US005237566A

United States Patent [19]

Brand et al.

[11] Patent Number: **5,237,566**

[45] Date of Patent: **Aug. 17, 1993**

[54] **NETWORK HUB FOR MAINTAINING NODE BANDWIDTH IN A SINGLE-NODE NETWORK**

[75] Inventors: **Robert C. Brand**, Andover, Mass.; **Stanford L. Mantiply**, Palo Alto, Calif.

[73] Assignee: **Ungermann-Bass, Inc.**, Santa Clara, Calif.

[21] Appl. No.: **331,217**

[22] Filed: **Mar. 30, 1989**

[51] Int. Cl.^{5} H04L 12/44
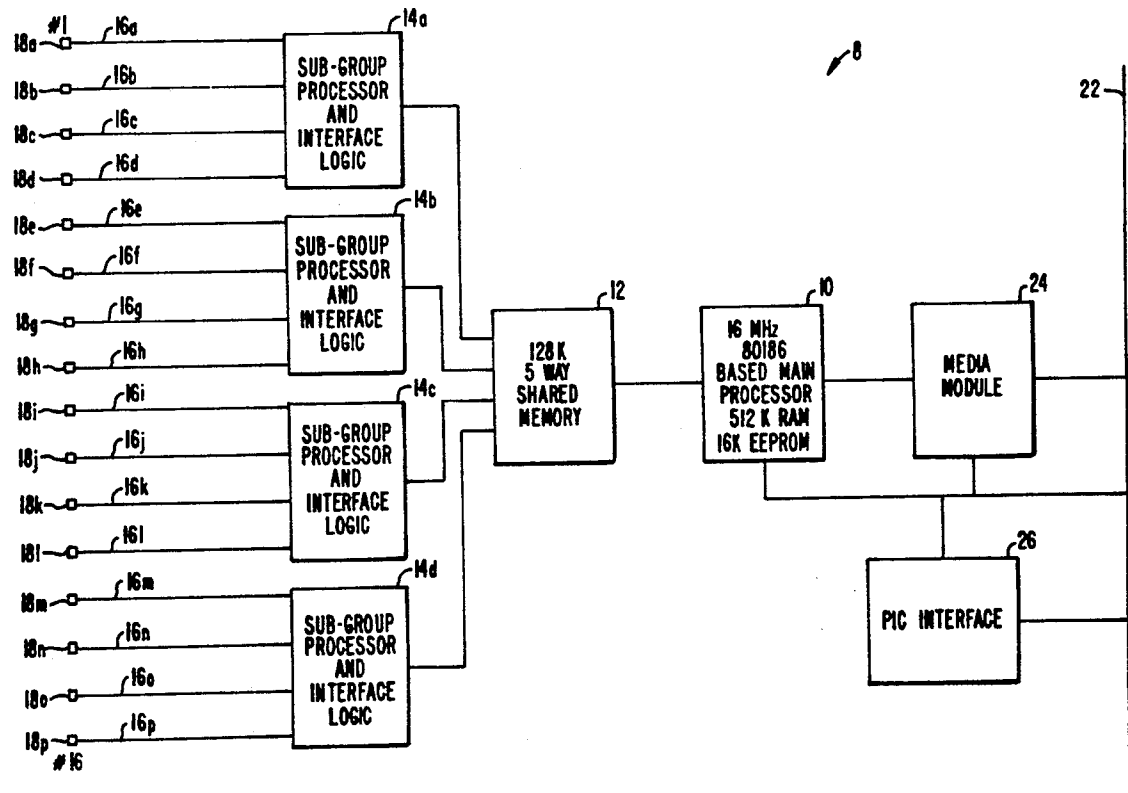[52] U.S. Cl. 370/61; 370/94.3
[58] Field of Search 370/85.1, 94.3, 61, 370/67, 85.13, 85.14, 91, 92, 85.4, 60.1, 85.3, 66, 68, 60; 379/88; 340/825.03, 825.52

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,058,672	11/1977	Crager et al.	370/61
4,549,047	10/1985	Brian et al.	379/88
4,670,871	6/1987	Vaidya	370/60
4,700,344	10/1987	Kaino et al.	370/94.3
4,716,408	12/1987	O'Connor et al.	370/85.4
4,751,701	6/1988	Roos et al.	370/85.3
4,769,812	9/1988	Shimizu	370/67
4,771,420	9/1988	Deschaine	370/68
4,773,067	9/1988	Duxbury et al.	370/60.1
4,843,606	6/1989	Bux et al.	370/85.4
4,887,076	12/1989	Kent et al.	370/61
4,910,731	3/1990	Sakurai et al.	370/60
4,947,387	8/1990	Knorpp et al.	370/60

Primary Examiner—Douglas W. Olms
Assistant Examiner—Hassan Kizou
Attorney, Agent, or Firm—Townsend and Townsend Khourie and Crew

[57] **ABSTRACT**

A hub network system is provided for communication between nodes. The system can be used, e.g., when one node can be configured for baseband bus topology communication, such as LocalTalk TM communication. The node can communicate using the entire bandwidth of the medium, such as 230 Kbps bandwidth, even though other nodes are connected to the network using the hub card. Preferably, the hub card includes a multiprocessor system with a shared memory for providing high internal effective bandwidth communication, such as 15 Mbps communication. A proxy scheme is provided so that the hub topology is transparent to any node which can operate as though it were configured in a bus topology.
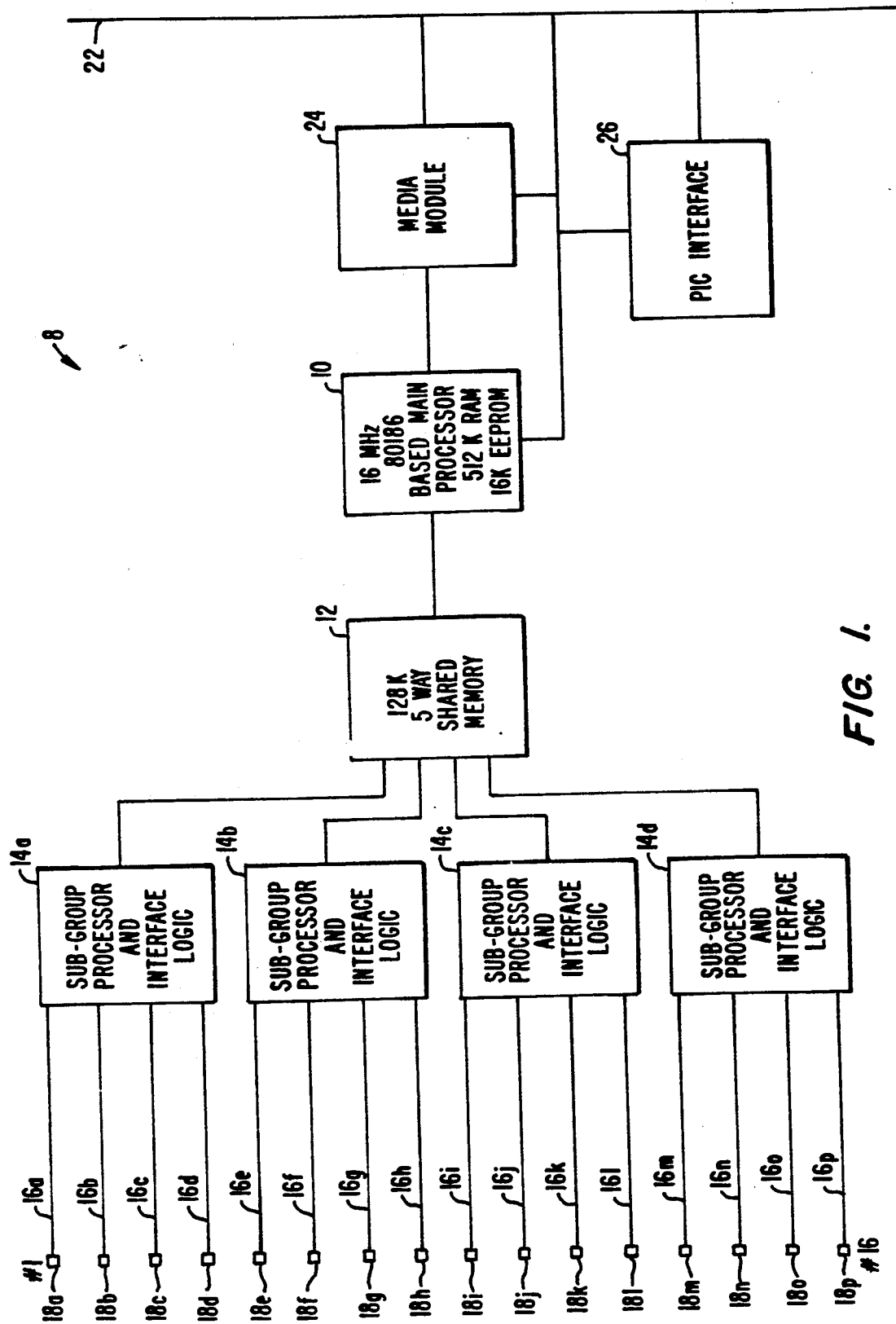
15 Claims, 6 Drawing Sheets

FIG. 1.
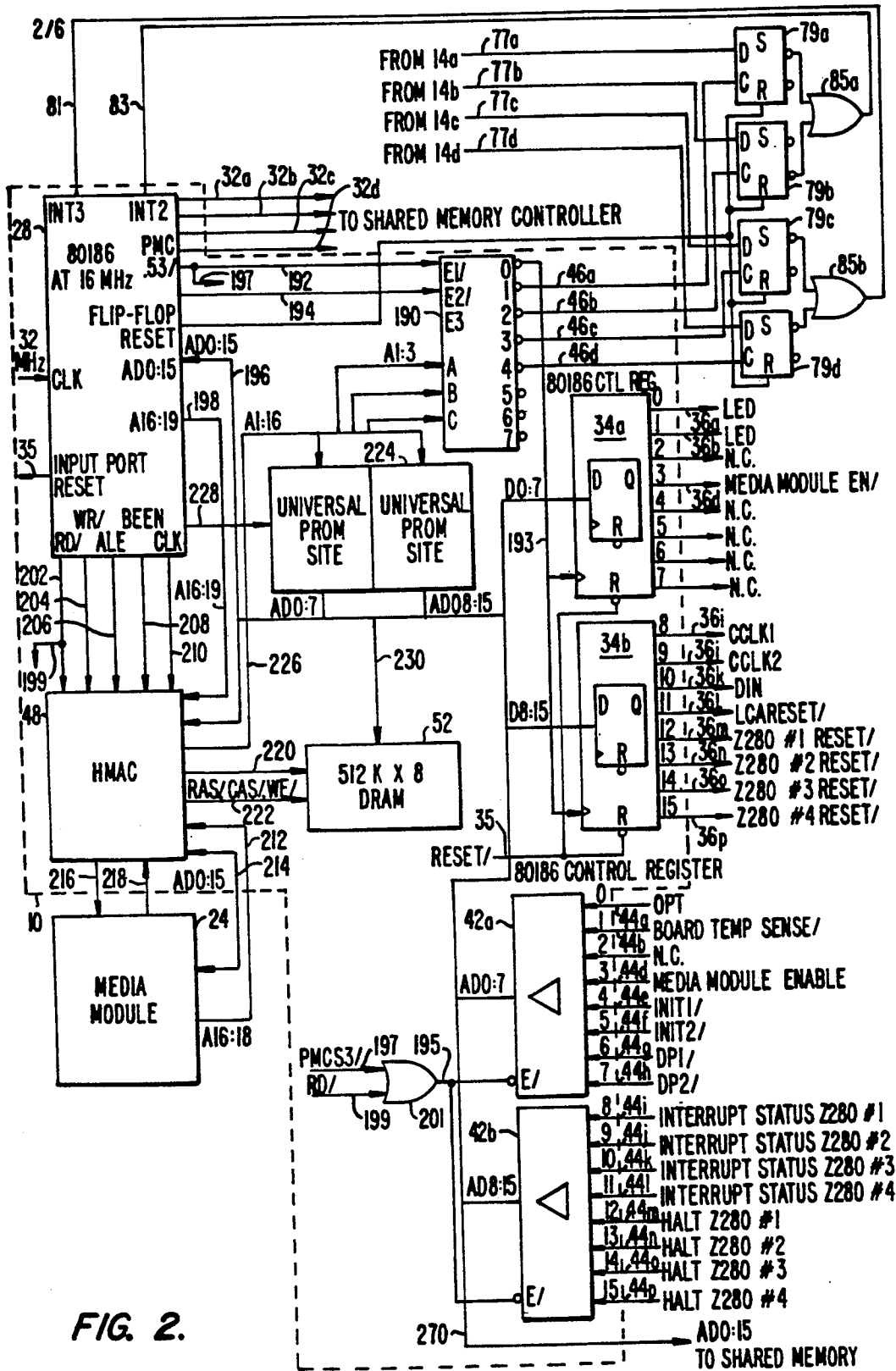
FIG. 2.

FIG. 3.

FIG. 9.

MAIN PROCESSOR ADDRESS SPACE

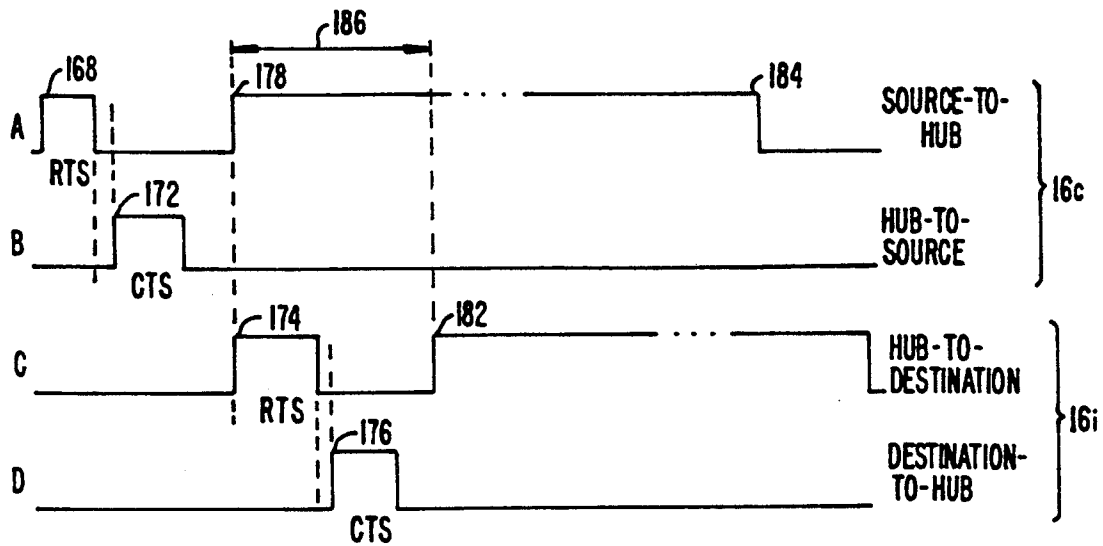| 59a	59b	59c	59d
80000	88000	90000	98000
R/W µP #1 SHARED BUFFER MEMORY	R/W µP #2 SHARED BUFFER MEMORY	R/W µP #3 SHARED BUFFER MEMORY	R/W µP #4 SHARED BUFFER MEMORY

FIG. 4A.

SUBGROUP PROCESSOR ADDRESS SPACE

	µP #1	µP #2	µP #3	µP #4
60a 20000h	62a R/W	62b R/0	62c R/0	62d R/0
60b 28000h	62e R/0	62f R/W	62g R/0	62h R/0
60c 30000h	62i R/0	62j R/0	62k R/W	62l R/0
60d 38000h	62m R/0	62n R/0	62o R/0	62p R/W
60e 40000				

FIG. 4B.

DOCKET ALARM
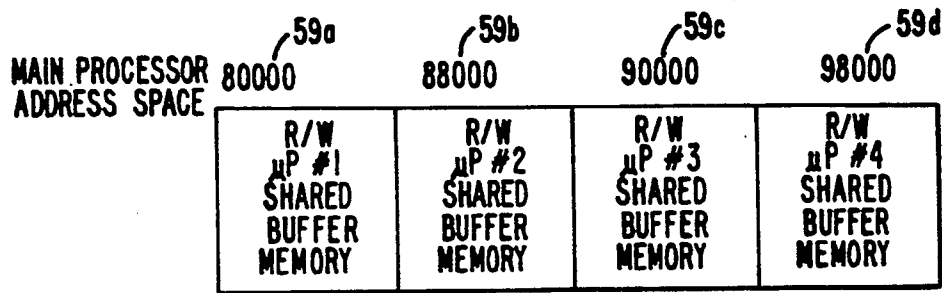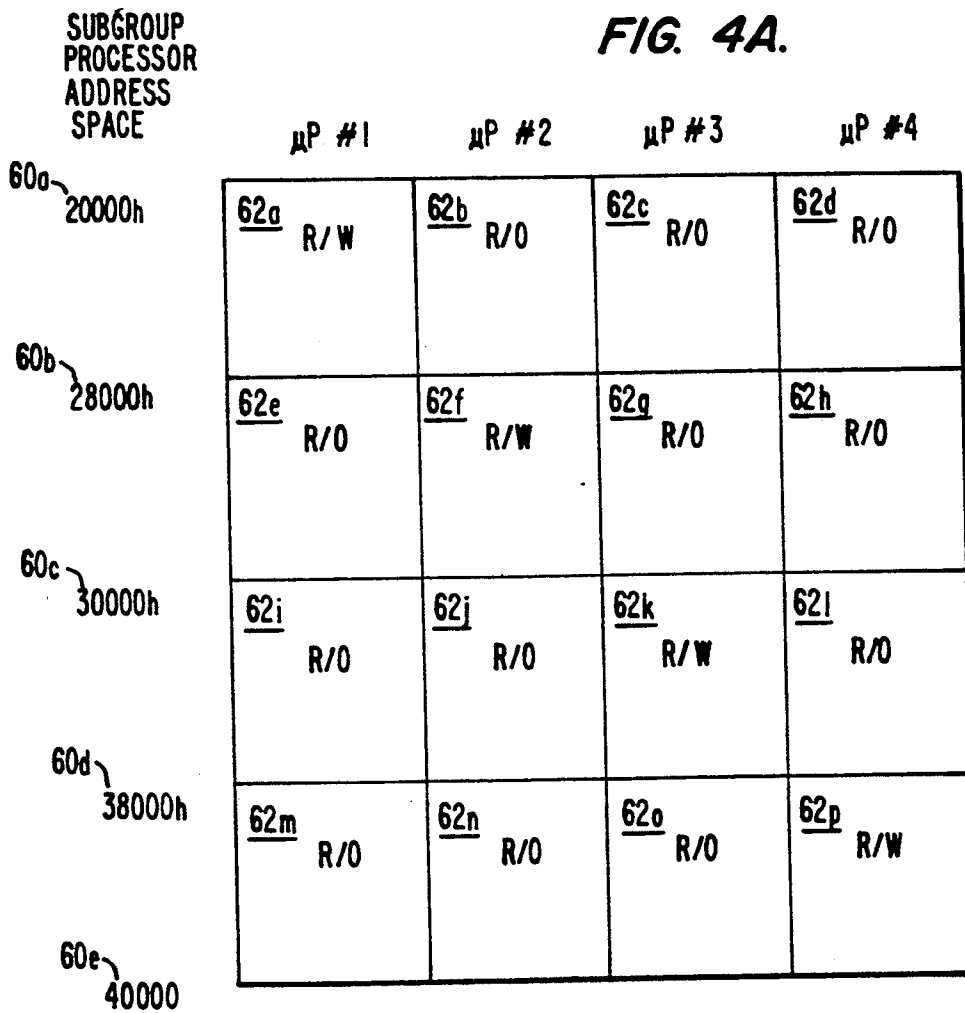
Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts

Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research

With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips

Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS
Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS
Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS
Sync your system to PACER to automate legal marketing.

fastcase
Smarter legal research.