



[54] **LOOK-UP ENGINE FOR PACKET-BASED NETWORK**

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[51] Int. Cl.<sup>6</sup> ..... **H04L 12/46**

[52] U.S. Cl. .... **370/392; 370/401**

[58] Field of Search ..... 370/392, 395, 370/400, 401-405, 465, 466, 351, 389, 396, 397, 474; 395/200.68

[56] **References Cited**

U.S. PATENT DOCUMENTS

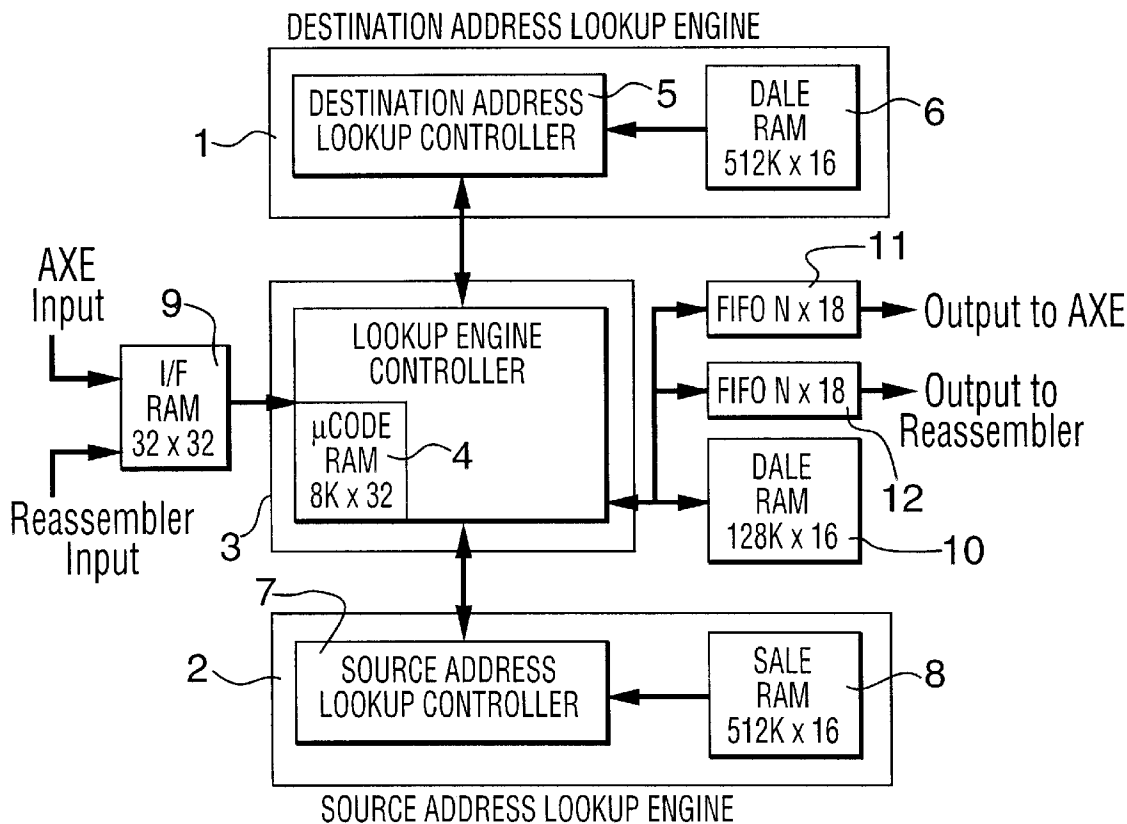
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*Primary Examiner*—Chau Nguyen  
*Attorney, Agent, or Firm*—Marks & Clerk

[57] **ABSTRACT**

An arrangement is disclosed for parsing packets in a packet-based data transmission network. The packets include packet headers divided into fields having values representing information pertaining to the packet. The arrangement includes an input receiving fields from the packet headers of incoming packets, a memory for storing information related to possible values of said fields, and a device for retrieving the stored information appropriate to a received field value. The retrieving device comprises a look-up engine including at least one memory organized in a hierarchical tree structure, and a controller for controlling the operation of the memory. The arrangement is capable of performing fast look-up operations at a low cost of implementation.

**29 Claims, 11 Drawing Sheets**



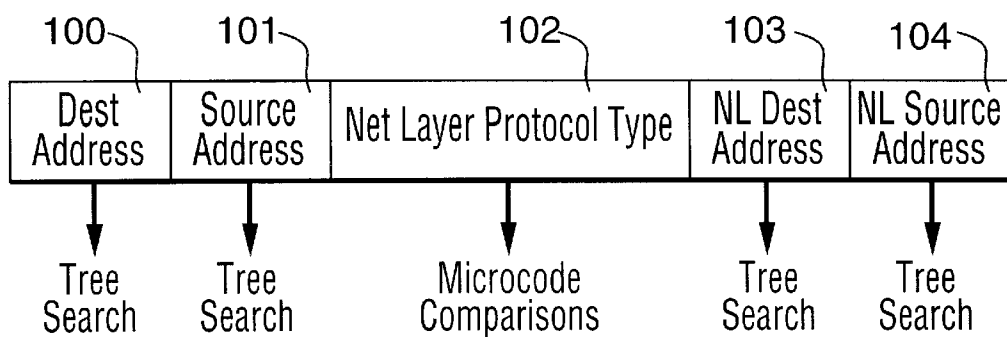


FIG. 1

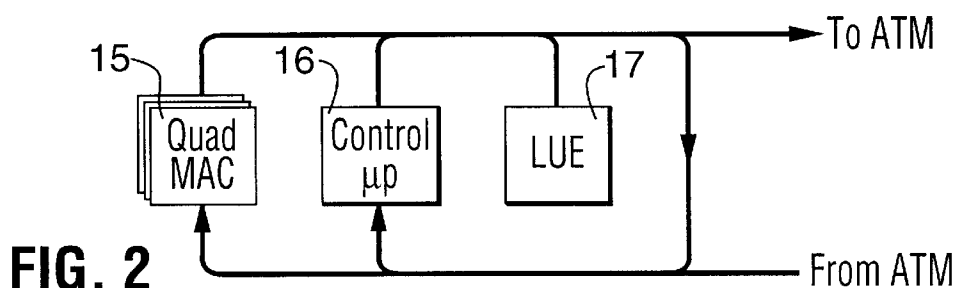


FIG. 2

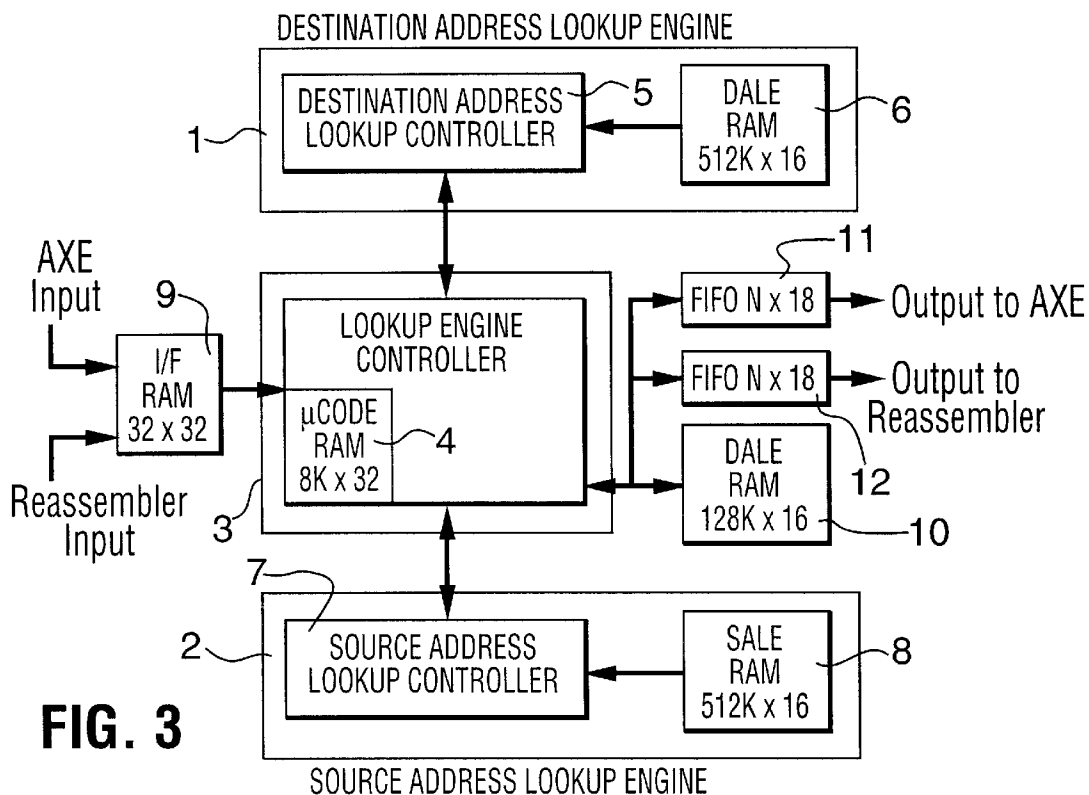


FIG. 3

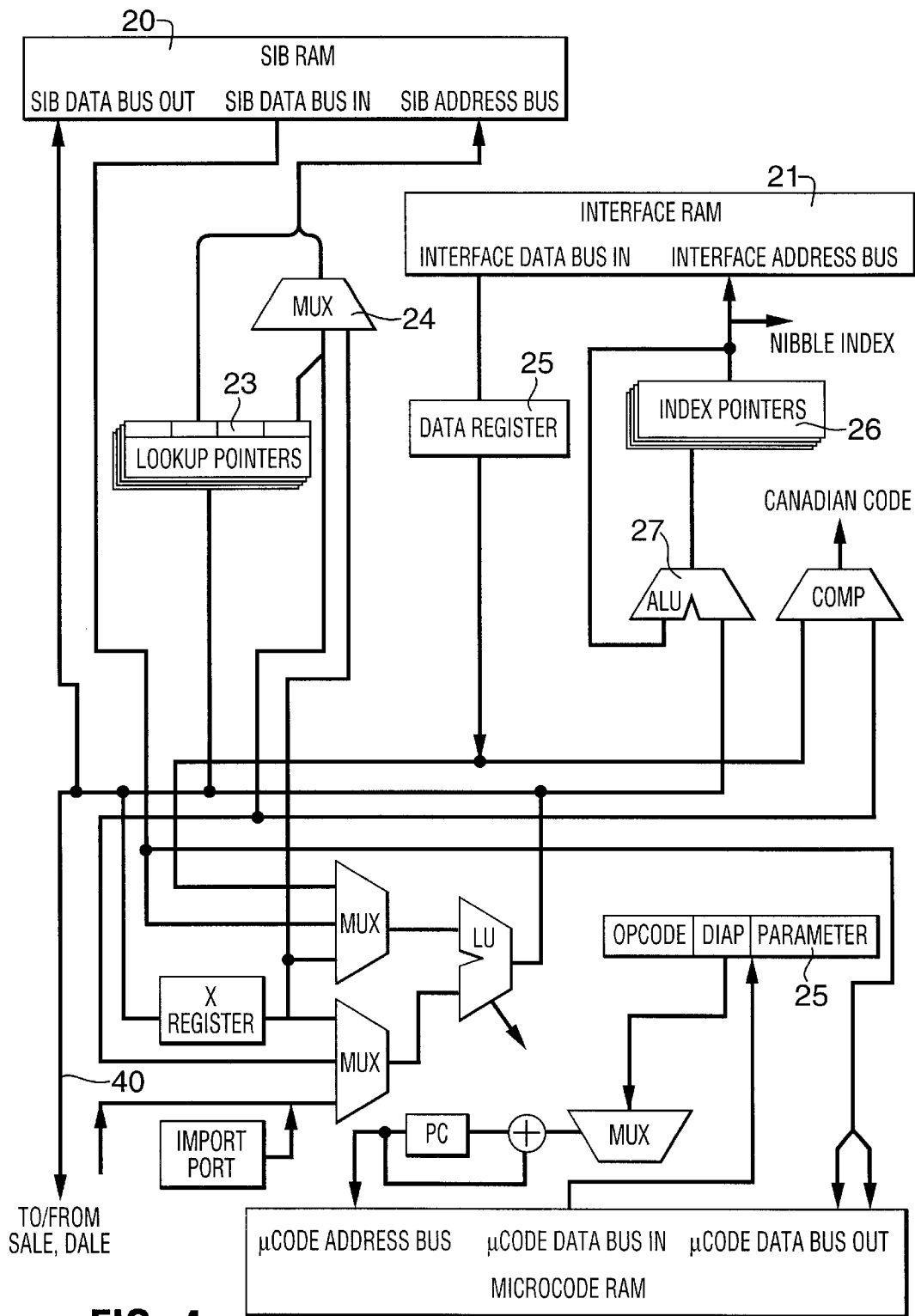


FIG. 4

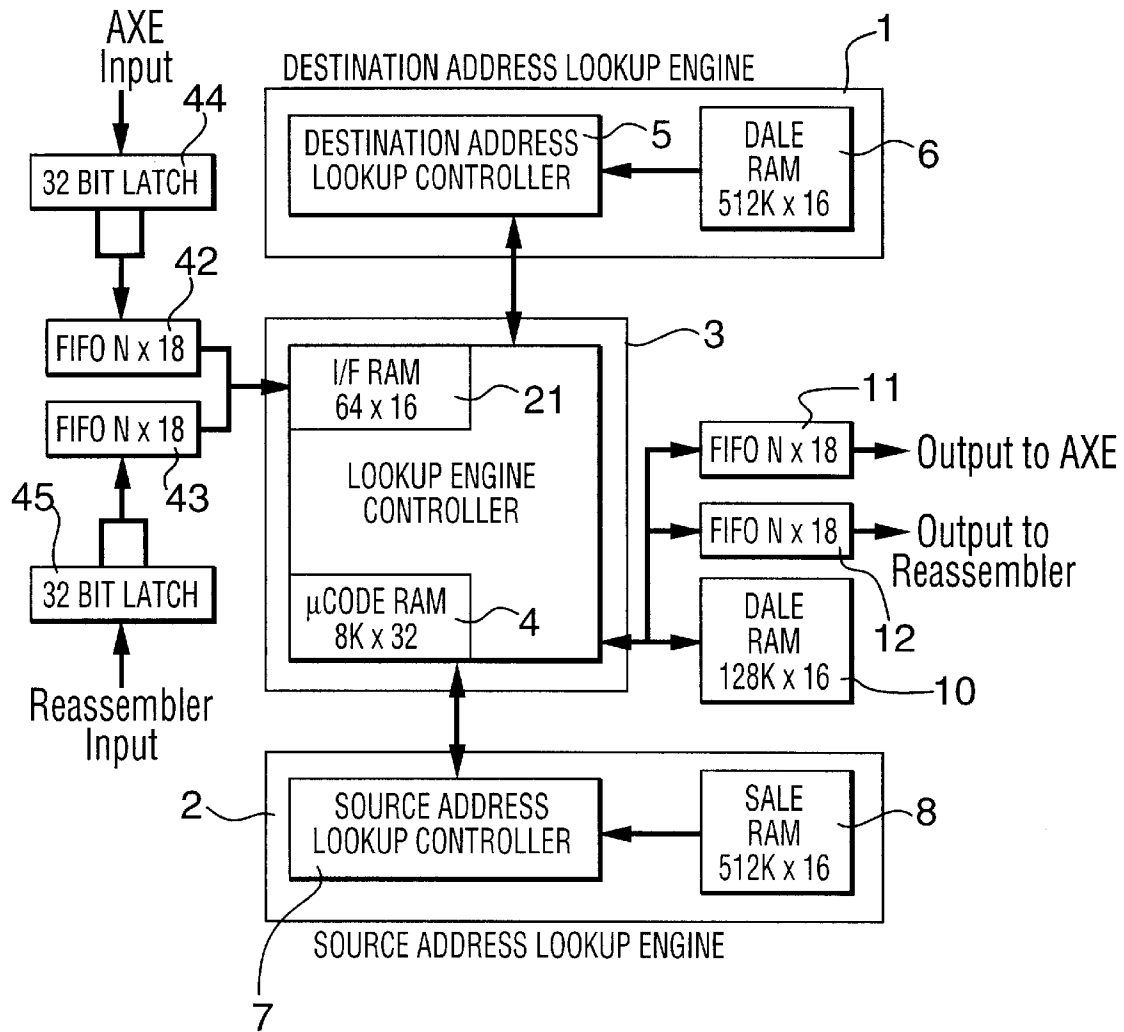


FIG. 5

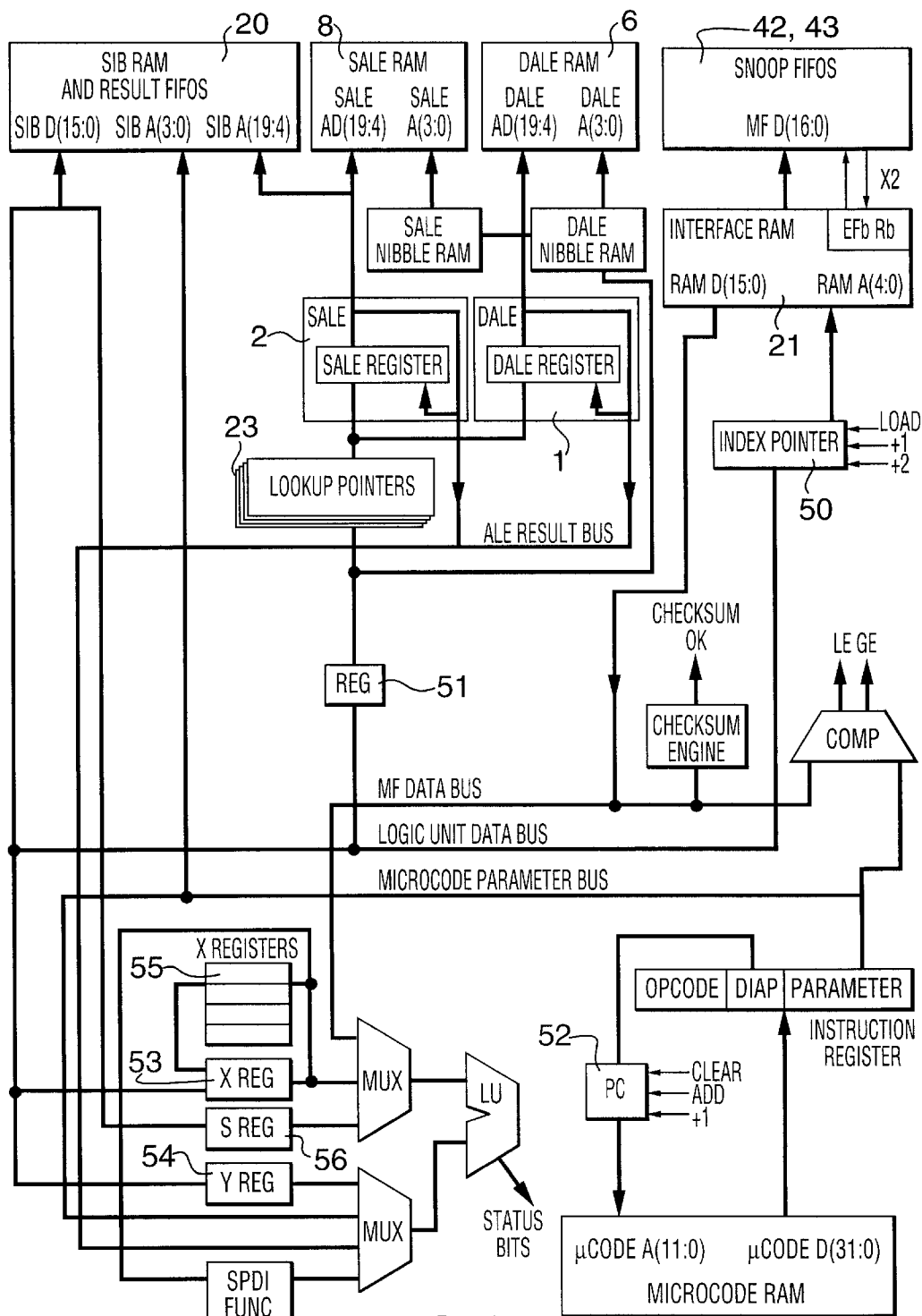


FIG. 6

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