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Sim et al.

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(54) **MEMORY DEVICE HAVING DUAL POWER PORTS AND MEMORY SYSTEM INCLUDING THE SAME**

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FOREIGN PATENT DOCUMENTS

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* cited by examiner

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 10 days.

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(57) **ABSTRACT**

A plurality of internal circuits of a memory device are operable at first and second internal voltages, where the first internal voltage is less than the second internal voltage. A first power port of the memory device receives a first power supply voltage, and a second power port of the memory device receives a second power supply voltage, where the first power supply voltage is less than the second power supply voltage. An internal voltage generation circuit of the memory device is selectively operable in either a first mode in which the second internal voltage is generated from the first power supply voltage, or a second mode in which the second internal voltage is generated from the second power supply voltage.

(21) Appl. No.: **10/384,630**

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(65) **Prior Publication Data**

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(30) **Foreign Application Priority Data**

Apr. 25, 2002 (KR) 10-2002-0022682

(51) **Int. Cl.**⁷ **G11C 7/00**

(52) **U.S. Cl.** **365/226; 365/189.09; 365/189.11**

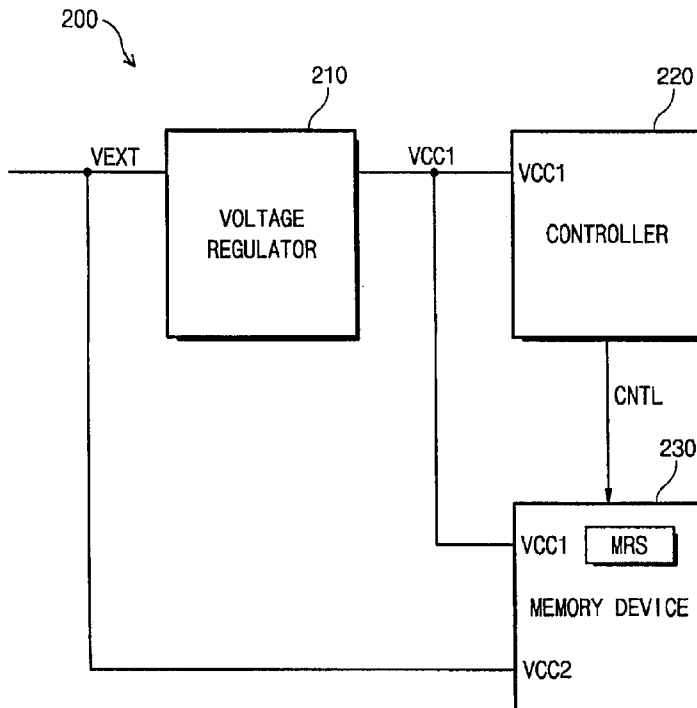
(58) **Field of Search** **365/226, 189.09, 365/189.11, 227**

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23 Claims, 6 Drawing Sheets



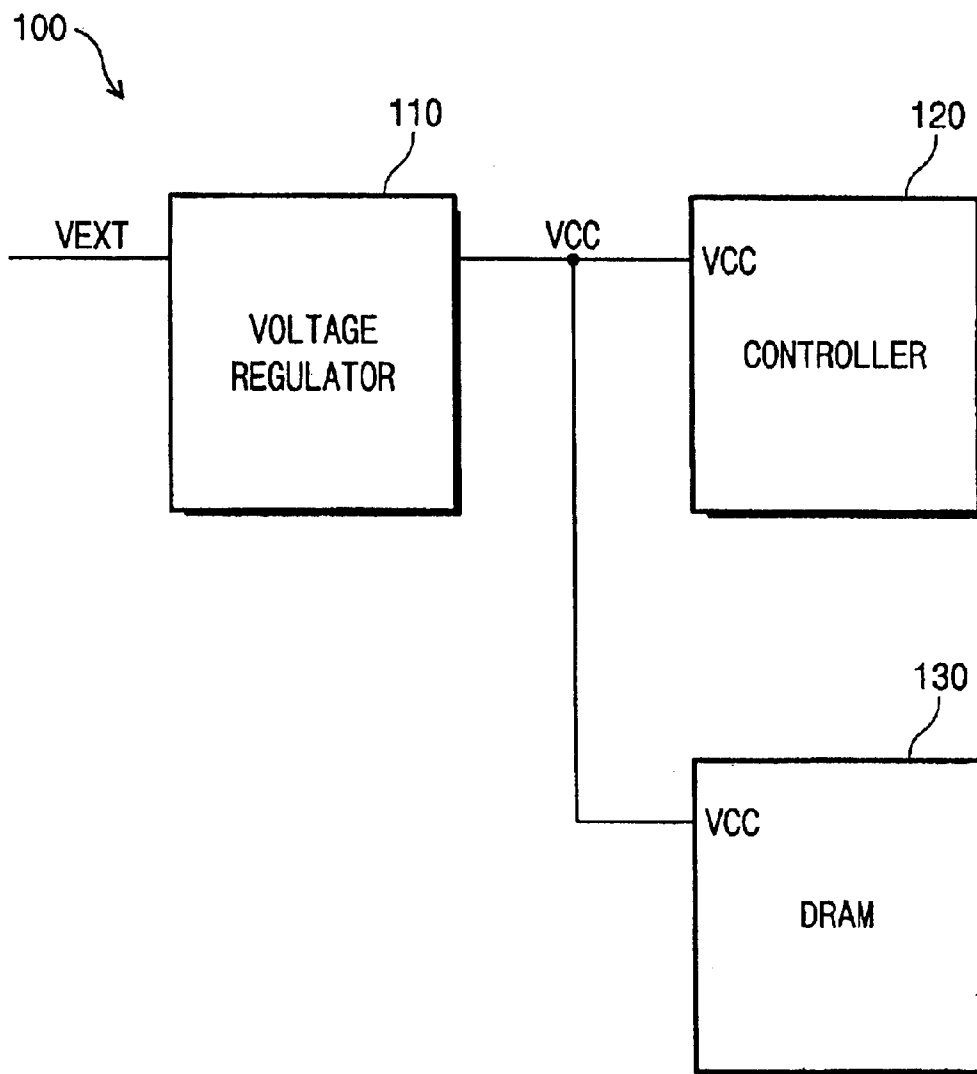


FIG. 1

PRIOR ART

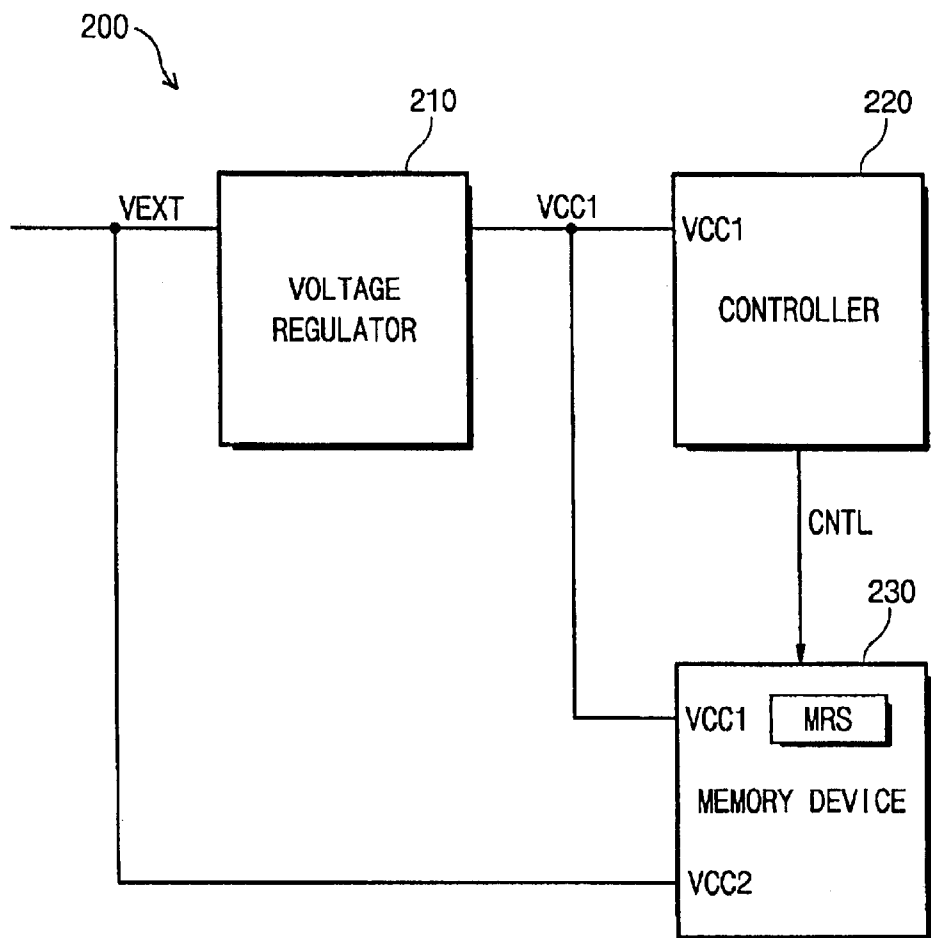


FIG. 2

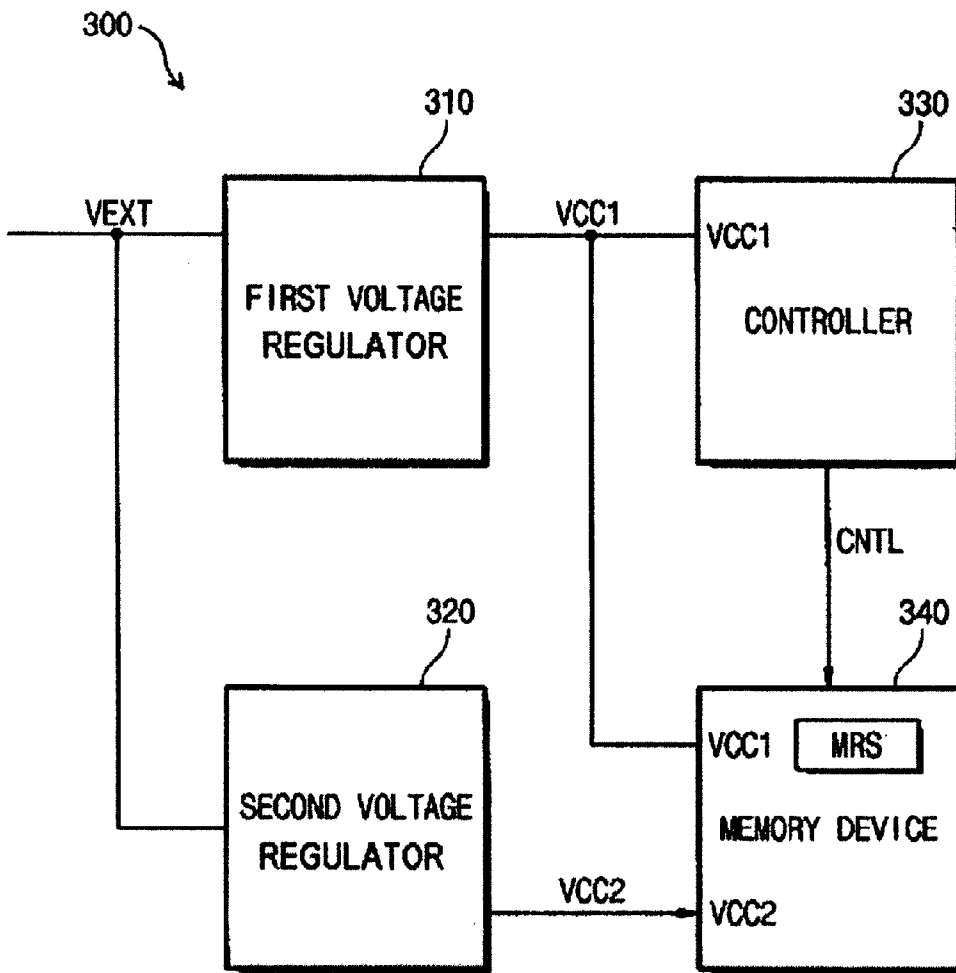


FIG. 3

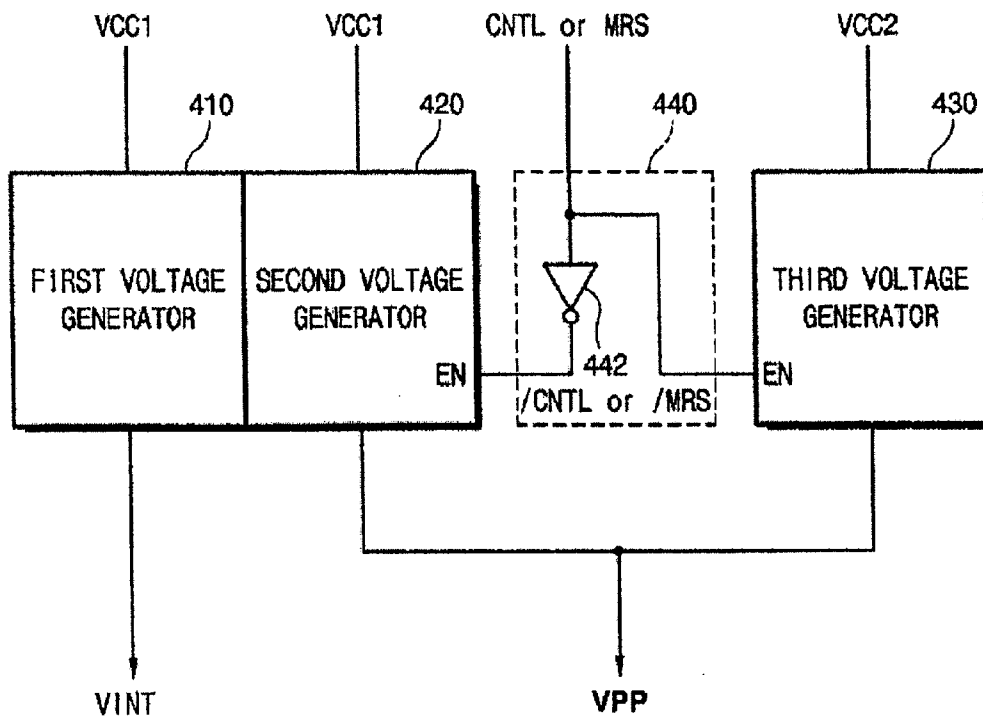


FIG. 4

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