

[54] NETWORK PACKET SWITCH USING SHARED MEMORY FOR REPEATING AND BRIDGING PACKETS AT MEDIA RATE

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[73] Assignee: Compaq Computer Corporation

[*] Notice: The term of this patent shall not extend beyond the expiration date of Pat. No. 5,432,907.

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Related U.S. Application Data

[62] Division of Ser. No. 694,491, Aug. 7, 1996, which is a continuation of Ser. No. 498,116, Jul. 5, 1995, which is a continuation-in-part of Ser. No. 881,931, May 12, 1992, Pat. No. 5,432,907.

[51] Int. Cl.⁶ H04J 3/02

[52] U.S. Cl. 395/200.2; 395/200.02; 370/401; 370/351; 370/404

[58] Field of Search 395/200.02, 200.2, 395/200.15; 370/401-408, 351

[56] References Cited

U.S. PATENT DOCUMENTS

Re. 33,426	11/1990	Sugimoto et al.	370/402
4,627,052	12/1986	Hoare et al.	370/402
4,715,030	12/1987	Koch et al.	370/85
4,825,435	4/1989	Amundsen et al.	370/501
4,901,312	2/1990	Hui et al.	370/403
4,922,503	5/1990	Leone	370/402
4,982,400	1/1991	Ebersole	370/407
5,060,228	10/1991	Tsutsui et al.	370/402
5,088,032	2/1992	Bosak	395/200.15
5,179,554	1/1993	Lomicka et al.	370/398
5,214,646	5/1993	Yacoby	370/402
5,251,213	10/1993	Vidlock et al.	370/403
5,264,742	11/1993	Sourgen	307/465
5,276,681	1/1994	Tobagi et al.	370/229

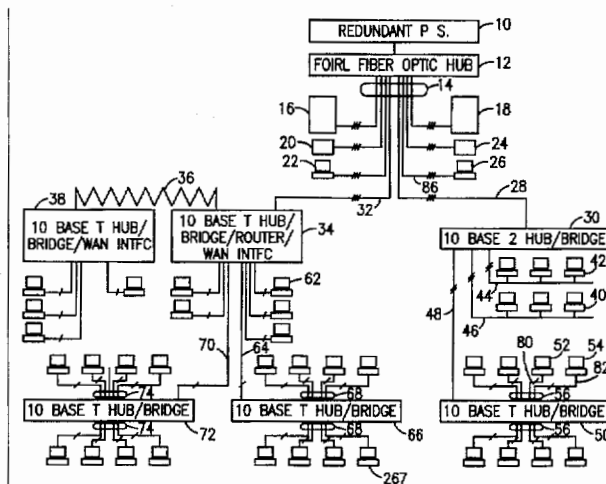
5,299,195	3/1994	Shah	370/462
5,301,303	4/1994	Abraham et al.	395/500
5,321,695	6/1994	Faulk, Jr.	370/401
5,329,618	7/1994	Moati et al.	395/200.02
5,396,495	3/1995	Moorwood et al.	370/408
5,440,546	8/1995	Bianchini, Jr. et al.	370/60
5,457,681	10/1995	Gaddis et al.	370/56
5,477,547	12/1995	Sugiyama et al.	370/85
5,521,913	5/1996	Gridley	370/58.2

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[57] ABSTRACT

A hub circuit with an integrated bridge circuit carried out in software including a switch for bypassing the bridge process such that the two bridged networks effectively become one network. An in-band management process in software is disclosed which receives and executes network management commands received as data packets from the LANs coupled to the integrated hub/bridge. Also, hardware and software to implement an isolate mode where data packets which would ordinarily be transferred by the bridge process are not transferred except in-band management packets are transferred to the in-band management process regardless of which network from which they arrived. Also disclosed, a packet switching machine having shared high-speed memory with multiple ports, one port coupled to a plurality of LAN controller chips coupled to individual LAN segments and an Ethernet microprocessor that sets up and manages a receive buffer for storing received packets and transferring pointers thereto to a main processor. The main processor is coupled to another port of the memory and analyzes received packets for bridging to other LAN segments or forwarding to an SNMP agent. The main microprocessor and the Ethernet processor coordinate to manage the utilization of storage locations in the shared memory. Another port is coupled to an uplink interface to higher speed backbone media such as FDDI, ATM etc. Speeds up to media rate are achieved by only moving pointers to packets around in memory as opposed to the data of the packets itself. A double password security feature is also implemented in some embodiments to prevent accidental or intentional tampering with system configuration settings.

10 Claims, 13 Drawing Sheets



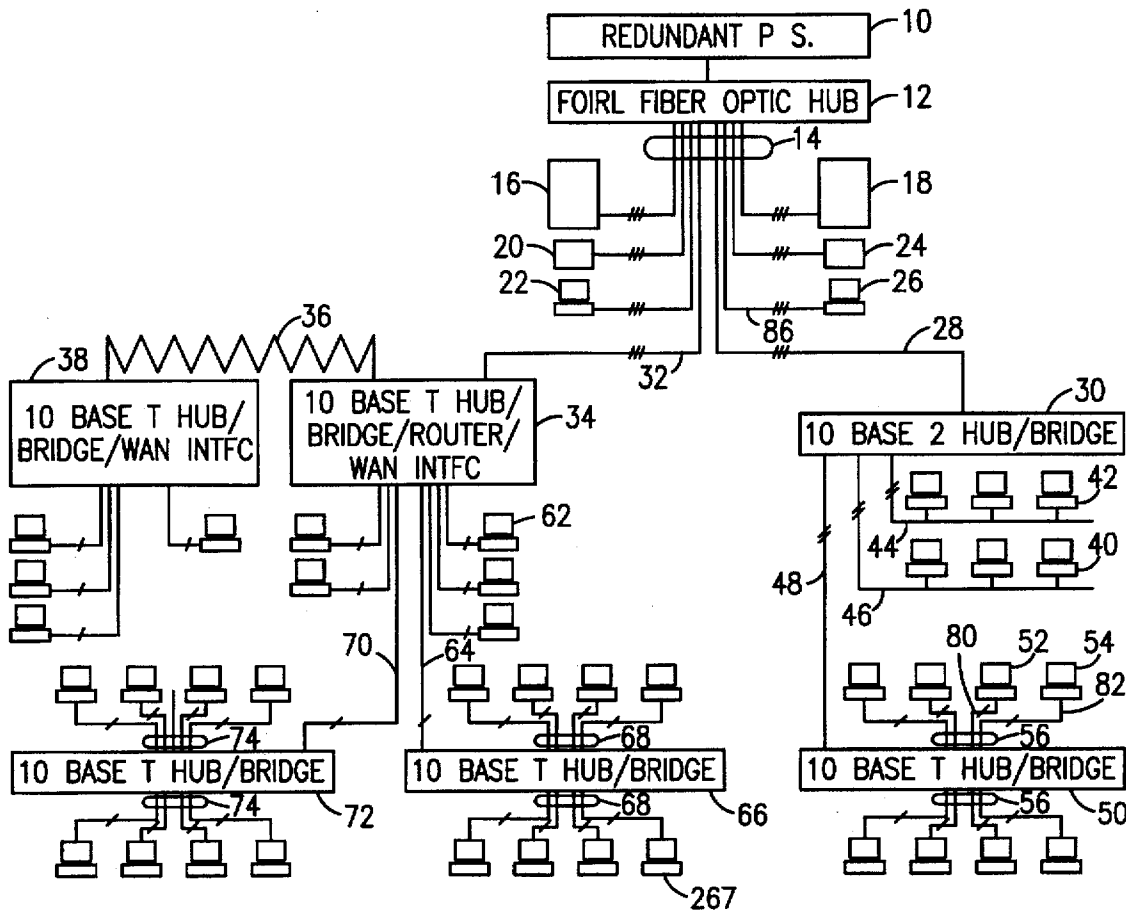


FIG. 1

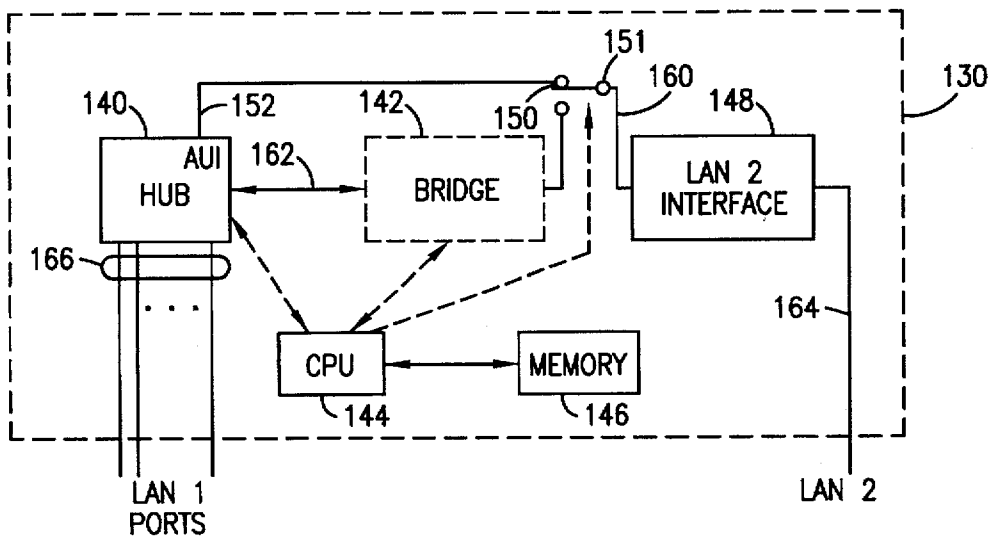


FIG. 2

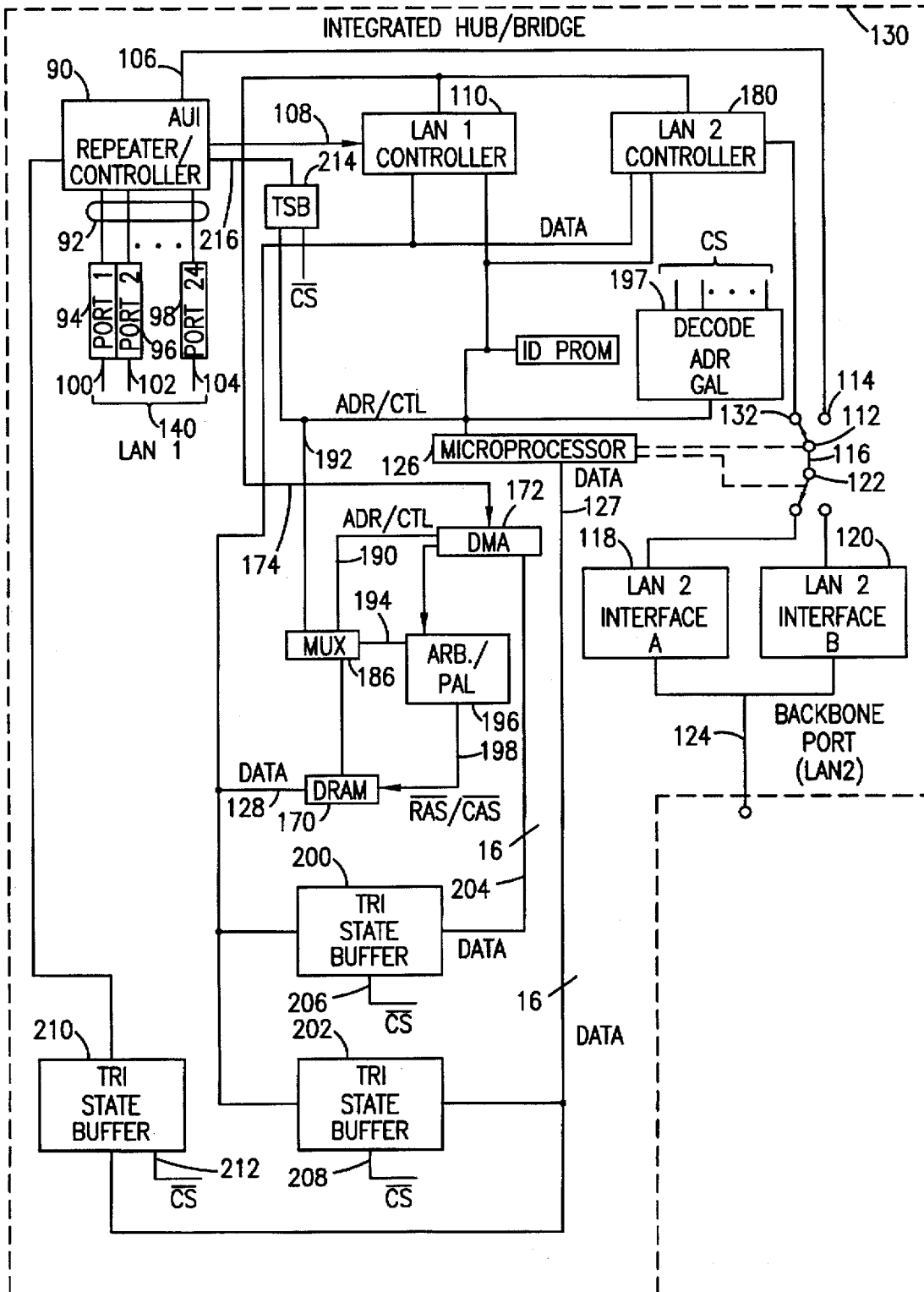


FIG. 3

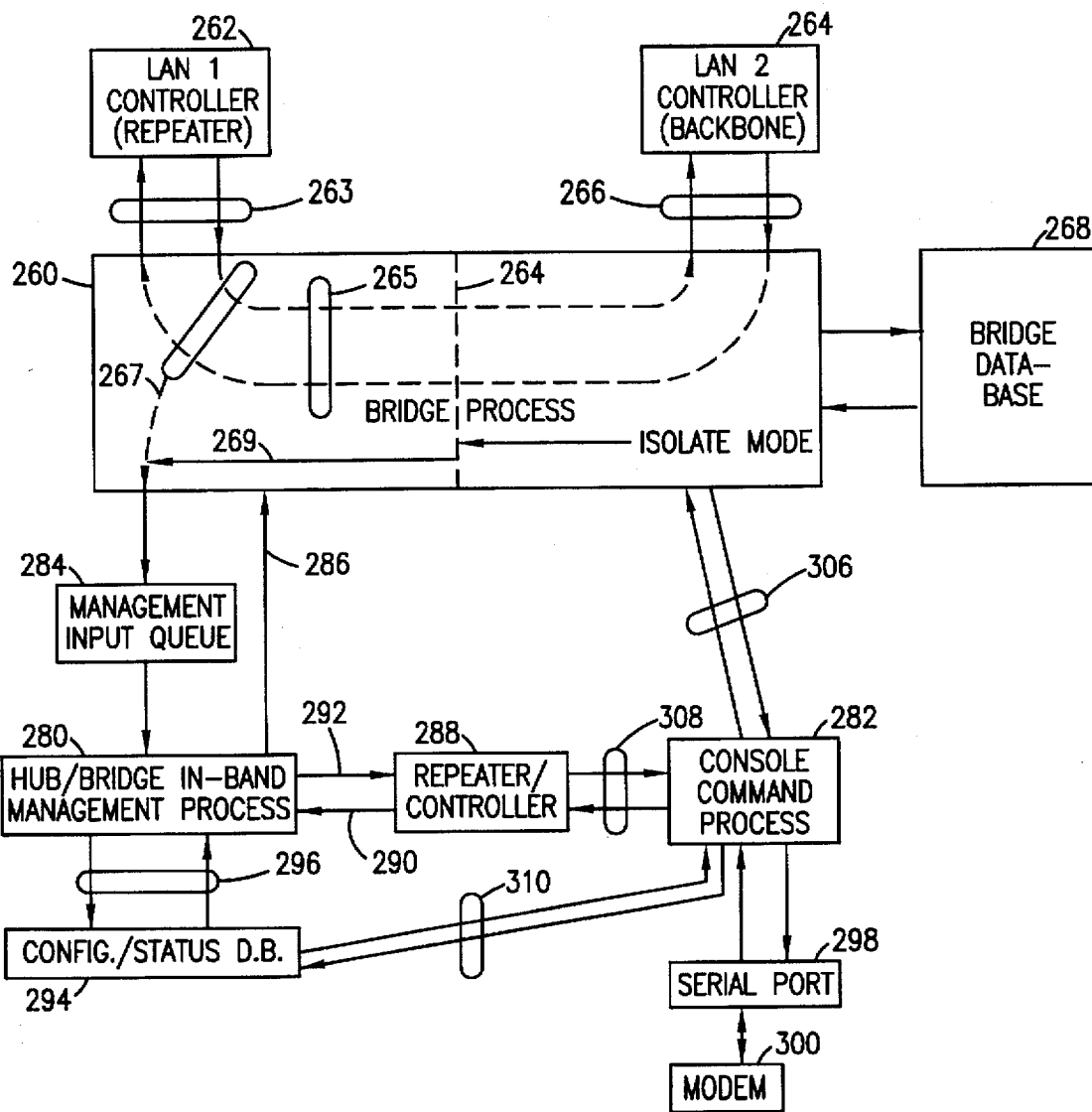


FIG. 4

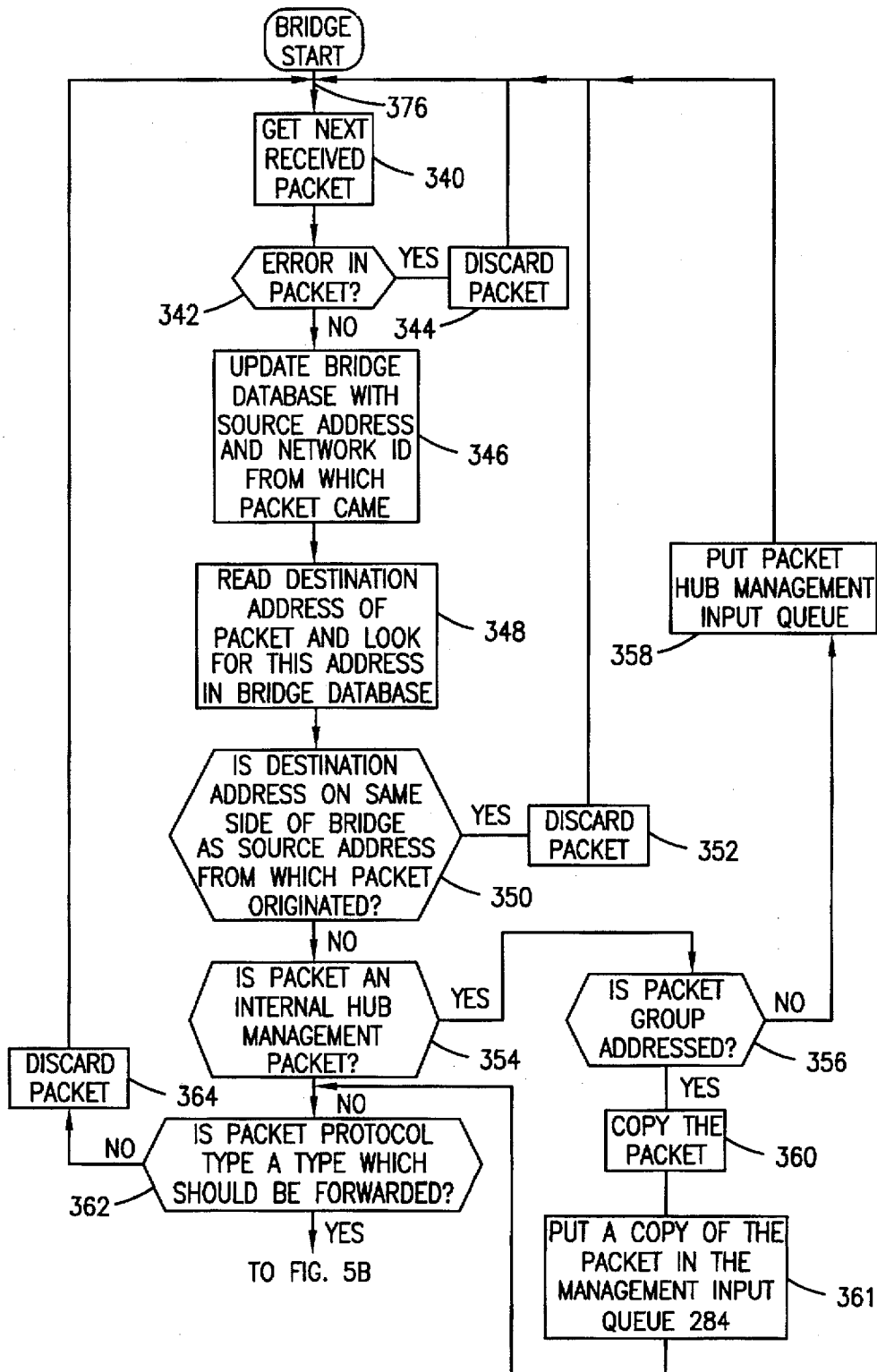


FIG. 5A

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