

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(2) is not binding precedent of the Board.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. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HOWARD T. OLNOWICH,
MICHAEL W. DOTSON, JAMES W. FEENEY,
ROBERT F. LUSCH

Appeal No. 96-3763
Application 07/946,509¹

ON BRIEF

Before HAIRSTON, KRASS and BARRETT, Administrative Patent
Judges.

¹ Application for patent filed September 17, 1992.

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KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 20 through 24, 27 through 31 and 34 through 36. Pending claims 17 through 19, 25, 26, 32 and 33 are expressly not appealed. Accordingly, claims 17 through 19, 25, 26, 32 and 33 are not before us and we make no representations as to the propriety of any rejection applied against these claims. We consider these claims merely for the limitations recited therein which clearly form part of the dependent claims 20 through 24, 27 through 31 and 34 through 36 which are appealed.

The invention pertains to a hardware-implemented message header generation apparatus. The header generator automatically generates and prefixes a header to the data message sent from a node to a switch apparatus. Among other things, the header generator includes means for maintaining selected header fields constant for each data message sent to

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the switch apparatus. This is done to reduce a software overhead problem for message passing by providing special hardware to assist the software in constructing the message to be sent through the network. Every message is prefixed with a message header describing the key control parameters of the message. While, conventionally, it is the task of the software to construct the

message header for every message individually and to transmit the header first, prior to each message, the invention relieves the software of this task by using special purpose hardware to perform the job in less time and more efficiently for certain types of messages. This special high speed mode is called Hardware Built Message-Header (HBM) Mode and is used to prefix all data it receives with a message header that uses two fixed header words with all fields held constant except for the destination field, the fixed portion of the header being constructed by the hardware based on the contents of I/O registers.

Independent claim 17 and claim 20, which depends therefrom, are reproduced as follows:

17. A switch network comprising:

a plurality of switch apparatuses cascaded into a plurality of stages, said switch apparatuses each including a plurality of switch inputs and a plurality of switch outputs, of the switch outputs included on each of said switch apparatuses each coupled to a different one of the switch apparatuses via a switch input of said different one of the switch apparatuses, switch outputs of last stage switch apparatuses each comprising a network output port and switch inputs of first stage switch apparatuses each comprising a network input port; and

the network output ports each coupled to a network input port through one of a plurality of nodes, each of said nodes comprising means for receiving a data message from a coupled network output port, and means for sending a data message to a coupled network input port, said data message to a coupled network input port including a path connection request that identifies a destination network output port;

said switch apparatuses each further including:

connection means for establishing a point-to-point communication path between any one of the network input ports and any one of the network output ports in response to a point-to-point connection request received at said any one of the network input ports, said point-to-point communication path for transmitting a data message received at said any one of the network input ports to said any one of the network output ports; and

asynchronous connection means for establishing asynchronously a plurality of concurrently active point-to-point communication paths, in response to a plurality of point-to-point path connection requests received at a plurality of the network input ports, for transmitting concurrently a plurality of data messages received at said plurality of the network input ports to a plurality of the network output ports;

said nodes each further comprising:

message header generation means for automatically generating and prefixing to a selected data message to a coupled network input port a message header having a plurality of data fields, said message header generation means implemented in hardware and automatically generating the message header in response to being selectively activated by said means for sending a data message to a coupled network input port.

20. The switch network according to claim 18, wherein the message header generation means includes means for maintaining selected ones of the plurality of data fields constant for each said selected data message to a coupled network input port.

The examiner relies on the following references:

Takada et al. (Takada) 1993	5,220,562	June 15,
Childs et al. (Childs) 1993	5,250,943	Oct. 5,
Filepp et al. (Filepp) 1994	5,347,632	Sept. 13,

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Claims 20 through 24, 27 through 31 and 34 through 36 stand rejected under 35 U.S.C. § 103 as unpatentable over Childs, Filepp and Takada.

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

OPINION

We will not sustain the rejection of claims 20 through 24, 27 through 31 and 34 through 36 under 35 U.S.C. § 103 because, in our view, the examiner has failed to establish a prima facie case of obviousness with regard to the claimed subject matter.

While appellants concede that all the appealed claims stand or fall together, there is a bit of awkwardness in the instant situation since the appealed claims are all dependent claims some of which depend from different independent claims. However, since claims 20, 27 and 31 are the broadest claims of the appealed group and they are identical

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except for the various differences brought about by their independent claims, we will consider dependent claim 20.

In addition to the limitations of independent claim 17 and dependent claim 18, from which claim 20 depends, claim 20 adds the limitation "wherein the message header generation means includes means for maintaining selected ones of the plurality of data fields constant for each said selected data message to a coupled network input port."

The examiner's rationale for the rejection of the claims under 35 U.S.C. § 103 appears at pages 4-5 of the answer. Therein, it is stated that Childs shows a multi-stage network having everything recited in the claims but for a "hardware based message header generation means." The examiner relies on Filepp for a reception system for generating headers to send over the network via software. The examiner then relies on Takada for a system comprising a hardware based message header generator, specifically pointing to Takada's

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Figure 11. The examiner contends that it would have been obvious to combine the teachings of the references because this "would allow the combined system to increase the speed of generating headers for messages" [answer-page 5].

We do not necessarily agree with appellants that one would not look to a software implementation of a header generator, as shown by Filepp, in order to provide a hardware solution. After all, any software is run on a physical computer which is comprised of hardware so a software implementation is also really a hardware implementation.

We also do not agree with the examiner's reliance on new references in the answer to provide support for the rationale of the rejection and so we will not consider any references other than Childs, Filepp and Takada, the references appearing in the statement of the rejection. See In re Hoch, 428 F.2d 1341, 1342 n.3, 166 USPQ 406, 407 n.3 (CCPA 1970).

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Dependent claims 20, 27 and 34 all require, within the message header generation means, a "means for maintaining selected ones of the plurality of data fields constant for each said selected data message to a coupled network input port." The examiner has not addressed this limitation in the statement of and/or rationale for the rejection. In fact, the examiner never addresses this limitation until the penultimate page of the answer wherein the examiner states, in toto, that the examiner disagrees with appellants' argument that this limitation was not addressed

because Filepp shows the use of controlling the length of the data fields as being variable or fixed (e.g. col. 57, lines 50-52, col. 58, lines 28-50). Also, Takada shows the use of the bridge controlling and maintaining fixed length data blocks to be sent across the backbone network (e.g. col. 33, lines 41-45).

While it is true that these citations refer to "fixed" (i.e., "constant") portions of data fields which obviously may be "selected" in some manner,² it is unclear to us how such

² We note that while appellants filed a reply brief, there is no argument therein contesting the examiner's identification, in the prior art, of "maintaining selected ones of the

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teachings are to be actually combined with the other teachings of the applied references in order to arrive at the instant claimed subject matter.

In fact, our problem with the examiner's entire rejection is a lack of convincing rationale as to why and/or how the various teachings of the applied references are to be combined in order to arrive at the instant claimed subject matter. We do not

imply that the claimed subject matter is clearly patentable. In fact, we find many of appellants' arguments weak. For example, because every software implementation also involves a hardware implementation, we do not understand appellants' attempted distinction therebetween. Also, while appellants argue [principal brief-page 3] that Childs makes no mention of

plurality of data fields constant . . .," even though appellants argued in the principal brief [page 7] that the examiner had not addressed these recited limitations in claims 20, 27 and 34.

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header generation, it is clear to us that messages sent in network systems must have, at least, a source and destination and that this information is included in "headers." Therefore, a header must somehow be generated in some manner.

However, it is still up to the examiner, in the first instance, to make out a prima facie case of obviousness with regard to the claimed subject matter. We are skeptical, in the instant case, that the examiner has done so. While the examiner, at pages 4-5 of the answer, cites various elements being disclosed by the references, it is unclear how these recited elements correspond to that which is claimed. Further, recognizing the deficiency in Childs with regard to a hardware based message header generation means, the examiner refers to Filepp for a teaching of generating headers to send over a network through the use of an application program and then refers to Takada for a

hardware based message header generator. Finally, the examiner merely concludes that it would have been obvious to

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combine Childs and Filepp because "it would allow Childs' system to reduce the network complexity" and it would have been obvious to combine Takada with this combination because "it would allow the combined system to increase the speed of generating headers for messages." There is no indication, however, as to how or why the skilled artisan would have been led to combine the disparate systems of the references. In what manner would the software application of Filepp be applied to Childs' multi-stage network? What element in Childs would run the applications software and what modifications would need to be made to Childs in order to accommodate for such software? The examiner does not say. The examiner merely directs us to combine the references with no indication as to how or why. Reasons such as "to reduce the network complexity" and "to increase the speed" are very general and, while everyone seeks to reduce complexity and increase speed for obvious reasons, the examiner has pointed to nothing which would indicate how this is to be accomplished through a combination of the references. Yet, in response to almost all of appellants' argu-

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ments regarding the non-combinability of the references, the examiner states that the combination would be

made "to reduce the network complexity" [see pages 7, 8, 9, 11, 12-13 and 14 of the answer]. Without some indication as to how or why the artisan would have made the modifications to achieve

reduced complexity and/or increased speed, the examiner has fallen far short of the prima facie case of obviousness required by 35 U.S.C. § 103.

We are not saying that the examiner must show a bodily incorporation of the elements of one reference into another but there must be some reason or suggestion in the prior art for making the modifications indicated by the examiner. Platitudes such as "to reduce the network complexity" and "to increase the speed" are not enough since there is no indication by the examiner as to how and/or why these desired results would have been accomplished by the combination set forth by the examiner. We are not even saying that the refer-

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ences cannot be combined in some manner to arrive at the instant claimed subject matter. We merely find that the examiner has not done so in the instant case. In order to establish the requisite prima facie case, the examiner must present some convincing line of reasoning as to why the skilled artisan would have been led to combine the teachings

of the applied references in such a manner so as to arrive at the instant claimed subject matter.

The examiner's decision rejecting claims 20 through 24, 27 through 31 and 34 through 36 under 35 U.S.C. § 103 is reversed.

REVERSED

KENNETH W. HAIRSTON)

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	Administrative Patent Judge)	
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)	BOARD OF
PATENT)	
	ERROL A. KRASS)	APPEALS AND
	Administrative Patent Judge)	
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