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was **not** written for publication in a law journal and
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Paper No. 28

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BRIAN L. BERGESON,
ZOHAR BOGIN and VINCENT E. VONBOKERN

Appeal No. 2003-0186
Application No. 09/033,529

ON BRIEF

Before JERRY SMITH, BARRETT, and NAPPI, **Administrative Patent
Judges.**

NAPPI, **Administrative Patent Judge.**

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the
examiner's rejection of claims 1 to 6, 15-25 and 29-39.

The Invention

The invention relates to a method and device for controlling data access
requests in a computer system. The method is for use in computer systems
with accelerated graphics port (AGP) devices. These AGP devices are given a

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higher priority (expedite) access to the computer memory than other devices in the computer. Other devices are given a lower priority (non-expedite) access to the computer memory. To prevent expedite device requests from starving out the requests from non-expedite devices, the expedite requests are throttled, see appellants' specification page 5. The step of throttling includes monitoring requests made to the system memory during a monitoring window, see page 7 of appellants' specification. Two counters are used in monitoring the requests for system memory, the first counter monitors the monitoring window period cycles and the second counter monitors the non-expedite period cycles, see pages 9 and 11 of appellants' specification and figure 2c. The counters are compared and if they are equal, the expedite status of requests is masked, appellants' figure 3 is a flow chart of this process. Thus, expedite requests are lowered to allow other devices to compete for access to system memory, see page 11 of appellants' specification.

Claim 1 is representative of the invention and is reproduced below

1. A method comprising:

monitoring expedite and non-expedite requests in a monitoring window having a predetermined duration to determine a number of clock cycles for the expedite and non-expedite requests, the number of cycles for the non-expedite requests being monitored by a non-expedite counter;

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arbitrating between the expedite and non-expedite requests;
and

processing the non-expedite requests for a guaranteed
number of clock cycles in the monitoring window.

References

Barnaby et al.	6,006,303	Dec. 21, 1999
Horan et al.	5,936,640	Aug. 10, 1999
Hogg et al.	5,463,624	Oct. 31, 1995

Rejections at Issue

Claims 1, 3 and 4 stand rejected under 35 U.S.C. § 102 as being anticipated by Barnaby et al. Claim 2 stands rejected under 35 U.S.C. § 103 as being obvious over Barnaby et al. in view of Horan et al. Claims 5, 6, 15-21 and 29-35 stand rejected under 35 U.S.C. § 103 as being obvious over Barnaby et al. in view of Hogg et al. Claims 22-25, 36-39 stand rejected under 35 U.S.C. § 103 as being obvious over Barnaby et al. in view of Hogg et al. and Horan et al. Rather than repeat the arguments of appellants or the examiner we make reference to the appeal brief and the examiner's answer for the respective details thereof.

Opinion

With full consideration being given to the subject matter on appeal the examiner's rejection and the arguments of the appellants and the examiner, for the reasons stated infra we will not sustain the examiner's rejection of Claims 1, 3 and 4 under 35 U.S.C. § 102 nor the rejection of Claims 2, 5, 6, 15-25 and 29-39 under 35 U.S.C. § 103.

In order to consider the examiner's application of the applied prior art to the appealed claims, we must first interpret the claims in light of the written description in appellants' specification as it would be interpreted by one of ordinary skill in this art. See generally, In re Hyatt, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000); In re Morris, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); In re Zletz, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989).

Independent claim 1 includes the limitation "the number of cycles for the non-expedite requests being monitored by a non expedite counter." Independent claims 15 and 29 contain similar limitations.

We interpret the scope of these limitations to include a monitoring step that observes the total amount of time to perform non-expedite requests.

In making this finding we look to both the plain meaning of the words used in the claim and the appellants' specification. The term "monitoring" and

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“request” are not directly defined in the appellants’ specification. We interpret these terms as having their plain meaning. The plain meaning of “monitoring” is “to observe”, which is consistent with the use of the word in the appellants’ specification (see for example page 7 lines 24-26). The plain meaning of “request” is “the act of asking for something to be done” which is also consistent with the use of the word in the appellants’ specification (used in the context of requests to access system memory, see appellants’ specification page 6, lines 10- 17). The term “clock cycles” is also not defined directly in the specification, however its customary meaning as a measure of time is consistent with the use of the term in the specification, (see for example page 13 line 19 which discusses the counter to measure the period of the monitoring window as 500 clock cycles).

Finally, we find that in the limitation “the number of cycles for the non-expedite requests being monitored by a non expedite counter” the use of plural, “requests” and the singular “counter” necessarily implies that the claimed counter counts the total of the cycles for all the non-expedite requests. Further, we find that in the context of the independent claims, clock cycles is the amount of time to perform the request and not the amount of time that requests have been pending. The last limitation of claim 1 “processing the non-expedite requests for

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a guaranteed number of clock cycles in the monitoring window” precludes the term “clock cycles” from being construed as the amount of time that a request has been pending. Independent claims 15 and 29 contain similar limitations.

We next turn to analysis of the rejection under 35 U.S.C. § 102.

Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention as well as disclosing structure which is capable of performing the recited functional limitations. RCA Corp. v. Applied Digital Data Systems, Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984); cert. dismissed, 468 U.S. 1228 (1984); W.L. Gore and Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1554, 220 USPQ 303, 313 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

The Examiner has rejected Claim 1 over Barnaby et al. In considering Barnaby et al. we find the following. Barnaby teaches a priority encoding scheme that takes into account the different requirements of the various devices (see abstract). Priority of a device’s request is determined using a priority encoder, which performs the priority count accumulation (see column 15, lines 20-25). Each device has its own priority curve that shows the progression of the priority count as latency changes (see column 17, lines 31-35, see also figures 2 and 5). This priority curve is calculated for each device based upon various

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criteria of the device which are outlined in columns 19 and 20, the criteria include whether the device is a low priority “no-impact” (column 20, lines 66-67), or a “real time (point of failure)” (see column 20, lines 36-44) and bandwidth required (see column 18, lines 55 to 64) . The priority curve is divided into three regions (see column 17, lines 34-35). Both the region of the device’s priority curve and the value of the priority counter are used to determine which device’s request will be processed (see column 17, lines 54-67). The priority of a request increases as time goes on (see figures 2 and 4).

The appellants have argued, on page 8 of the brief, that Barnaby does not disclose monitoring the non-expedite requests by a non-expedite counter. We agree. On page 10 of the answer the examiner provides the following explanation:

Barnaby explicitly discloses that all clients are measured for memory usage in a window of time and that for all clients latency and bandwidth requirements are calculated at col. 17 lines 16-23 and col. 19 lines 47-52. Barnaby then discloses that the window of time where all clients are measured for memory usage is defined as the interval of bandwidth and latency measurements col. 19 lines 47-52. Therefore, memory usage is defined by bandwidth and latency which is in turn measured in terms of time and number of clock cycles. Also measuring implies counters; and as all clients including those issuing non-expedite requests are measured, non-expedite requests are measured with counters that may be termed non-expedite counters.

As stated above we find that the scope of claim 1 includes that the non-expedite counter is monitoring total time to perform non-expedite requests. The examiner has not shown where Barnaby teaches this limitation. We find that

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measuring latency, the amount of time a request is pending, is not the same as monitoring the amount of time to perform a request. Further, we find no counter in Barnaby et al. which measures the total amount of time to perform the requests of one specific priority.

Accordingly we will not sustain the examiner's rejection of claims 1, 3 and 4 over Barnaby et al.

Next we consider the rejections based upon 35 U.S.C. § 103. It is the burden of the examiner to establish why one having ordinary skill in the art would have been led to the claimed invention by the express teachings or suggestions found in the prior art, or by the implication contained in such teachings or suggestions. In re Sernaker, 702 F2d 989, 995, 217 USPQ 1, 6 (Fed. Cir. 1983). "Additionally, when determining obviousness, the claimed invention should be considered as a whole; there is no legally recognizable "heart" of the invention." Para-Ordnance MFG. V SGS Importers Int'l Inc., 73 F3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995) (citing W.L. Gore & Assocs., Inc. Garlock, Inc., 721 F2d 1540, 1548, 220 USPQ 303, 309 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984)).

We first consider the rejection of claim 2 under 35 U.S.C. § 103 as being unpatentable over Barnaby et al in view of Horan et al. Claim 2 is dependent upon claim 1, and necessarily includes the limitation of a non-expedite counter

as addressed above. On page 5 of the answer, the examiner states that Horan et al. is relied upon to teach the limitations of “high priority advance graphics port (AGP) cycles.” The examiner has not shown that Horan et al. teaches the limitation of the non-expedite counter. Accordingly, we will not sustain the rejection of claim 2 under 35 U.S.C. § 103, as it contains the same deficiencies as noted in the rejection of claim 1 under 35 U.S.C. § 102.

Next, we consider the rejection of claims 5, 6, 15-21¹ and 29-35 under 35 U.S.C. § 103 as being unpatentable over Barnaby et al and Hogg et al.

Appellants argue on page 10 of the brief that

Hogg does not disclose, suggest or render obvious monitoring non-expedite requests using a non-expedite counter and processing the non-expedite requests for a guaranteed number of clock cycles in the monitoring window. Without keeping track of the non-expedite requests, Hogg cannot guarantee a minimum number of clock cycles for the non-expedite requests. Hogg merely discloses that if the maximum number of expedite requests has been exceeded, then control is transferred to service any pending non-expedite requests. (Underlining omitted.)

We agree. We find that Hogg et al. does teach a counter to monitor the number of expedite requests granted over a measurement period, see column 21, line 36. However, we do not find that Hogg teaches a counter that counts the amount of non-expedite requests granted over a measurement period.

¹ While it is noted that appellants did not specifically argue the rejection of claims 15 to 21 the basis of the rejection and rationale for the rejection is the same as is applied to claims 29-35. Accordingly, we construe the arguments directed to the 103 rejection of claims 29-35 as also being applied to claims 15-21.

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Accordingly we will not sustain the rejection of claims 5,6, 15-21 and 29-35 under 35 U.S.C. § 103.

Finally we turn to the rejection of claims 22-25 and 36-39 under 35 U.S.C. § 103 as being unpatentable over Barnaby et al in view of Hogg et al. and Horan et al. These claims are ultimately dependent upon claim 21 or 35 and as such include the limitation of a non-expedite counter as addressed above. On page 8 of the answer, the examiner, states that Horan et al. is relied upon to teach the limitations of “high priority advance graphics port (AGP) cycles.” The examiner has not shown that Horan et al. teaches the limitation of the non-expedite counter. Accordingly, we will not sustain the rejection of claim 22-25 and 36-39 under 35 U.S.C. § 103, as it contains the same deficiencies as noted in the rejection of claims 21 and 35 under 35 U.S.C. § 103.

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In view of the forgoing we will not sustain the rejection of Claims 1, 3 and 4 under 35 U.S.C. § 102 nor the rejection of Claims 2, 5, 6, 15-25 and 29-39 under 35 U.S.C. § 103. Therefore the decision of the examiner rejecting claims 1-6 15-25 and 29-39 is reversed.

REVERSED

JERRY SMITH)	
Administrative Patent Judge)	
)	
)	
LEE E. BARRETT)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
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