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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/940,009	07/11/2013	Amir Aminzadeh Gohari	123580US	2061

15055 7590 08/24/2018

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ART UNIT	PAPER NUMBER
2461	

NOTIFICATION DATE	DELIVERY MODE
08/24/2018	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte AMIR AMINZADEH GOHARI, SHAILESH MAHESHWARI, SANDEEP URGAONKAR, ALOK MITRA, MOHAMMED M. RUMI, VAIBHAV KUMAR, UPPINDER SINGH BABBAR, THOMAS KLINGENBRUNN, BAO VINH NGUYEN, MATHIAS KOHLENZ, GAUTAM SHEORAN, DAISUKE TERASAWA and IAIN FINLAY

Appeal 2018-002589
Application 13/940,009[1]
Technology Center 2400

Before TERRENCE W. McMILLIN, KARA L. SZPONDOWSKI, and SCOTT B. HOWARD, *Administrative Patent Judges*.

McMILLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134(a) of the final rejection of claims 1–84. Final Act. 1. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

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[1] According to Appellants, the real party in interest is QUALCOMM Incorporated. App. Br. 3.

THE CLAIMED INVENTION

The present invention relates to "methods and apparatus for offloading checksum processing." Spec. ¶ 2. Independent claims 1, 18, and 29 are directed to methods; independent claims 34, 51, 62, 67, 70, and 73 are directed to apparatus; and independent claims 76, 79, and 82 are directed to computer program products. App. Br. 16, 19, 21, 22, 25, 27–32.

Claim 1, reproduced below, is representative of the claimed subject matter:

> 1. A method of wireless communication, comprising:
>
> exchanging, by a modem processor of a wireless device, uplink and downlink packets with an application processor of the wireless device, wherein the modem processor manages radio functions of the wireless device;
>
> performing, by the modem processor, at least partial checksum processing for at least one of the uplink or downlink packets based on a configuration; and
>
> providing to the application processor checksum metadata comprising one or more values indicating at least one of a location within the at least one of the uplink or downlink packets where the modem processor started the at least partial checksum processing.

REJECTIONS ON APPEAL

Claims 1–9, 11–14, 16, 18–22, 24–26, 29–42, 44–47, 49, 51–55, 57–59, and 62–84 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Emerson et al. (US 2006/0039468 A1; published Feb. 23, 2006) ("Emerson") and Wu et al. (US 2008/0279219 A1; published Nov. 13, 2008) ("Wu"). Final Act. 5.

Claims 10, 15, 17, 23, 27, 28, 43, 48, 50, 56, 60, and 61 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Emerson, Wu, and Ziai et al. (US 6,976,205 B1; issued Dec. 13, 2005) ("Ziai"). Final Act. 19.

ANALYSIS

Claim 1 recites "providing to the application processor checksum metadata comprising one or more values indicating at least one of a location within the at least one of the uplink or downlink packets where the modem processor started the at least partial checksum processing."

The Examiner finds Emerson's DVR encoder engine providing CRC (cyclical redundancy check) for the payload portion of a packet to the processor informs the processor that the DVR has executed a partial checksum beginning at the payload. Final Act. 6 (citing Emerson ¶¶ 113, 116). According to the Examiner, Emerson's DVR encoder engine providing CRC for the payload to the processor thereby teaches the claimed providing checksum metadata comprising values indicating a location within the packets where the modem processor started the checksum to the application processor. Final Act. 6. Specifically, the Examiner finds Emerson's storing of headers and payloads for each packet represents locations within the packets, and Emerson's calculating of a CRC value for a payload and loading the value "represents the CRC for the payload location of the packet." Ans. 4 (citing Emerson ¶¶ 112, 113, 116). We disagree with this interpretation.

The claimed invention requires providing checksum metadata *to the application processor*, and that the checksum data comprises values indicating a location within the packets where *the modem processor started*

the checksum processing. Appellants' Specification details an example, as part of *checksum offloading*, where the "modem processor may be configured to generate meta information (e.g., checksum metadata or checksum-related status) with a computed checksum value per packet, and send it along with the packet to the application processor." Spec. ¶ 55; *see also* Spec. ¶ 57. We find that the claimed "providing to the application processor checksum metadata comprising one or more values indicating at least one of a location within the at least one of the uplink or downlink packets where the modem processor started the at least partial checksum processing," in light of Appellants' Specification, requires *offloading checksum processing from an application processor to a modem processor* and is *distinguished from* Emerson's use of a DVR encoder engine for packet processing.

Here, we agree with Appellants that Emerson merely teaches a register storing a network header and payload for which a CRC is calculated. App. Br. 12; Reply Br. 2–3. Specifically, we agree with Appellants that Emerson's buffer storing a network header and payload for which CRC is calculated does not teach or suggest "provid[ing] metadata including one or more *values that indicate a location in a packet where checksum processing is started*." App. Br. 12. As cited by the Examiner (Final Act. 6; Ans. 4), Emerson teaches:

> The transmission code 146 may *notify the DVR encoder engine* 1102 of the data payload field 1114B size and *location for the data to be placed*. The notification may include *setting a register with the starting location of the data payload field* 1114B along with the maximum size. Further, the DVR encoder 1102 *calculates a portion of the CRC field* 1114C for the payload field 1114B and *provides this value to the processor* 64. The CRC values for the payload field may be calculated by the verification

> function 1112 . . . The processor 64 *completes the calculation of CRC field* 1114C *using the partial calculations of the CRC for the network header field* 1114A *and the data payload field* 1114B.

Emerson ¶ 113 (emphases added). We find Emerson teaches calculating a checksum value (i.e., calculating a CRC field value), but does *not* teach "values indicating at least one of a location within the at least one of the uplink or downlink packets where the modem processor started the at least partial checksum processing," as recited in claim 1. Thus, we disagree with the Examiner's finding that Emerson teaches the argued limitation.

Because we agree with at least one of the arguments advanced by Appellants regarding claim 1, we need not reach the merits of Appellants' other arguments.

Accordingly, we will *not* sustain the Examiner's § 103(a) rejections of independent claim 1, as well as commensurate independent claims 18, 29, 34, 51, 62, 67, 70, 73, 76, 79, and 82, and dependent claims 2–17, 19–28, 30–33, 35–50, 52–61, 63–66, 68, 69, 71, 72, 74, 75, 80, and 81.

DECISION

The Examiner's rejections of claims 1–84 under 35 U.S.C. § 103(a) are reversed.

REVERSED