

Filed: April 4, 2018

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INTEL CORP. and CAVIUM, INC.,
Petitioner,

v.

ALACRITECH, INC.,
Patent Owner.

Case IPR2017-01392
U.S. Patent No. 7,337,241¹
Title: FAST-PATH APPARATUS FOR RECEIVING DATA CORRESPONDING
TO A TCP CONNECTION

**PETITIONER'S RESPONSE IN OPPOSITION TO PATENT OWNER'S
CONTINGENT MOTION TO AMEND UNDER 37 C.F.R. § 42.121**

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¹ Cavium, Inc., which filed a Petition in Case IPR2017-01728, has been joined as a petitioner in this proceeding.

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1. [25.P] A method for network communication, the method comprising:.....	7
2. [25.1] receiving a plurality of packets from the network, each of the packets including a media access control layer header, a network layer header and a transport layer header;.....	7
3. [25.2] processing the packets by a first mechanism, so that for each packet the network layer header and the transport layer header are validated without an interrupt dividing the processing of the network layer header and the transport layer header;.....	7
4. [25.3] sorting the packets, dependent upon the processing, into first and second types of packets, so that the packets of the first type each contain data;	8

5.	[25.4] sending, by the first mechanism, the data from each packet of the first type to a destination in memory allocated to an application running on a host computer without sending any of the media access control layer headers, network layer headers or transport layer headers to the destination or to a host protocol stack running on the host computer.	8
B.	Substitute Claims 26-32 are Obvious Over Erickson in view of Tanenbaum96 and Alteon	11
1.	[26.1] The method of claim 25, wherein processing the packets by a first mechanism further comprises: processing the media access control layer header for each packet without an interrupt dividing the processing of the media access control layer header and the network layer header.	11
2.	[27.1] The method of claim 25, further comprising: processing an upper layer header of at least one of the packets by a second mechanism, thereby determining the destination, wherein the upper layer header corresponds to a protocol layer above the transport layer.	12
3.	[28.1] The method of claim 25, further comprising: processing an upper layer header of at least one of the packets of the second type by a second mechanism, thereby determining the destination.	12
4.	[29.1] The method of claim 25, further comprising: processing a transport layer header of another packet by a second mechanism, prior to receiving the plurality of packets from the network, thereby establishing a Transmission Control Protocol (TCP) connection for the packets of the first type.	12
5.	[30.1] The method of claim 25, wherein sorting the packets includes classifying each of the packets of the first type as having an Internet Protocol (IP) header and a Transmission Control Protocol (TCP).	13

6.	[31.1.1] The method of claim 25, further comprising: transmitting a second plurality of packets to the network,	13
7.	[31.1.2] each of the second plurality of packets containing a media access control layer header, a network layer header and a transport layer header,	13
8.	[31.1.3] including processing the second plurality of packets by the first mechanism, so that for each packet the media access control layer header, the network layer header and the transport layer header are prepended at one time as a packet header.	13
9.	[32.1] The method of claim 25, wherein the first mechanism is a sequencer running microcode.	13
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1.	[33.P] A method for communicating information over a network, the method comprising:	14
2.	[33.1] obtaining data from a source in memory allocated by a first processor;	14
3.	[33.2] dividing the data into multiple segments;	14
4.	[33.3] prepending a packet header to each of the segments by a second processor, thereby forming a packet corresponding to each segment, each packet header containing a media access control layer header, a network layer header and a transport layer header, wherein the network layer header is Internet Protocol (IP), the transport layer header is Transmission Control Protocol (TCP) and the media access control layer header, the network layer header and the transport layer header are prepended at one time as a sequence of bits during the prepending of each packet header; and	15

5. [33.4] transmitting the packets to the network, wherein the dividing, prepending, and transmitting occur without the second processor generating an interrupt to the first processor.15

D. Substitute Claims 34-40 Are Obvious Over Erickson in view of Tanenbaum9617

1. [34.1] The method of claim 33, wherein each packet header is formed based upon a block of information created by the first processor.17

2. [35.1] The method of claim 33, further comprising: receiving another packet from the network, the other packet containing a receive header including information corresponding to a network layer and a transport layer; and.....17

3. [35.2] determining, by the second processor, whether the other packet corresponds to the same TCP connection as the transmitted packets.....17

4. [36.1] The method of claim 33, further comprising establishing a Transmission Control Protocol (TCP) connection by the first processor and using the connection to prepend the packet header to each of the segments by the second processor.18

5. [37.1] The method of claim 33, further comprising creating a template header and forming each packet header based upon the template header.18

6. [38.1] The method of claim 33, wherein obtaining data from the source in memory allocated by the first processor is performed by a Direct Memory Access (DMA) unit controlled by the second processor.....18

7. [39.1] The method of claim 33, further comprising prepending an upper layer header to the data, prior to dividing the data into multiple segments.18

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