



[54] MEMORY DEVICE PROVIDING BURST READ ACCESS AND WRITE ACCESS FROM A SINGLE ADDRESS INPUT

[75] Inventors: Atsushi Takasugi; Takeshi Gotoh, both of Tokyo, Japan

[73] Assignee: Oki Electric Industry Co., Ltd., Tokyo, Japan

[21] Appl. No.: 09/096,585

[22] Filed: Jun. 12, 1998

[30] Foreign Application Priority Data

Jul. 10, 1997	[JP]	Japan	9-185532
Jul. 22, 1997	[JP]	Japan	9-212474
May 19, 1998	[JP]	Japan	10-137171

[51] Int. Cl.⁶ G11C 8/00

[52] U.S. Cl. 365/230.03; 365/230.06

[58] Field of Search 365/230.03, 230.06, 365/233, 236

[56] References Cited

U.S. PATENT DOCUMENTS

5,604,697	2/1997	Takahashi et al.	365/230
5,848,021	12/1998	Sugibayashi	365/230.06

OTHER PUBLICATIONS

MSM54V24632A 131,072 Word×32-Bit×2-Bank Synchronous Dynamic RAM, Oki Semiconductor, Aug. 1, 1997, pp. 1-29.

Primary Examiner—Trong Phan
Attorney, Agent, or Firm—Jones Volentine, LLP

[57] ABSTRACT

According to a first aspect of the invention, a memory device has a main memory array and a sub memory array. In a single burst, data are read from a series of columns in the main memory array, transferred from one column in the main memory array to one column in the sub memory array, read from a series of columns in the sub memory array, and written into the above-mentioned one column in the main memory array. According to a second aspect of the invention, a memory device has a memory array and separate external data input terminals and output terminals. In a single burst, data are read from a series of columns in the memory array, and written to one of the columns, preferably the last column in the series. Input of the written data is preferably simultaneous with the output of the data read from the column to which the input data are written.

82 Claims, 90 Drawing Sheets

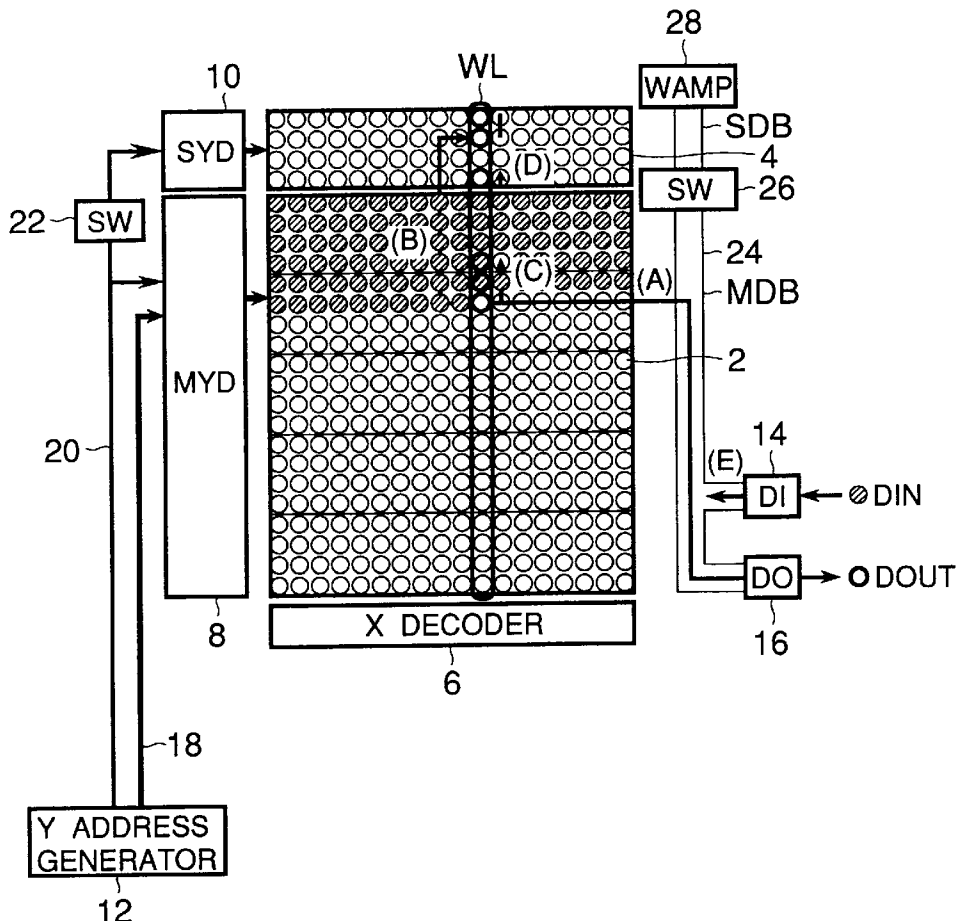


FIG.1

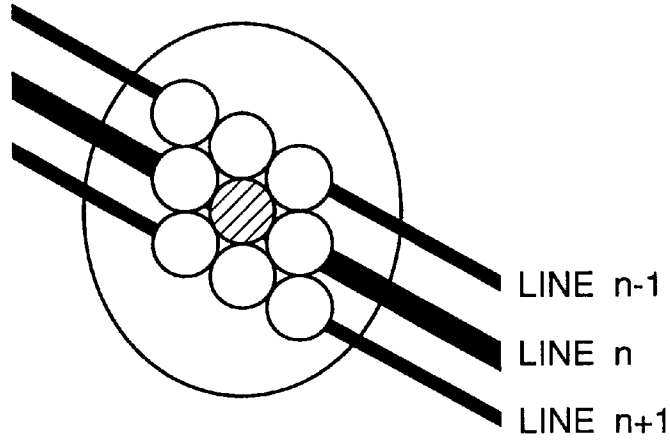


FIG.3

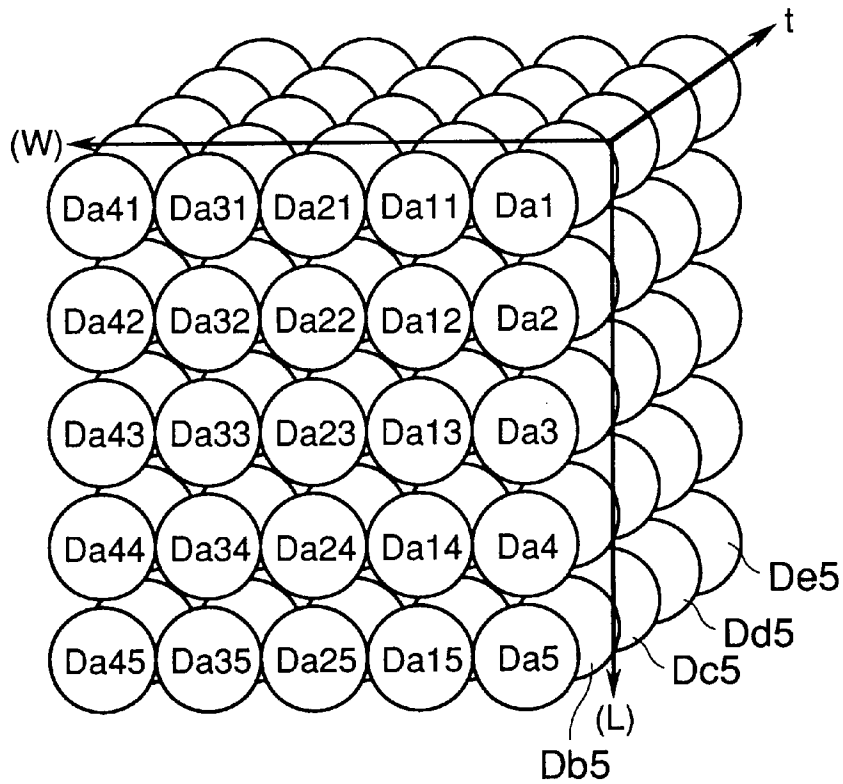
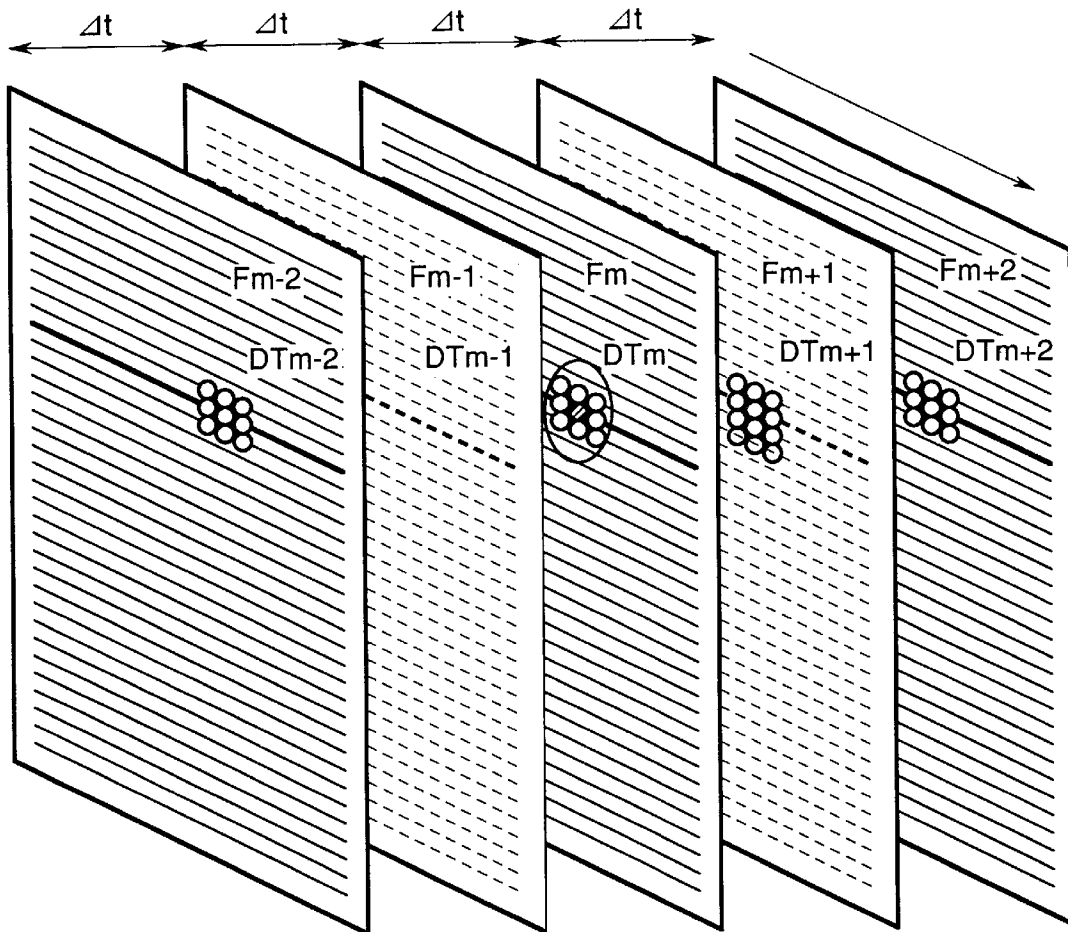


FIG.2



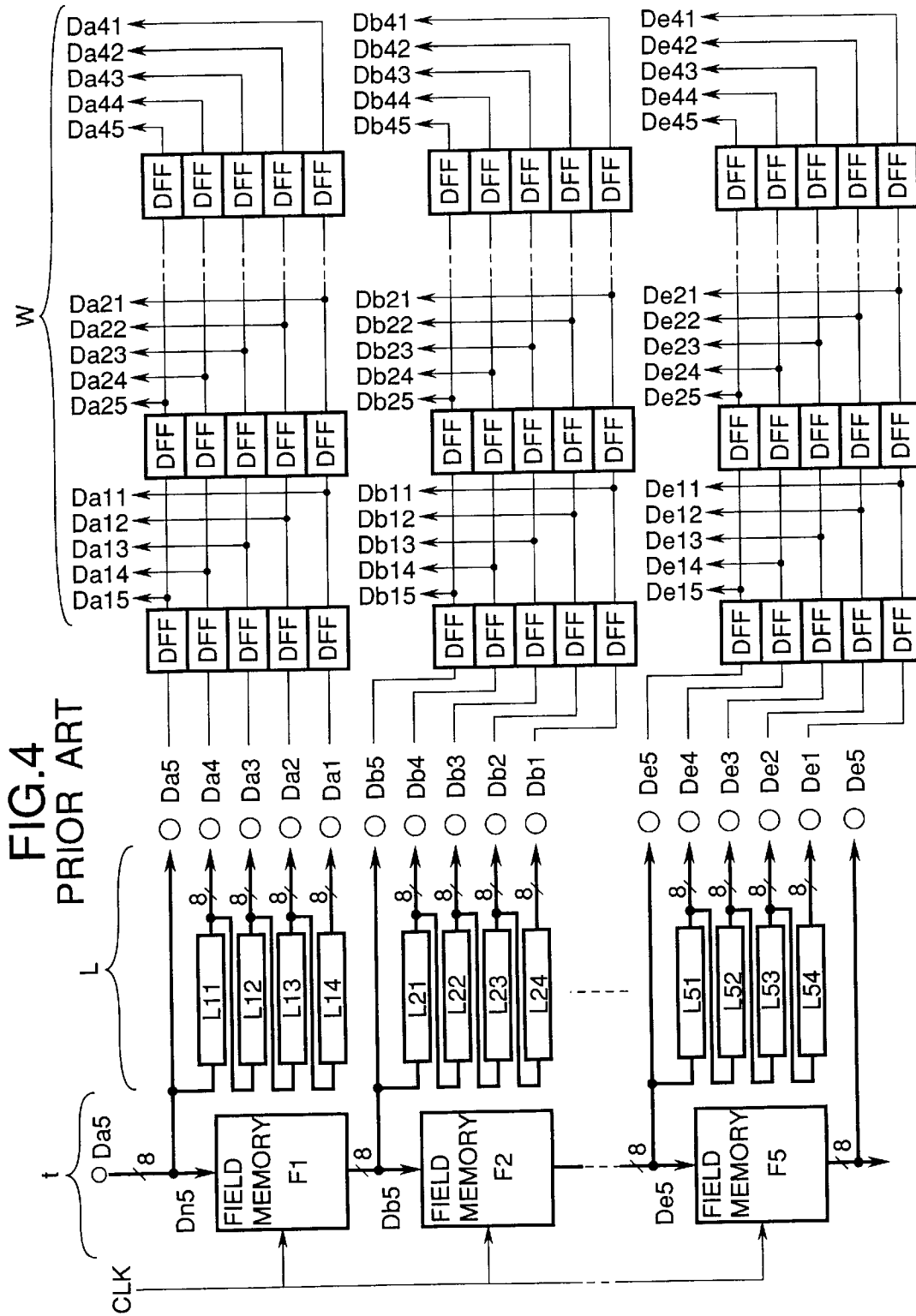


FIG.5

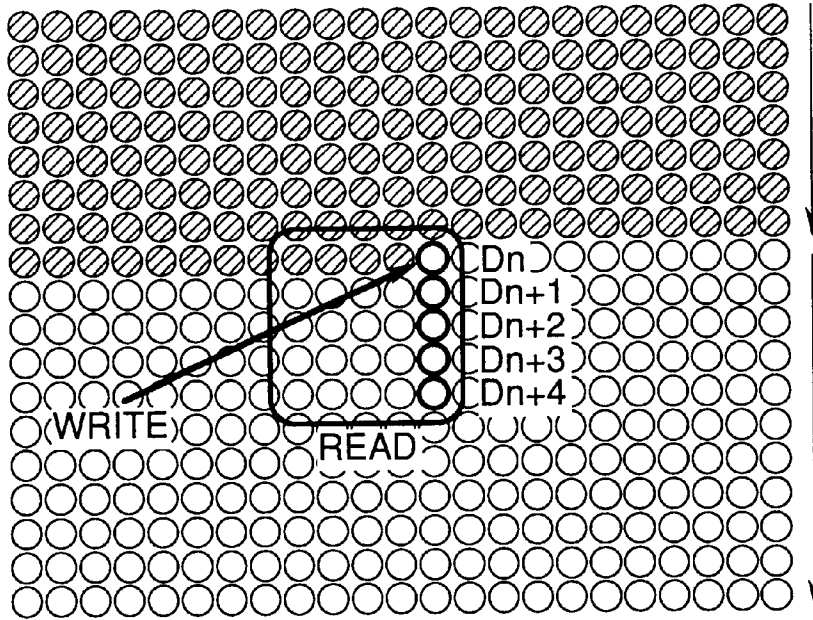
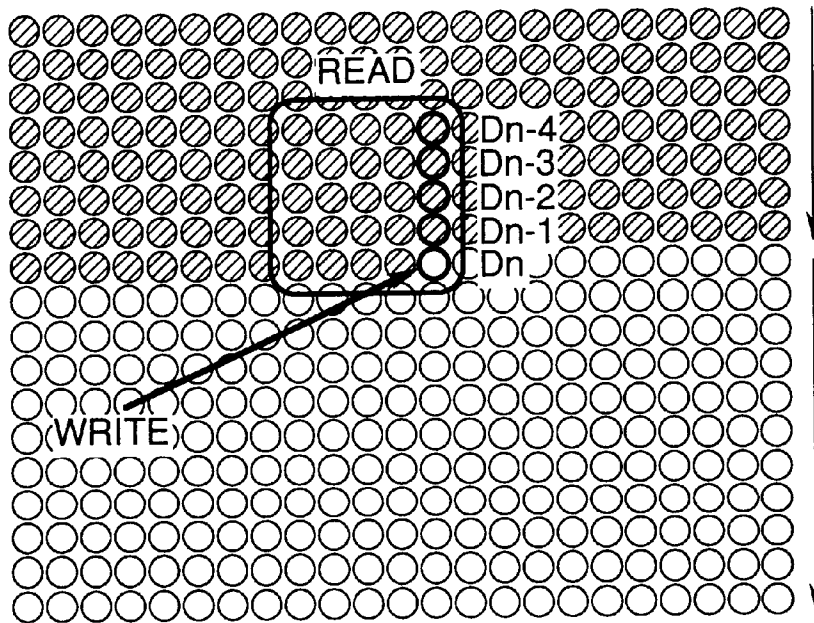


FIG.6



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.