the enablement requirement of the first paragraph of § 112. In re Wright, 999 F.2d 157, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993); In re Marzocchi, 439 F.2d 220, 223-24, 169 USPQ 367, 369-70 (CCPA 1971). We determine that the examiner has not met this burden for the following reasons.

Firstly, the examiner does not provide reasons why the description of the invention in the specification would not have enabled one of ordinary skill in this art to practice the claimed invention without undue experimentation. For example, the examiner's comments made on page 2 of Paper No. 11 in connection with this rejection do not include such reasons. Also, the examiner's comments made on page 4 of the Answer do not include such reasons. Also, in the reply brief, appellants argue that the examiner does not explain why one skilled in the

art would not know how to practice the invention based on the disclosure given. We agree.

Secondly, on pages 3-4 of the reply brief, appellants disagree with the examiner's interpretation of the word "pure" in connection with the disclosure found at lines 10 and 11 on page 10 of the specification. The examiner states that this word refers to the material used. (Answer, page 4.) We agree with appellants that this is an unreasonable interpretation made by the examiner of the word "pure" in the context of the specification. The examiner does not show where it is disclosed in the specification, that the word "pure", refers to the material used.

Hence, we agree with appellants that the phrase "pure crossover interconnection" found on page 10 at lines 9 through 10, and as illustrated in Figure 14, is an interconnection that only connects the solder bonding sites on the IC chip. It does not connect the IC chip to the outside world and therefore does not provide power and ground. In this context, appellants' claimed item g. regarding "exclusively interconnecting said series of IS solder bonding sites", is enabled by the specification as discussed above. We interpret the claims in this manner.

In view of the above, we reverse the 35 U.S.C. § 112, first paragraph (enablement) rejection.

II. The rejection of claims 12-14 and 16 under  
35 U.S.C. § 103

We consider claim 12 in this rejection.

The examiner's position is set forth on pages 4-5 of the Paper No. 11. With regard to item g. of claim 12, it is the examiner's position that items 28, 24 of Marcantonio, shown in Figure 1, satisfy this aspect of appellants' claims. On page 5 of the answer, it is clear that the examiner is interpreting the phrase "exclusively interconnecting" of claim 12 in a manner contrary to our claim interpretation discussed above.

On page 5 of the reply brief, appellants state that the term "exclusively" interconnecting defines the electrical interconnections provided on a pure crossover interconnection substrate, which is the essence the invention. As discussed above, the pure crossover connection is illustrated in appellants' Figure 14, and we interpret item g. of claim 12 in this manner.

A comparison of appellants' Figure 14 with a comparison of Figure 1 of Marcantonio indicates that in fact interconnect lines 24 and 28 do not exclusively interconnect the series of solder bonding sites 20. That is, these interconnect lines are connected to other circuitry (not only to bonding sites 20).

We also agree with appellants' comments made on page 12 of their Brief that it would have been unobvious to modify Marcantonio such that the runner 24 would just extend between the two solder pads 20 that are interconnected via 28, and not

extend to the edge of the portion of board as shown. Appellants state that such a modification would result in a non-functioning component. We agree.

In view of the above, we therefore reverse the rejection.

III. The rejection of claim 20 under 35 U.S.C. § 103

Because Nagase does not cure the deficiencies of Marcantonio as discussed above, we reverse this rejection.

IV. The rejection of claim 21 under 35 U.S.C. § 103 as being obvious over Marcantonio in view of Streit and further in view of appellants' admitted prior art

Because the secondary references of Streit and appellants' admitted prior art do not cure the aforementioned deficiencies of Marcantonio, we reverse this rejection.

V. The rejection of claims 10, 11, and 15

Because the secondary reference of Rostoker does not cure the aforementioned deficiencies of Marcantonio, we reverse this rejection.

VI. The rejection of claims 17 through 19 under 35 U.S.C. § 103 as being obvious over Marcantonio in view of Agarwala

Because the secondary reference of Agarwala does not cure the aforementioned deficiencies of Marcantonio, we reverse this rejection.

VII. Conclusion

We reverse the rejection of claim 12 under 35 U.S.C. § 112,  
first paragraph (enablement).

We reverse each of the art rejections.

**REVERSED**

BEVERLY A. PAWLIKOWSKI )  
Administrative Patent Judge )  
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) BOARD OF PATENT  
) APPEALS AND  
JAMES T. MOORE ) INTERFERENCES  
Administrative Patent Judge )  
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BAP/sld

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Application No. 08/946,693

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