IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of:	Tuominen
U.S. Patent No.:	7,732,909
Issue Date:	June 8, 2010
Appl. Serial No.:	11/797,609
Filing Date:	May 4, 2007
Title:	METHOD FOR EMBEDDING A COMPONENT IN A BASE

Mail Stop Patent Board
Patent Trial and Appeal Board
U.S. Patent and Trademark Office
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PETITIONER'S NOTICE RANKING AND EXPLAINING MATERIAL DIFFERENCES BETWEEN PETITIONS FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 7,732,909

Petitioner is filing two concurrent Petitions challenging the validity of all claims of U.S. Patent No. 7,732,909 ("the '909 patent"). Pursuant to the Board's July 2019 Trial Practice Guide Update, Petitioner submits this paper to "identify: (1) a ranking of the Petitions in the order in which it wishes the Board to consider the merits…, and (2) a succinct explanation of the differences between the Petitions, why the issues addressed by the differences are material, and why the Board should exercise its discretion to institute additional petitions."

I. Ranking of Petitions

Although Petitioner believes that both Petitions are meritorious and justified, Petitioner requests that the Board consider the Petitions in the following order:

Rank	Petition	Primary References	Claims
1	**IPR2025-00576**	Asahi / Hayashi	1-33
2	**IPR2025-00577**	McCormack / Sakamoto	1-33

II. Factors Supporting Institution, Including Material Differences

Material differences exist between the petitions, which are non-redundant at least in their reliance on different combinations of references that demonstrate the obviousness of the Challenged Claims in materially different ways.

As the claims are directed to a "circuit board," the art applied in the petitions plainly addresses each and every element of the claims. But Petitioner is cognizant that Patent Owner may assert that the claims should be interpreted to

require temporal aspects related to various structural components, such as, for example, the "at least one microcircuit" being first embedded in the insulating material layer before "forming electrical contacts between the contact areas of the microcircuit." To account for such positions, petitioner advances references that present alternative manufacturing techniques and sequences, and this alternative mapping inspired the need for two petitions.

In greater detail, **IPR2025-00576** relies on each of Asahi and Hayashi as primary references. Asahi describes a "component built-in module" and a manufacturing technique that involves "a sealing resin" that is "injected between the semiconductor 703 and the wiring pattern 702a." APPLE-1006, 15:50-17:44.

Hayashi describes "a wiring substrate with a mounted electrical element" and "a manufacturing method for such a wiring substrate" that involves "flow of resin caused by heating" so that an "insulating layer and the chip were bonded closely together." APPLE-1011, [0001], [0040].

In contrast, **IPR2025-00577** relies on McCormack and Sakamoto as primary references. McCormack describes a manufacturing process that involves applying a dielectric layer over an integrated circuit component, and subsequently forming openings through the dielectric layer "to expose pads 26 of the integrated circuit component 20" and so that openings can be "metal-lined with a suitable metal (e.g., copper) 72 into electrical contact with pads 26." APPLE-1005, Abstract,

[0032]. Sakamoto also describes manufacturing techniques that involve connecting a conductive circuit to an IC chip through an interlayer resin insulating layer. APPLE-1004, Abstract, [0018], [0020], [0028], [0031].

While the Asahi and Hayashi grounds (**IPR2025-00576)** and the McCormack and Sakamoto grounds (**IPR2025-00577)** both disclose each element of the challenged claims, these distinct primary references disclose the claimed features, and combine with secondary references, in materially different ways. The references presented in the two petitions materially differ, with Asahi and Hayashi describing modules made using different techniques than McCormack and Sakamoto, yet each ground results in a structure encompassed by the claims of the '909 patent despite these material distinctions. The petitions are thus not redundant, duplicative, or substantially similar. Rather, each petition compellingly demonstrates the unpatentability of the Challenged Claims, without repeating the same theory. The ability to completely address the Challenged Claims with meaningfully different references describing different techniques highlights the overbreadth of the Challenged Claims and the appropriateness of two petitions.

In view of the material differences shown above, petitioner asks the Board to exercise its discretion to institute both Petitions—both Petitions are necessary to show the breadth of prior art that reads on the overly broad claims.

To be clear, this is not a situation in which all challenges should reasonably be included in a single petition. Both petitions challenge 33 claims. The number of claims prevent adequate treatment of these grounds in a single petition. Appropriately addressing the volume of claims necessitates additional analysis accommodated by a second petition.

Additionally, given the overlap in the analysis of the '909 patent, consideration of a second petition does not present undue burden on the Board or Patent Owner, and two petitions facilitates clarity in the presentation of the issues. Petitioner has purposefully used Eiji as a secondary reference for common elements in the two petitions, streamlining review by the Board and Patent Owner.

Finally, and critically, each Petition provides a strong showing of unpatentability. Instituting on only one Petition would give Patent Owner an unfair advantage, allowing Patent Owner to strategically attempt to distinguish its claims over the instituted prior art, such as based on claim construction arguments noted above, even if those same arguments would effectively show invalidity over the non-instituted prior art. Indeed, the overbreadth of the claims is highlighted by the compelling showing of unpatentability based on modules made using distinct techniques. In addition, Petitioner requests consolidation of the two proceedings, as permitted by 35 U.S.C. §§ 315(d) and 325(d) to simplify the complexity of the proceedings.

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