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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SRINIVASAN RAMANI and KARTIK SUDEEP

Appeal 2010-007261[1]
Application 11/566,187
Technology Center 2100

Before JEAN R. HOMERE, JOHNNY A. KUMAR, and LARRY J. HUME, *Administrative Patent Judges*.

HOMERE, *Administrative Patent Judge*.

DECISION ON APPEAL

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[1] The real party in interest is International Business Machines Corp. (App. Br. 2.)

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1-6, and 8-20. Claim 7 has been canceled. (App. Br. 4.) We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

Appellants' Invention

Appellants invented a method for caching data in a multiprocessor system. (Spec., (¶ [0001]).) In particular, upon a first processor exceeding a predetermined threshold number of data accesses in the cache of a second processor, the accessed data is copied to the cache of the first processor. (Spec., ¶ [0017].)

Illustrative Claim

Independent claim 1 further illustrates the invention as follows:

> 1. A method for caching data in a multiprocessor system including a first processor and a second processor, the method comprising:
>
> generating a memory access request for data, the data being required for a processor operation associated with the first processor;
>
> responsive to the data not being cached within a first cache associated with the first processor, snooping a second cache associated with the second processor to determine whether the data has previously been cached in the second cache as a result of an access to that data from the first processor;
>
> setting an access threshold for the data cached within the second cache, the access threshold indicating a number of accesses of the data cached within the second cache that is required prior to the data being copied from the second cache associated with the second processor to the first cache associated with the first processor; and
>
> responsive to the data being cached within the second cache associated with the second processor, and responsive to the number of

accesses of the data cached within the second cache exceeding the access threshold, passing the data from the second cache to the first processor.

Prior Art Relied Upon

The Examiner relies on the following prior art as evidence of unpatentability:

Wilson	US 6,839,739 B2	Jan. 4, 2005
Wang	US 2005/0027941 A1	Feb. 3, 2005
Luick	US 2005/0071564 A1	Mar. 31, 2005

Rejections on Appeal

The Examiner rejects the claims on appeal as follows:

1. Claims 1-3, 8, 10, 11, 16, and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Wang and Wilson.
2. Claims 4-6, 9, 12-15, and 18-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Wang, Wilson, and Luick.

ANALYSIS

We consider Appellants' arguments *seriatim* as they are presented in the principal Brief, pages 10-19.

Dispositive Issue: Have Appellants shown that the Examiner erred in finding that the combination of Wang and Wilson teaches or suggests "responsive to the number of accesses of the data cached within the second

cache exceeding the access threshold, passing the data from the second cache to the first processor," as recited in claim 1?

Appellants argue that neither Wang nor Wilson teaches or suggests the disputed limitations emphasized above. In particular, Appellants argue that Wilson discloses a counter for counting accesses of a page within the main memory before the page is initially inserted into the cache, whereas the claim requires counting accesses by a first processor of a page already in a cache assigned to a second processor. (App. Br. 14-15.) Therefore, according to Appellants, while Wilson discloses a page access threshold for data in main memory, Wilson does not teach an access threshold for pages within a cache. (*Id*. at 15.) Therefore, Appellants submit that Wilson does not cure the deficiencies of Wang to render claim 1 unpatentable. (*Id*.)

In response, the Examiner finds that Wilson's disclosure of a cache counter in the memory of a second processor, responsive to detecting that a first processor has exceeded a threshold number of accesses in the memory of the second processor, copies the accessed data to the memory of the first processor teaches the disputed limitations. (Ans. 21-23.)

On the record before us, we agree with the Examiner's findings and ultimate conclusion of obviousness. We note at the outset that Appellants do not dispute the Examiner's finding that Wilson discloses copying accessed data from a second memory to a first memory upon detecting that a first computer associated with the first memory has exceeded an access threshold for data stored in a second memory associated with a second computer.

Rather, Appellants dispute the Examiner's finding that Wilson's disclosure of setting the data access threshold for a main memory does not teach setting the claimed data access threshold for a cache.

First, we agree with the Examiner that one of ordinary skill in the art would have readily recognized that, because Wilson's disclosed technique to improve the main memory could be similarly used to improve the cache, which is also a memory, Wilson's disclosure renders the claimed technique obvious. (Ans. 20.) Further, we agree with the Examiner that Appellants have mounted an individual attack against the Wang and Wilson references as opposed to dealing with the proffered combination. (*Id*.) In particular, because Wang discloses allowing processors to access each other's caches (¶ [0059]), and Wilson discloses copying data from the memory of a second processor to the memory of a first processor another upon detecting that the first processor has exceeded a predetermined threshold of accesses (col. 6, ll. 14-24), we find that the combination of these two references would have predictably resulted in the disputed limitations. Appellants are reminded that one cannot show nonobviousness by attacking the references individually where the rejections are based on combinations of references. *In re Merck & Co*., 800 F.2d 1091, 1097 (Fed. Cir. 1986). Here, the respective references relied on by the Examiner must be read, not in isolation, but for what the combination teaches or suggests when considered as a whole. We find nonetheless that the cumulative weight and the totality of the evidence on this record favor the Examiner's position that the

combined disclosures of Wilson and Wang teach or suggest the disputed limitations as detailed above.

Because the Examiner's response as set forth in the Answer has rebutted Appellants' arguments by a preponderance of the evidence, we find that Appellants have not shown error in the Examiner's conclusion that the proffered combination renders claim 1 unpatentable.

Regarding the rejections of claims 2-6 and 8-20, because Appellants have reiterated the same arguments presented for patentability of claim 1, claims 2-6 and 8-20 fall together therewith for the same reasons set forth above. *See* 37 C.F.R. § 1.37(c)(1)(vii).

DECISION

We affirm the Examiner's rejections of claims 1-6 and 8-20 as set forth above.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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