

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

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

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*Ex parte* Michael B. Jacobson

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Appeal No. 2006-1332  
Application No. 09/548,687

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ON BRIEF

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Before HAIRSTON, KRASS, and BARRY, *Administrative Patent Judges*.  
BARRY, *Administrative Patent Judge*.

A patent examiner rejected claims 1-6 and 9-22. The appellant appeals therefrom under 35 U.S.C. § 134(a). We affirm.

I. BACKGROUND

The invention at issue on appeal concerns distributed data processing. In some computer systems, storage controllers are connected between a host and storage devices. Each storage controller is associated with, and responsible for the control of, a particular group of storage devices. Although each storage controller is familiar with the status of its associated storage devices, it is unaware of the existence or status of the storage devices associated with the other storage controllers. Consequently, the host

must determine the appropriate storage controller to handle each request for data and send the request to the appropriate storage controller. (Spec. at p. 2, ll. 10-18.)

In contrast, the appellant's invention removes the task of distributing workload from a host. More specifically, each processor in his data storage system is aware of the other processors and the storage redundancy groups associated therewith. If one of the processors is not the appropriate processor to handle a request for access to data, the processor can forward the request to the appropriate processor for handling. (*Id.*, p. 13, ll. 13-20.)

A further understanding of the invention can be achieved by reading the following claims.

1. A method of distributing data access tasks, the method comprising:

receiving a request to perform a data access task, wherein the request is received by a first processor in a multi-processor storage controller, and wherein the first processor is responsible for data access tasks associated with a first storage device coupled to the multi-processor storage controller;

the first processor identifying an appropriate processor in the multi-processor storage controller to process the request;

the first processor processing the request if the first processor is the appropriate processor to process the request; and

if the first processor is not the appropriate processor to process the request, the first processor forwarding the request to the appropriate processor in the multi-processor storage controller, the appropriate processor being responsible for data access tasks associated with a second storage device coupled to the multi-processor storage controller.

4. A method as recited in claim 1, wherein identifying an appropriate processor in the multi-processor storage controller includes applying a striping process that distributes data access tasks between the first processor and the second processor.

Claims 1-3 and 5 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,239,643 ("Blount"). Claims 1-3, 5, 9, 10, 12-18, 20, and 21 stand rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 6,453,354 ("Jiang"). Claims 4, 6, 11, 19, and 22 stand rejected under 35 U.S.C. 103(a) as obvious over Jiang and U.S. Patent No. 6,128,762 ("Jadav").

## II. OPINION

Our opinion addresses the rejections in the following order:

- rejection of claims 1-3 and 5 by Blount
- rejection of claims 1-3, 5, 9, 10, 12-18, 20, and 21 by Jiang
- rejection of claims 4, 6, 11, 19, and 22 over Jiang and Jadav.

A. REJECTION OF CLAIMS 1-3 AND 5 BY BLOUNT

"When multiple claims subject to the same ground of rejection are argued as a group by appellant, the Board may select a single claim from the group of claims that are argued together to decide the appeal with respect to the group of claims as to the ground of rejection on the basis of the selected claim alone. Notwithstanding any other provision of this paragraph, the failure of appellant to separately argue claims which appellant has grouped together shall constitute a waiver of any argument that the Board must consider the patentability of any grouped claim separately." 37 C.F.R.

§ 41.37(c)(1)(vii) (Sep. 30, 2004). When the patentability of dependent claims in particular is not argued separately, the claims stand or fall with the claims from which they depend. *In re King*, 801 F.2d 1324, 1325, 231 USPQ 136, 137 (Fed. Cir. 1986); *In re Sernaker*, 702 F.2d 989, 991, 217 USPQ 1, 3 (Fed. Cir. 1983).

Here, the appellant argues claims 1-3 and 5, which are subject to the same ground of rejection, as a group. (Appeal Br. at 6-9.) Therefore, we select claim 1 as the sole claim on which to decide the appeal of the group.

With this representation in mind, "[r]ather than reiterate the positions of the examiner or the appellant *in toto*, we focus on the point of contention therebetween." *Ex*

*parte Kaysen*, No. 2003- 0553, 2004 WL 1697755, at \*2 (Bd.Pat.App & Int. 2004). The examiner makes the following findings.

Blount . . . teaches the first processor [owner (access coordinator) of the page requested] receiving a request of a page determines locations of the page requested. The first processor by checking Virtual Shared Memory Table (VSMT) checks that the first processor [unit 1OA] has the page on its disk and other processor [unit 1OB] also has a copy of the page in its main memory; even though the first processor has the page on its disk, the first processor identifies the first processor is not an appropriate processor because of a relatively long disk I/O operation to retrieve the page from its disk; then, the first processor identifies the other processor [unit 1OB] having a copy of the page is the appropriate processor to process the request [see col. 6, lines 43-47, col. 9, line 61-col. 10, line 36]. The first processor checks that if the first processor only has the page, the first processor is the appropriate processor to process the request [see col. 6, lines 6-13].

(Examiner's Answer at 9-10.) The appellant argues, "The process described in the Examiner's Answer selects among multiple processors, all of which are capable of handling the request. Thus, there is no 'appropriate' processor as used in claim 1."

(Reply Br. at 3.)

In addressing the point of contention, the Board conducts a two-step analysis. First, we construe the representative claim at issue to determine its scope. Second, we determine whether the construed claim is anticipated.

### 1. Claim Construction

"Analysis begins with a key legal question — *what is the invention claimed?*" *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1567, 1 USPQ2d 1593, 1597 (Fed. Cir. 1987). In answering the question, "the PTO gives claims their 'broadest reasonable interpretation.'" *In re Bigio*, 381 F.3d 1320, 1324, 72 USPQ2d 1209, 1211 (Fed. Cir. 2004) (quoting *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1668 (Fed. Cir. 2000)).

Here, claim 1 recites in pertinent part the following limitations: "identifying an appropriate processor in the multi-processor storage controller to process the request. . . ." Giving the representative claim its broadest, reasonable construction, the limitations require identifying an appropriate processor to service a request.

### 2. Anticipation Determination

"Having construed the claim limitations at issue, we now compare the claims to the prior art to determine if the prior art anticipates those claims." *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349, 64 USPQ2d 1202, 1206 (Fed. Cir. 2002). "[A]nticipation is a question of fact." *Hyatt*, 211 F.3d at 1371, 54 USPQ2d at 1667 (citing *Bischoff v. Wethered*, 76 U.S. (9 Wall.) 812, 814-15 (1869); *In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997)). "A reference anticipates a

claim if it discloses the claimed invention 'such that a skilled artisan could take its teachings in combination with his own knowledge of the particular art and be in possession of the invention.'" *In re Graves*, 69 F.3d 1147, 1152, 36 USPQ2d 1697, 1701 (Fed. Cir. 1995) (quoting *In re LeGrice*, 301 F.2d 929, 936, 133 USPQ 365, 372 (CCPA 1962)). Of course, anticipation "is not an 'ipsissimis verbis' test." *In re Bond*, 910 F.2d 831, 832, 15 USPQ2d 1566, 1567 (Fed. Cir. 1990) (citing *Akzo N.V. v. United States Int'l Trade Comm'n*, 808 F.2d 1471, 1479 & n.11, 1 USPQ2d 1241, 1245 & n.11 (Fed. Cir. 1986)). "An anticipatory reference . . . need not duplicate word for word what is in the claims." *Standard Havens Prods. v. Gencor Indus.*, 953 F.2d 1360, 1369, 21 USPQ2d 1321, 1328 (Fed. Cir. 1991).

Here, Blount discloses "a shared virtual memory type data processing system comprising a plurality of virtual memory type data processing units interconnected in a cluster configuration. . . ." (Col. 4, l. 66 - col. 5, l. 2.) "As shown in FIG. 1 [of the reference], the data processing system comprises a plurality of processor units 10. . . ." (Col. 8, ll. 7-8.) Each processor unit, i.e., processor, 10A - 10D includes a main memory ("MM") 17, (*id.* at ll. 24-26), and a "remote memory manager function," (col. 9, l. 59). A disk drive 24 is attached to each processor. (Col. 8, ll. 29-32),

We find that Blount's remote memory manager function identifies an appropriate processor to service a request. To wit, "[t]he function of the remote memory manager of processor unit 10A for example, is to process a request for a virtual page P of data from the remote memory manager function of processor unit 10B." (*Id.* at ll. 61-65.) "To process the request for page P, the remote memory manager function first determines if the requested page is in the main memory of the unit 10A." (Col. 9, l. 67- col. 10, l. 2.) "If the page P is there," (col. 10, l. 2), the remote memory manager function identifies processor 10A as the appropriate processor to service the request and "a copy Pb is returned to unit 10B . . . ." (Col. 10, ll. 2-3.) Furthermore, "a data structure referred to as the Virtual Shared Memory Table (VSMT) and shown in FIG. 7, records the fact that unit 10B has a copy of the requested page in its main memory." (*Id.* at ll. 3-6.)

"A slightly more involved operation occurs if it is assumed that the requested page Pa is paged out of the main memory of [processor] unit [10]A so that the only copy in any main memory is the copy Pb that was previously sent to [processor] unit [10]B." (*Id.* at ll. 14-19.) "Assume now that unit C requests a copy of the same page from unit A. Unit A does have a copy of the requested page P on disk, but this would require a relatively long disk I/O operation to retrieve it and forward it to unit C." (*Id.* at ll. 19-23.) The remote memory manager of processor unit 10A consequently "checks the [VS]MT data structure for the virtual address of the requested

page Pb and is advised that a copy Pb is still in the main memory of unit 10B.

The remote memory manager of unit 10A therefore sends a message to the remote memory manager of unit 10B, requesting that unit 10B send a copy of the page Pb to the remote memory manager of unit 10C." (*Id.* at ll. 29-36.) Because processor 10B could service the request faster than processor 10A, we find that the remote memory manager identified the former as the appropriate processor to service the request. Therefore, we affirm the rejection of claim 1 by Blount and of claims 2, 3, and 5, which fall with claim 1.

#### B. REJECTION OF CLAIMS 1-3, 5, 9, 10, 12-18, 20, AND 21 BY JIANG

The appellant argues claims 1-3 and 5 as a group, (Appeal Br. at 9-12), claims 9, 10, and 12-15 as group, (*id.* at 12-13), and claims 16-18, 20, and 21 as group. (*Id.* at 14-15). All these claims are subject to the same ground of rejection. Therefore, we select claims 1, 9, and 16 as the sole claims on which to decide the appeal of the respective groups.

The examiner finds, "Jiang et al teach [that] a . . . first processor is responsible [col. 1, line 63 - col. 2, line 17] for data access tasks associated with a first storage device [e.g., file system 23 in fig. 1] coupled to the multi-processor storage controller. . . ." (Examiner's Answer at 4.) The appellant argues, "claim 1 recites a multi-processor

storage controller that is separate from the first storage device. This arrangement is not disclosed by the arrangement described in the Examiner's Answer. . . ." (Reply Br. at 4.)

### *1. Claim Construction*

Claim 1 recites in pertinent part the following limitations: "a first processor **in** a multi-processor storage controller, and wherein the first processor is responsible for data access tasks associated with a first storage device coupled to the multi-processor storage controller . . . and . . . the appropriate processor **in** the multi-processor storage controller, the appropriate processor being responsible for data access tasks associated with a second storage device coupled to the multi-processor storage controller." (Emphases added.) Claims 9 and 16 recite similar limitations. Giving the representative claims their broadest, reasonable construction, the limitations require a multi-processor storage controller that includes at least two processors and is attached to at least two storage devices.

### *2. Anticipation Determination*

Jiang discloses "a network file server system having at least two data mover computers 21 and 22. (Col. 1, ll. 63-64.) Because "[t]he first data mover 21 has exclusive access to read/write files in a first file system 23, and the second data mover 22 has exclusive access to read/write files in a second file system 24," (col. 1, ll. 64-67), we find that the data mover computers collectively constitute a storage controller attached to at least two storage devices. Because each data mover computer "includ[es] a data processor 201," (col. 20, ll. 34-35), we further find that the data mover computers collectively constitute a multi-processor storage controller that includes at least two processors. Therefore, we affirm the rejection of claims 1, 9, and 16 by Jiang and of claims 2, 3, 5, 10, 12-15, 17, 18, 20, and 21, which fall therewith.

#### C. REJECTION OF CLAIMS 4, 6, 11, 19, AND 22 OVER JIANG AND JADAV

The appellant argues claims 4 and 19, which are subject to the same ground of rejection, as a group. (Appeal Br. at 15-17.) Therefore, we select claim 4 as the sole claim on which to decide the appeal of the group.

The examiner finds, "Jadav teaches a multi-processor storage controller [node: col. 3, lines 41-43] having multiple processors [e.g., multiple adaptors, multiple processors] applies a striping process [col. 1, lines 38-40; col. 3, lines 31-32] that distributes [col. 2, lines 31-39; col. 7, lines 29-40] data access tasks between a first

processor and a second processor." (Examiner's Answer at 12.) The appellant argues, "This striping of data files and related parity is not the same as distributing data access tasks between the first processor and the second processor." (Reply Br. at 5.)

### 1. Claim Construction

"[A] claim construction analysis must begin and remain centered on the claim language itself. . . ." *Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.*, 381 F.3d 1111, 1116, 72 USPQ2d 1001, 1004 (Fed. Cir. 2004). "Moreover, limitations are not to be read into the claims from the specification." *In re Van Geuns*, 988 F.2d 1181, 1184, 26 USPQ2d 1057, 1059 (Fed. Cir. 1993) (citing *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989)). Here, contrary to the appellant's argument, neither claims 6, 11, nor 19 recite distributing data access tasks. These claims merely recite striping data across multiple storage devices. Because the appellant admits that "Jadav is related to striping data files and related parity across multiple disk drives," (Reply Br. at 5), we affirm the rejection of claims 6, 11, and 19 over Jiang and Jadav.

In contrast, representative claim 4 recites in pertinent part the following limitations: "applying a striping process that distributes data access tasks between the first processor and the second processor." The claim language itself does not recite

distributing data access tasks between the first processor and the second processor, as implied by the appellant's argument, but instead recites applying a striping, the result of which is to distribute data access tasks between the two processors. The appellant's specification confirms this distinction by explaining that "sharing of the data access workload is accomplished using a dynamic workload distribution policy such as data striping between the redundancy groups. Data striping refers to the segmentation of a sequence of data (such as a single file) such that each segment is stored on a different storage device in a cyclical manner." (Spec., p. 12, ll. 3-7.)

## 2. Obviousness Determination

"Having determined what subject matter is being claimed, the next inquiry is whether the subject matter would have been obvious." *Ex Parte Massingill*, No. 2003-0506, 2004 WL 1646421, at \*3 (Bd.Pat.App & Int. 2004). The question of obviousness is "based on underlying factual determinations including . . . what th[e] prior art teaches explicitly and inherently. . . ." *In re Zurko*, 258 F.3d 1379, 1383, 59 USPQ2d 1693, 1696 (Fed. Cir. 2001) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966); *In re Dembiczak*, 175 F.3d 994, 998, 50 USPQ2d 1614, 1616 (Fed. Cir. 1999); *In re Napier*, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995)). "A *prima facie* case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a

person of ordinary skill in the art." *In re Bell*, 991 F.2d 781, 783, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993) (quoting *In re Rinehart*, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976)). "After a *prima facie* case of obviousness has been established, the burden of going forward shifts to the applicant." *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984).

As mentioned regarding claims 6, 11, and 19, the appellant admits that Jadav teaches data striping across multiple disk drives. Furthermore, the appellant has not addressed, let alone shown error in, the examiner's finding that the reference also distributes data access tasks between processors. For its part, Jadav supports this finding by teaching that a "first processing unit performs an update after determining that the first processing unit controls access to the parity group," (col. 2, ll. 37-39), whereas the "first processing unit transmits the data update to a second processing unit after determining that the first processing unit does not control access to the parity group. The second processing unit performs an update after receiving the data update from the first processing unit." (*Id.* at ll. 32-27.) Therefore, we affirm the rejection of claim 4 and of claim 22, which falls therewith, over Jiang and Jadav.

### III. CONCLUSION

In summary, the rejections of claims 1-3, 5, 9, 10, 12-18, 20, and 21 under § 102 are affirmed. The rejection of claims 4, 6, 11, 19, and 22 under § 103 is also affirmed.

"Any arguments or authorities not included in the brief or a reply brief filed pursuant to § 41.41 will be refused consideration by the Board, unless good cause is shown." 37 C.F.R. § 41.37(c)(1)(vii). Accordingly, our affirmance is based only on the arguments made in the briefs. Any arguments or authorities omitted therefrom are neither before us nor at issue but are considered waived. *Cf. In re Watts*, 354 F.3d 1362, 1367, 69 USPQ2d 1453, 1457 (Fed. Cir. 2004) ("[I]t is important that the applicant challenging a decision not be permitted to raise arguments on appeal that were not presented to the Board.") No time for taking any action connected with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

KENNETH W. HAIRSTON  
Administrative Patent Judge

ERROL A. KRASS  
Administrative Patent Judge

LANCE LEONARD BARRY  
Administrative Patent Judge

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