



US006603757B1

(12) **United States Patent**
Locascio

(10) **Patent No.:** **US 6,603,757 B1**
(45) **Date of Patent:** **Aug. 5, 2003**

(54) **VOICE-DATA ACCESS CONCENTRATOR FOR NODE IN AN EXPANDABLE TELECOMMUNICATIONS SYSTEM**

(75) Inventor: **Timothy Ray Locascio**, Osterville, MA (US)

(73) Assignee: **Excel Switching Corporation**, Hyannis, MA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/291,889**

(22) Filed: **Apr. 14, 1999**

(51) **Int. Cl.**⁷ **H04L 12/66**

(52) **U.S. Cl.** **370/352; 370/401**

(58) **Field of Search** **370/352, 353, 370/354, 355, 356, 465, 466**

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,903,261 A	2/1990	Baran et al.	370/94.2
5,544,163 A	8/1996	Madonna	370/60.1
6,005,841 A	* 12/1999	Kicklighter	370/217
6,026,087 A	* 2/2000	Mirashrafi et al.	370/352
6,134,235 A	* 10/2000	Goldman et al.	370/352
6,141,341 A	* 10/2000	Jones et al.	370/352

6,253,249 B1	*	6/2001	Belzile	370/259
6,278,707 B1	*	8/2001	MacMillan et al.	370/352
6,298,062 B1	*	10/2001	Gardell et al.	370/401
6,333,931 B1	*	12/2001	LaPier et al.	370/352
6,345,047 B1	*	2/2002	Regnier	370/352
6,347,085 B2	*	2/2002	Kelly	370/352
6,363,065 B1	*	3/2002	Thornton et al.	370/352

FOREIGN PATENT DOCUMENTS

WO WO99/05830 2/1999

* cited by examiner

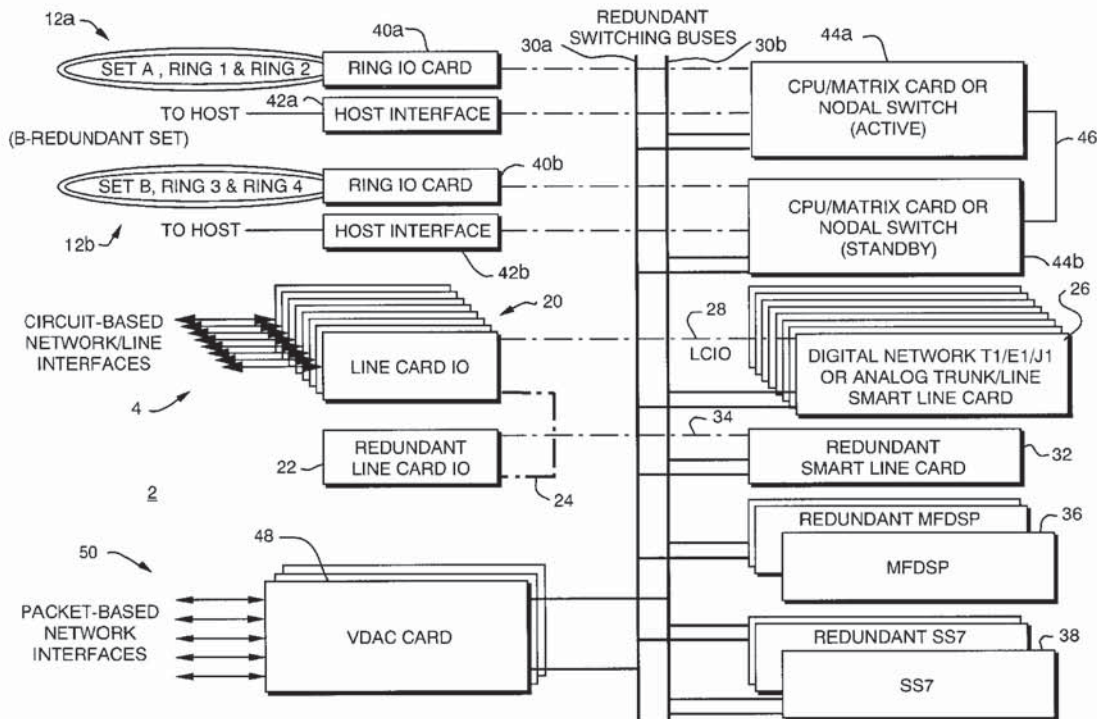
Primary Examiner—Chau Nguyen

Assistant Examiner—Keith M. George

(57) **ABSTRACT**

Apparatus operable as a standalone, open programmable switch, a node an expandable telecommunications system, or a gateway includes a voice/data access concentrator (VDAC) card for providing voice over IP (Internet protocol) capability. The VDAC card includes an array of digital signal processors (DSPs) which may be programmed to perform desired protocol conversions between circuit-based protocols, such as T1, E1 or J1, and packet-based protocols, such as IP. The apparatus is scalable and may readily incorporate other cards which provide both subscriber supplementary services and network signalling as required to meet the needs of a particular application.

4 Claims, 4 Drawing Sheets



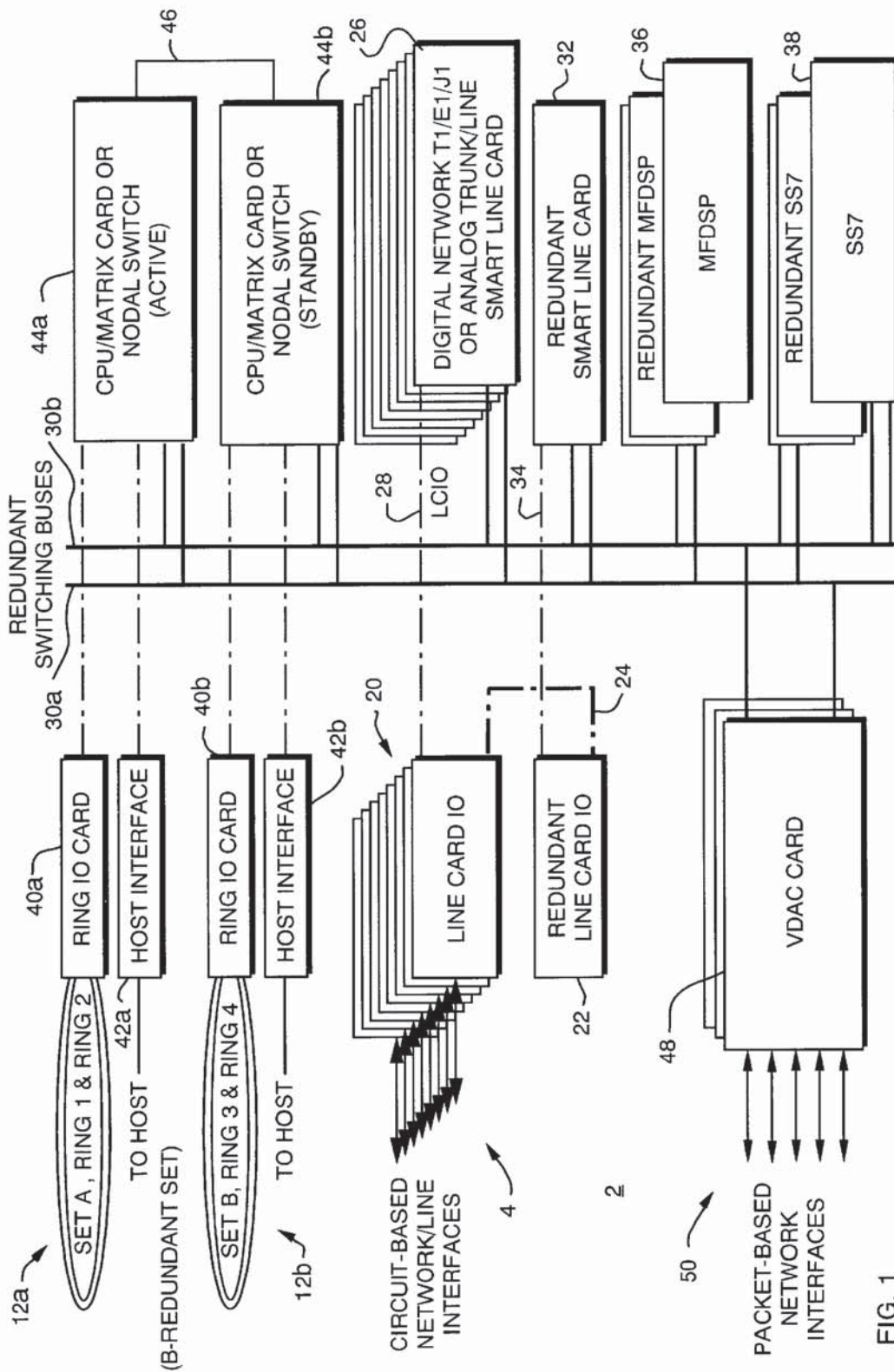


FIG. 1

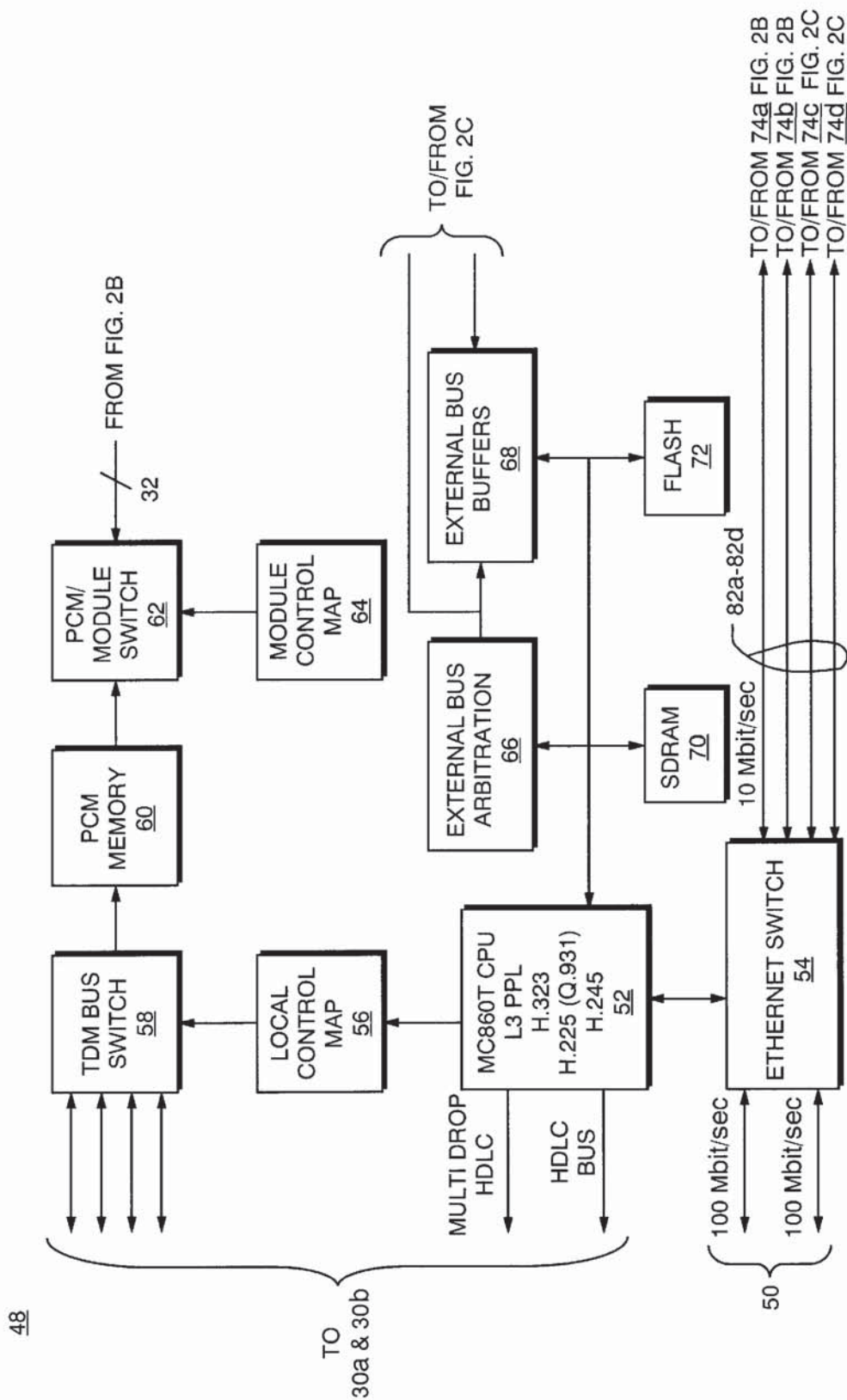


FIG. 2A

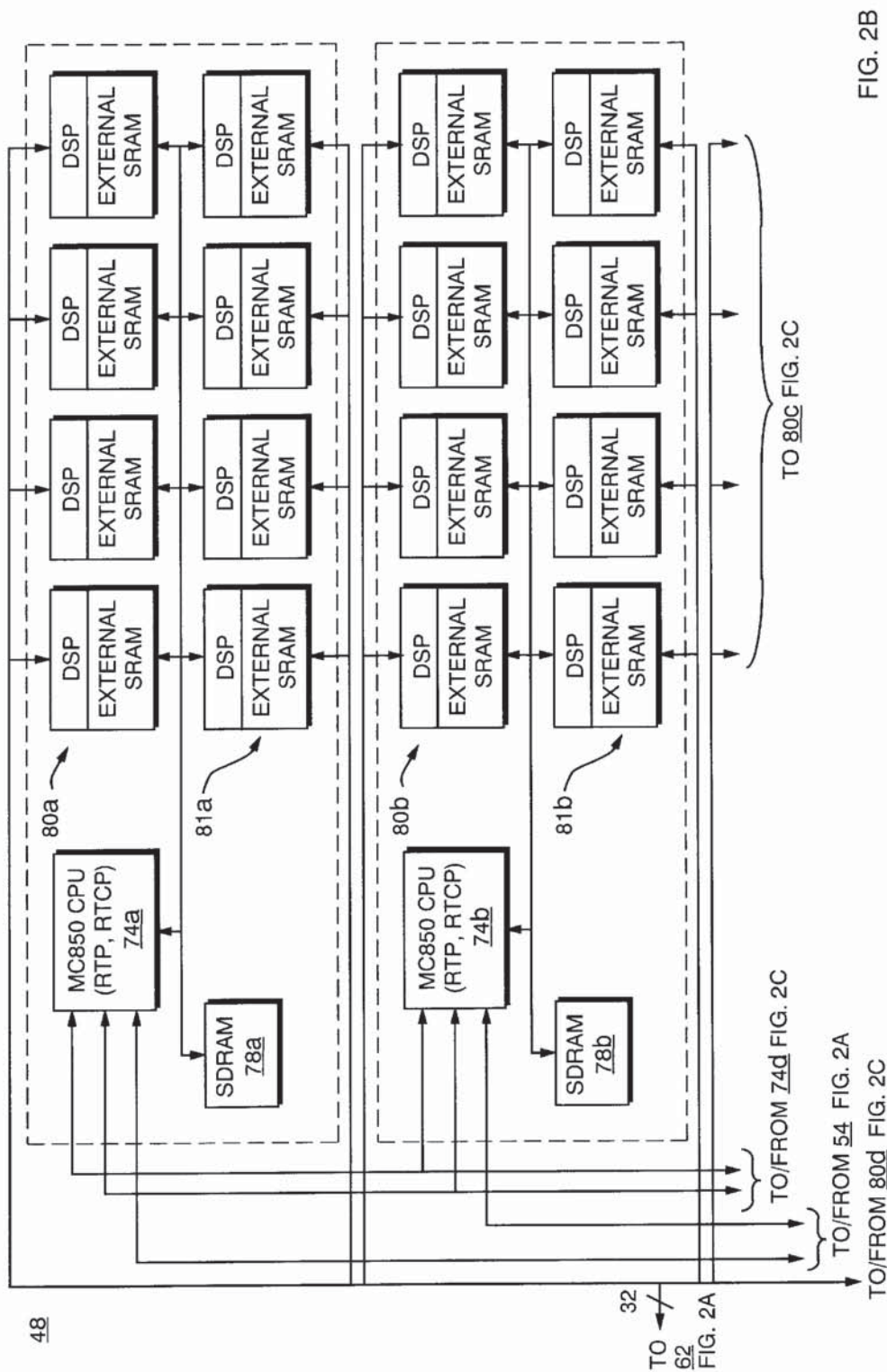
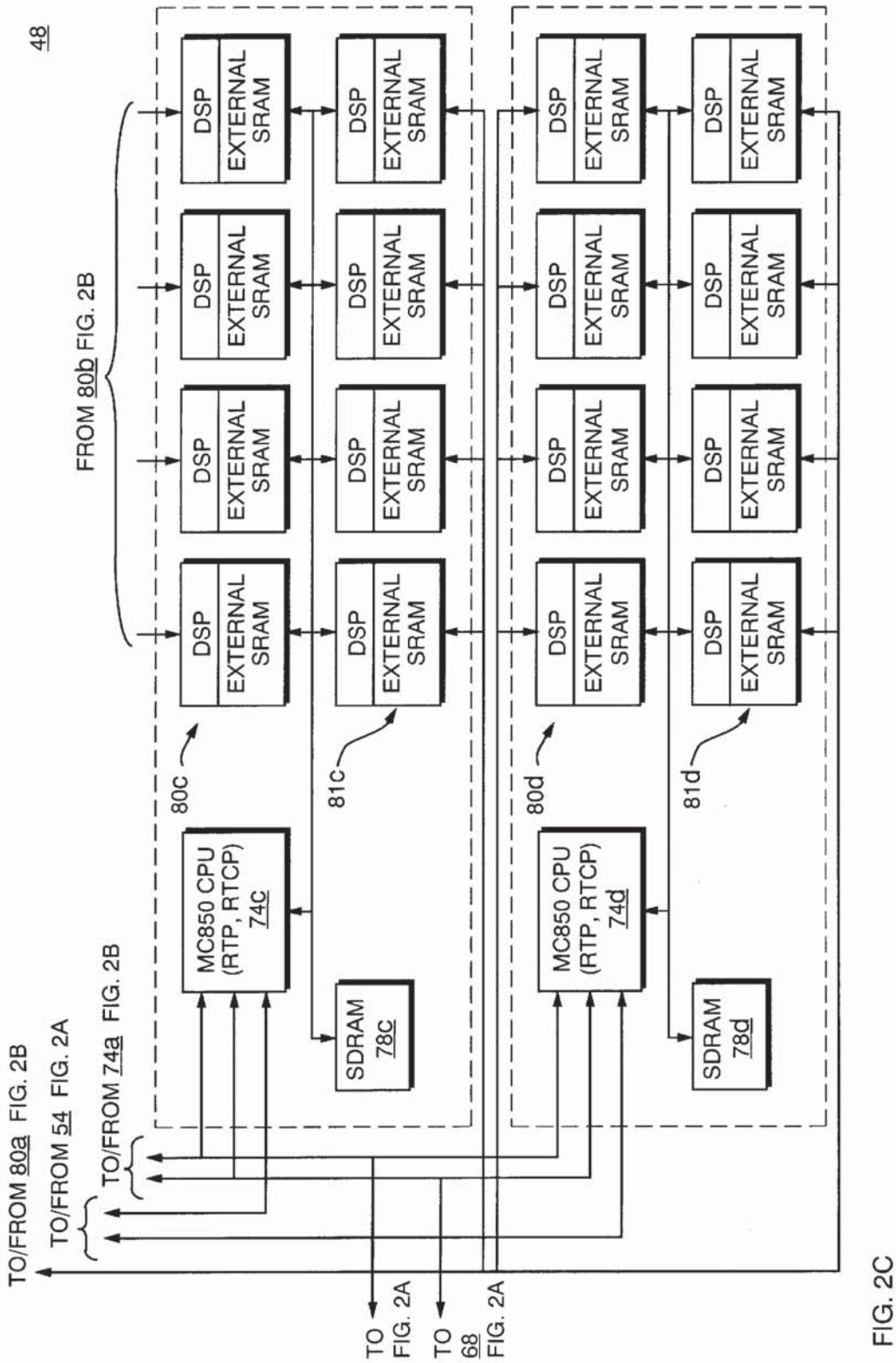


FIG. 2B



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.