

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today  
(1) was not written for publication in a law journal and  
(2) is not binding precedent of the Board.

Paper No. 22

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte RICHARD S. BIANCHI,  
DENNIS R. FLYNN, MARCIA T. FOGELGREN,  
RICHARD A. LEMAY, MARY E. TOVELL,  
and WILLIAM E. WOODS

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Appeal No. 96-1539  
Application 08/128,456<sup>1</sup>

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ON BRIEF

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Before KRASS, FLEMING, and LEE, Administrative Patent Judges.  
KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of  
claims 1 through 9, all the claims pending in the application.

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<sup>1</sup> Application for patent filed September 28, 1993.

The invention is directed to an emulator for emulating a first system on a second system wherein mechanisms on the second system appear to the programs and tasks of a first system to be mechanisms of the first system.

Representative independent claim 1 is reproduced as follows:

1. An emulator for emulating a first data processing system on a second data processing system, the first data processing system including a user level, an executive level, an input/output level and a hardware platform, the user level including at least one user program and at least one executive program for managing operations of the first data processing system and the hardware platform including a plurality of first system input/output devices, including a first system memory, the executive level including at least one user task performing user level program operations and at least one executive task performing executive program operations, the user and executive tasks generating requests for first system input/output operations, the input/output level including a plurality of input/output tasks, each input/output task corresponding to a first system input/output device and performing input/output operations in response to the input/output requests and each first system input/output devices performing input/output operations in response to the corresponding input/output task, the emulator executing on the second data processing system and comprising:

a second system user level process executing in a user level of the second data processing system, the second system user level process including

the first system user level program,

the first system executive program, and

the first system user and executive tasks,

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an emulator level interposed between the second system user level process and a kernel level, the emulator level including

a plurality of pseudo device drivers, each pseudo device driver corresponding to a first system input/output device,

the kernel level, including

a plurality of kernel processes, each kernel process corresponding to a pseudo device driver, and

a second system hardware platform including,

each a plurality of second system input/output devices, each second system input output device corresponding to a kernel process, and

each combination of a pseudo device driver, a corresponding kernel process and a corresponding second system input/output device executing in a second system process and emulating the operations of a corresponding first system input/output task and corresponding input/output device.

The examiner relies on the following references:

Albright et al. (Albright)	4,727,480	Feb. 23, 1988
Binkley et al. (Binkley)	5,088,033	Feb. 11, 1992
Blackard et al. (Blackard)	5,301,302	Apr. 5, 1994 (filed Apr. 2, 1991)

Independent claims 1 and 6 stand rejected under 35 U.S.C. § 102 as anticipated by either one of Blackard or Albright.

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Dependent claims 2 through 5 and 7 through 9 stand rejected under

35 U.S.C. § 103 as unpatentable over either one of Blackard or Albright in view of Binkley.<sup>2</sup>

Reference is made to the briefs and answers for the respective positions of appellants and the examiner.

OPINION

We will not sustain the rejection of claims 1 and 6 under 35 U.S.C. § 102(e) as being anticipated by Blackard.

At pages 3-4 of the principal answer, the examiner sets forth a correspondence between the instant claimed elements and that disclosed by Blackard. While the examiner identifies various elements and sections of Blackard's disclosure which allegedly buttress the examiner's position, the correspondence

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<sup>2</sup> Blackard is applied under 35 U.S.C. § 102(e) and Albright is applied under 35 U.S.C. § 102(b). Also, the rejections involving Albright were applied as a new ground of rejection in the answer.

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of some of these elements is unclear to us and the examiner has not satisfactorily explained the correspondence. For example, it is unclear to us how Blackard's Figure 9, showing, inter alia, a RAM, VIDEO, ROM and BIOS segments, corresponds to the claimed plurality of "pseudo device drivers" with each driver corresponding to a first system input/output device. It is also unclear how the simulator 10 of Blackard's Figure 1 corresponds to the claimed "emulator level interposed between the second system user level process and a kernel level." Further, without identifying anything specific, the examiner denotes Blackard's "hardware and memory units of Figure 1" [top of page 4 of the principal answer] as corresponding to the claimed "second system hardware platform" which includes a plurality of I/O devices, each one corresponding to a kernel process, and wherein each combination of a pseudo device driver, a corresponding kernel process and a corresponding second system I/O device executes in a second system process and emulates the operations of a corresponding first system I/O task and corresponding I/O device. These last seven lines of claim 1, for example, include many structural and functional limitations. As such, it appears to us that the

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examiner's mere identification of Blackard's "hardware and memory units of Figure 1" as the prior art teaching for these claimed structural and functional limitations falls far short of the burden placed on the examiner by 35 U.S.C. § 102 to show how such limitations are specifically anticipated.

For their part, appellants argue, at page 7 of the principal brief, that it is "necessary...to accord the elements and their functions the meanings ascribed to them in the Specification and Figures of the Application..." We disagree. The examiner is at liberty to give the claims the broadest reasonable interpretation when applying the prior art thereagainst. The instant claims are not in "means plus function" format which would invoke the sixth paragraph of 35 U.S.C. § 112.

At pages 7-11 of the principal brief, appellants argue many distinctions between Blackard and the instant disclosed invention, specifically delving into the particulars of Blackard's operation, such as graph analysis and memory mapping, etc. However, up to this point, appellants have not distinguished the instant claimed subject matter from the disclosure of Blackard since no single claim limitation upon

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which appellants rely for the distinction is specifically identified. Accordingly, appellants' commentary at these pages of the principal brief is not persuasive of patentability. For example, at page 9, appellants allege that Blackard's simulator must first "translate blocks..." However, appellants point to nothing in the instant claims which would preclude such a translation.

Finally, beginning at page 12 of the principal brief, appellants begin to identify specific claim limitations which allegedly distinguish over Blackard.

More specifically, appellants argue that whereas the instant claimed invention provides for a mechanism on the second system that appears to the programs and tasks of a first system to be a mechanism of the first system, Blackard provides a simulator, rather than an emulator, which merely translates a first system application program, operating system functions and address space into a replicated, equivalent image of the first system application program, operating system and address space residing in the second system's memory space and in terms of the second system's

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instructions and address space. Thus, contend appellants,  
Blackard's simulator

thereby does not emulate a first system on a second system, but instead transforms a first system user program into a second system user program by translating the instructions and addresses of the first system user program into instructions and addresses of the second system [principal brief-page 12].

We are not persuaded by appellants' argument that the instant claimed system is an emulator whereas Blackard shows a simulator. Whereas an emulator is defined as "[h]ardware built into a computing system, which makes the system appear and behave to certain software, such as programs and routines, as if it were another system," a simulator is "[a] device or a program that represents the behavior of another device or program."<sup>3</sup> Accordingly, broadly speaking, a simulator can be an emulator.

With regard to appellants' argument that the instant system operates in "real time" which is not possible with Blackard because Blackard's system operates "in parallel," [principal brief-page 13], we find no such limitations or

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<sup>3</sup> Martin H. Weik, Standard Dictionary of Computers and Information Processing, Hayden Book Company, Inc., New York, 1970, pages 123, 265.

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preclusions in the instant claims. Accordingly, we are not persuaded by this argument.

We are persuaded, however, by appellants' argument that the instant claims require "an emulator level interposed between the second system user level process and a kernel level," wherein the emulator level includes a "plurality of pseudo device drivers" and wherein the kernel level includes "a plurality of kernel processes, each kernel process corresponding to a pseudo device driver." We find no evidence in Blackard, nor has the examiner convincingly pointed to anything therein, that the simulator of Blackard operates as a functional level "interposed between the second system user level process and a kernel level." Further, as pointed out supra, we are unconvinced of any "plurality of pseudo device drivers" in Blackard. Certainly, the ROM, RAM and BIOS identified in Blackard by the examiner as constituting such pseudo device drivers do not correspond to a first system input/output device, as required by the instant claims. And even if the VIDEO may be considered an input/output device, as apparently admitted by appellants at page 15 of the principal brief, it is unclear what the examiner intends to be the

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"plurality of pseudo device drivers" with each one corresponding to a first system input/output device.

Since the examiner has not persuasively indicated where, in Blackard, each and every claimed element and step, including the claimed functions, is taught, we will not sustain the rejection of claims 1 and 6 under 35 U.S.C. § 102(e) as being anticipated by Blackard.

Since Binkley is relied on, in the rejection of claims 2 through 5 and 7 through 9, merely for the teaching of an input/output queue and Binkley does not provide for the deficiencies noted supra with regard to Blackard, we also will not sustain the rejection of the dependent claims under 35 U.S.C. § 103 as being unpatentable over Blackard in view of Binkley.

We now turn to the rejection of claims 1 and 6 under 35 U.S.C. § 102(b) as anticipated by Albright.

Initially, we note that, for the same reasons mentioned supra, with regard to appellants' arguments relating to Blackard, we reject appellants' arguments regarding giving the claim terms only the meaning ascribed to them in the disclosure. The claims are not written in means plus function

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language which would invoke the sixth paragraph of 35 U.S.C. § 112. The examiner is at liberty to give the broadest reasonable interpretation to the claims consistent with the specification.

Also, we reject appellants' arguments, as being unpersuasive, regarding the details of the operation of Albright, at pages 9-17 of the reply brief, because appellants have not related such details to the instant *claimed* invention and as to how such distinguishes thereover.

Nevertheless, we will not sustain the examiner's rejection because it is not clear to us how Albright anticipates "an emulator level interposed between the second system user level process and a kernel level" wherein the emulator level includes a "plurality of pseudo device drivers..."

The examiner's statement of the rejection and reasons therefor, at pages 5-6 of the principal answer, contains only general statements about Albright and references to many things being "inherent." In a rejection based on anticipation under 35 U.S.C. § 102, the examiner is expected to particularly point out exactly where, in the reference, each

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and every claimed element and/or step and function is disclosed, either explicitly or by inherency. The examiner has not done so here and we are left to guess at just what, in the reference, is being relied upon by the examiner. A rejection under anticipation cannot be based on speculation.

While the examiner makes some reasonable points regarding Albright's emulation being transparent to both user-level application programs and the operating system running on a host so that one might consider this to be an "emulator level interposed between the second system user level process and a kernel level," and regarding no claim limitation directed to emulating "all" aspects of the first system on the second system, the claims still require that the emulator level includes a "plurality of pseudo device drivers." These pseudo device drivers are described in great detail at pages 24 et. seq. of the instant specification and are an important part of the instant claimed invention. Appellants have specifically argued this limitation as not being disclosed by Albright and the examiner has not responded to this argument. As we cannot locate such a teaching of these pseudo device drivers anywhere in Albright and the examiner either cannot or will not point

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to anything in Albright which teaches this limitation, we will not sustain the rejection of claims 1 and 6 under 35 U.S.C. § 102(b) as anticipated by Albright.

Since Binkley is relied on, in the rejection of claims 2 through 5 and 7 through 9, merely for the teaching of an input/output queue and Binkley does not provide for the deficiencies noted supra with regard to Albright, we also will not sustain the rejection of the dependent claims under 35 U.S.C. § 103 as being unpatentable over Albright in view of Binkley.

The examiner's decision rejecting claims 1 and 6 under 35 U.S.C. § 102(b) and (e) and claims 2 through 5 and 7 through 9 under 35 U.S.C. § 103 is reversed.

REVERSED

	Errol A. Krass	)	
	Administrative Patent Judge	)	
		)	
		)	
		)	
	Michael R. Fleming	)	BOARD OF
PATENT	Administrative Patent Judge	)	APPEALS AND
		)	INTERFERENCES
		)	
	Jameson Lee	)	

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Administrative Patent Judge )

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