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# United States Patent [19]

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**Kikinis et al.**

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[54] **VARIABLE-VOLTAGE CPU VOLTAGE REGULATOR**

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[21] Appl. No.: **09/017,049**

[22] Filed: **Feb. 2, 1998**

### Related U.S. Application Data

[62] Division of application No. 08/753,262, Nov. 12, 1996, Pat. No. 5,774,734, which is a continuation of application No. 08/319,817, Oct. 7, 1994, abandoned.

[51] **Int. Cl.<sup>6</sup>** ..... **G06F 1/26**

[52] **U.S. Cl.** ..... **713/300; 323/282; 323/351**

[58] **Field of Search** ..... **713/300; 323/351, 323/282, 281, 352, 353, 354**

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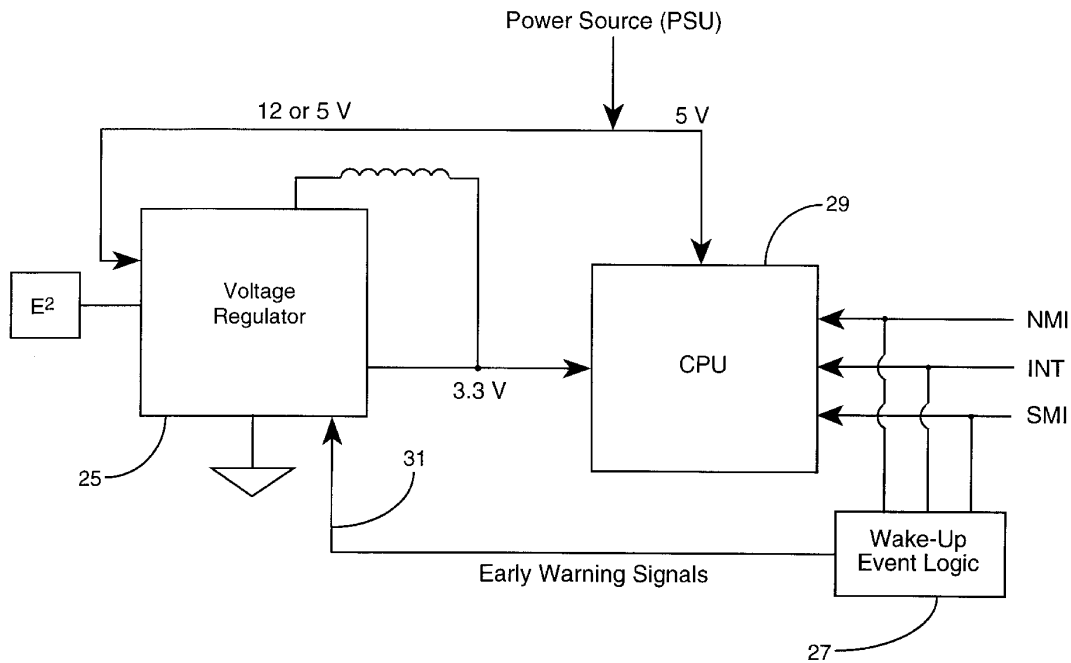
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*Attorney, Agent, or Firm*—Donald R. Boys

### [57] ABSTRACT

An integrated CPU has an on-board switching voltage regulator with an electrically-erasable programmable read-only memory electronically accessible for storing a feedback reference coefficient for control. In further embodiments, output voltage is tuned via a second EEPROM storing an electronically accessible value in concert with a solid-state resistor ladder. In other embodiments, signals on interrupt lines to the CPU are monitored to provide a prewarning of impending activity by the CPU requiring dramatically increased current flow. In yet other embodiments, solid state circuitry is provided to reduce or eliminate capacitors used for dealing with input current surges to the CPU.

**9 Claims, 7 Drawing Sheets**



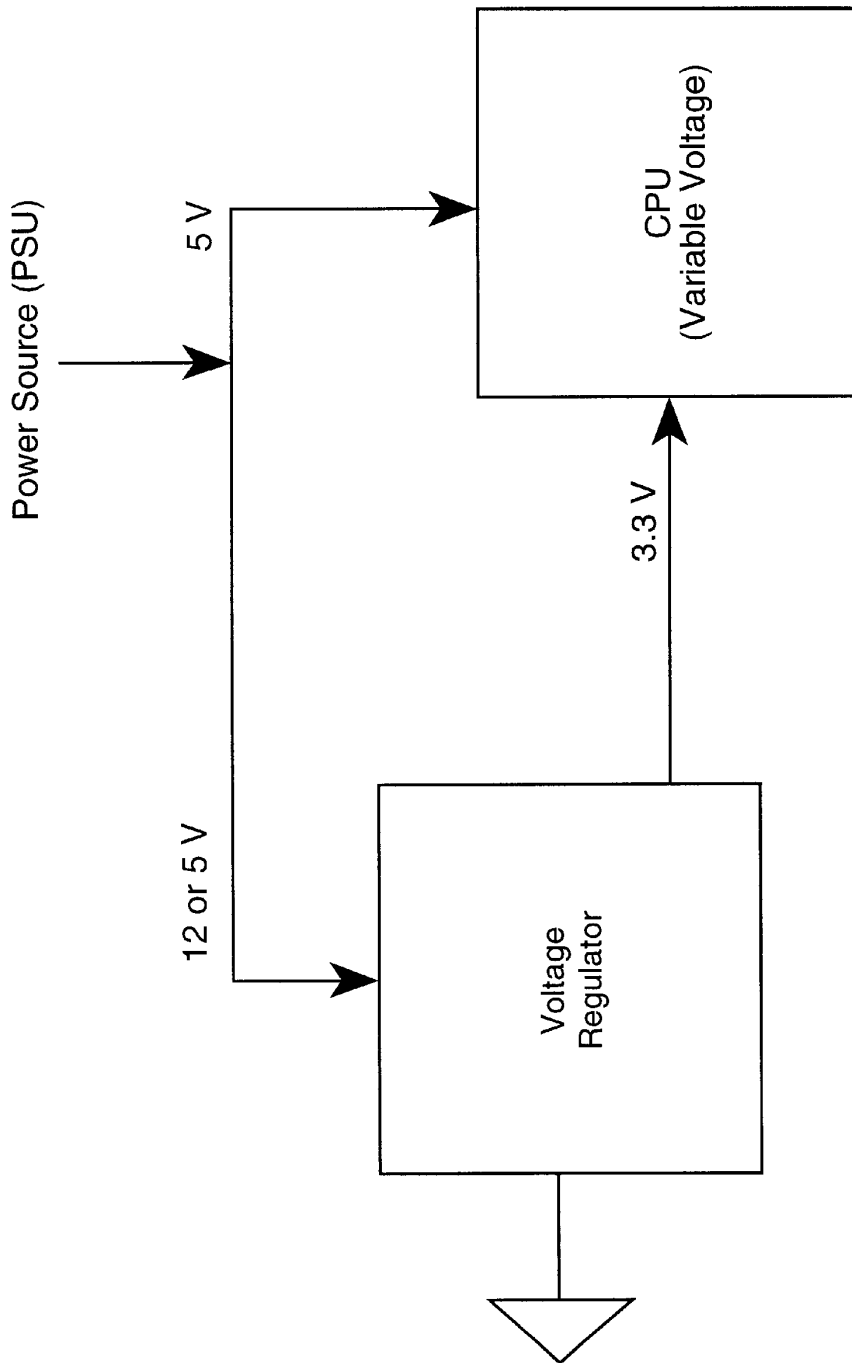


Figure 1 (Prior Art)

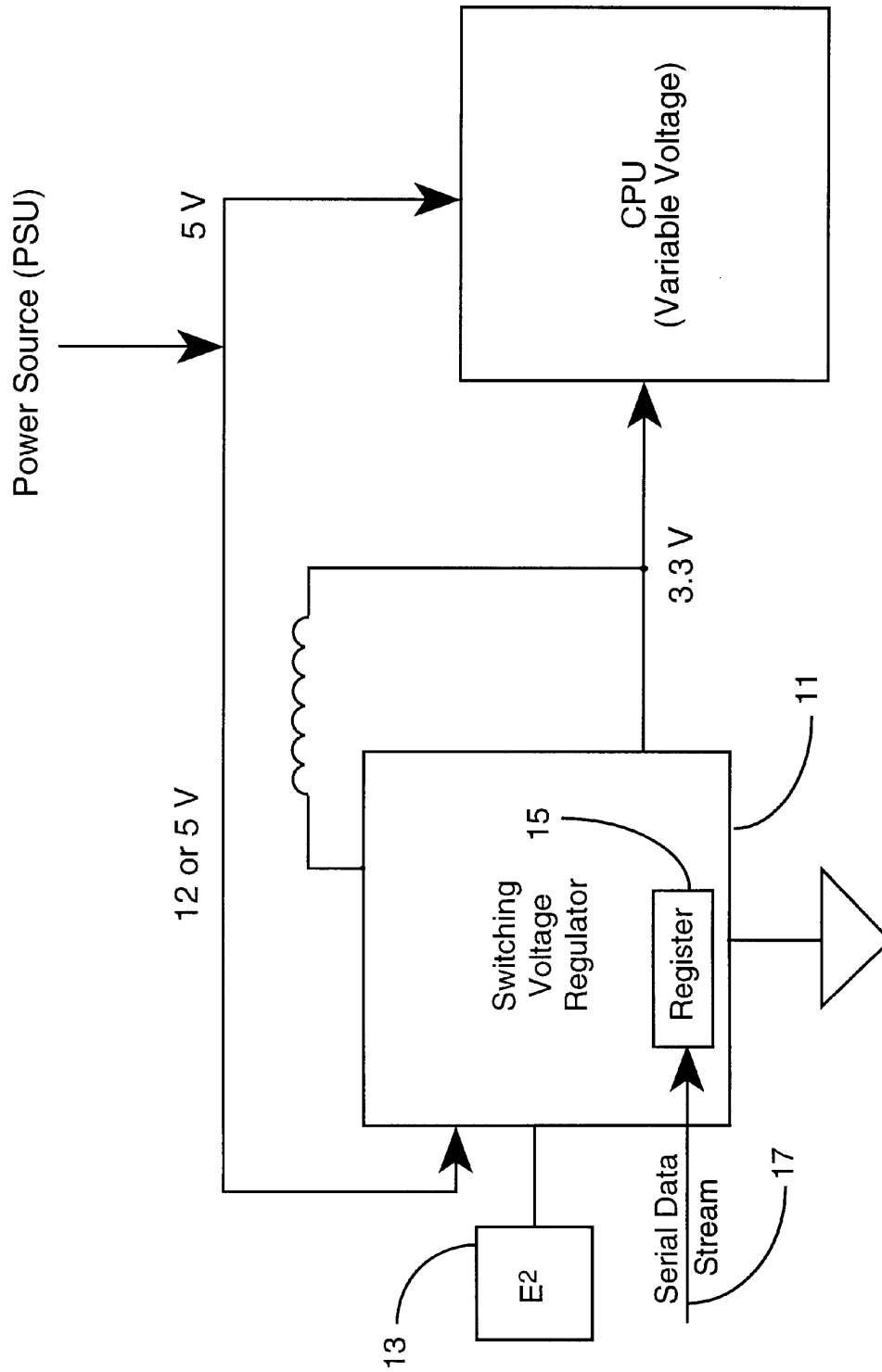


Fig. 2

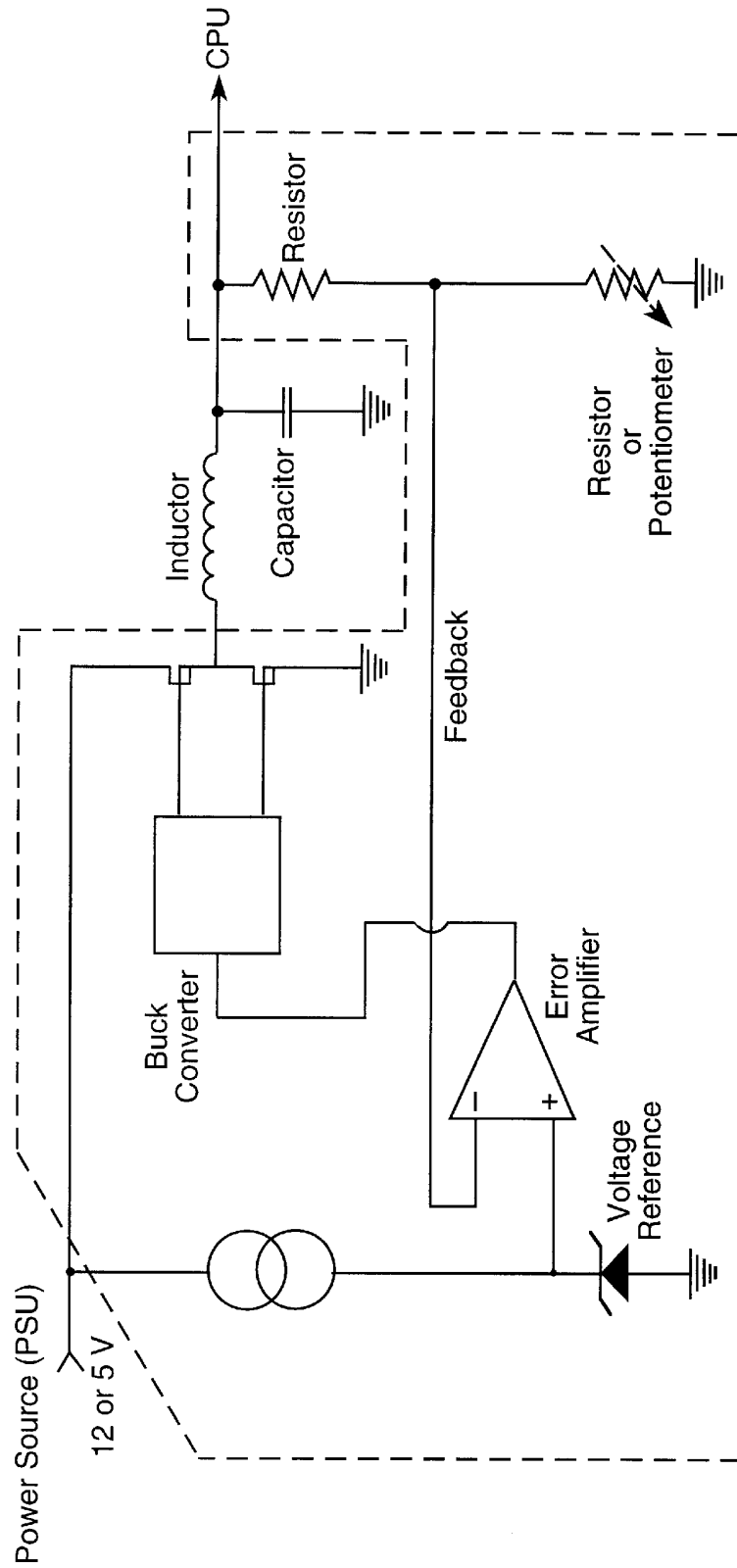


Fig. 3 (Prior Art)

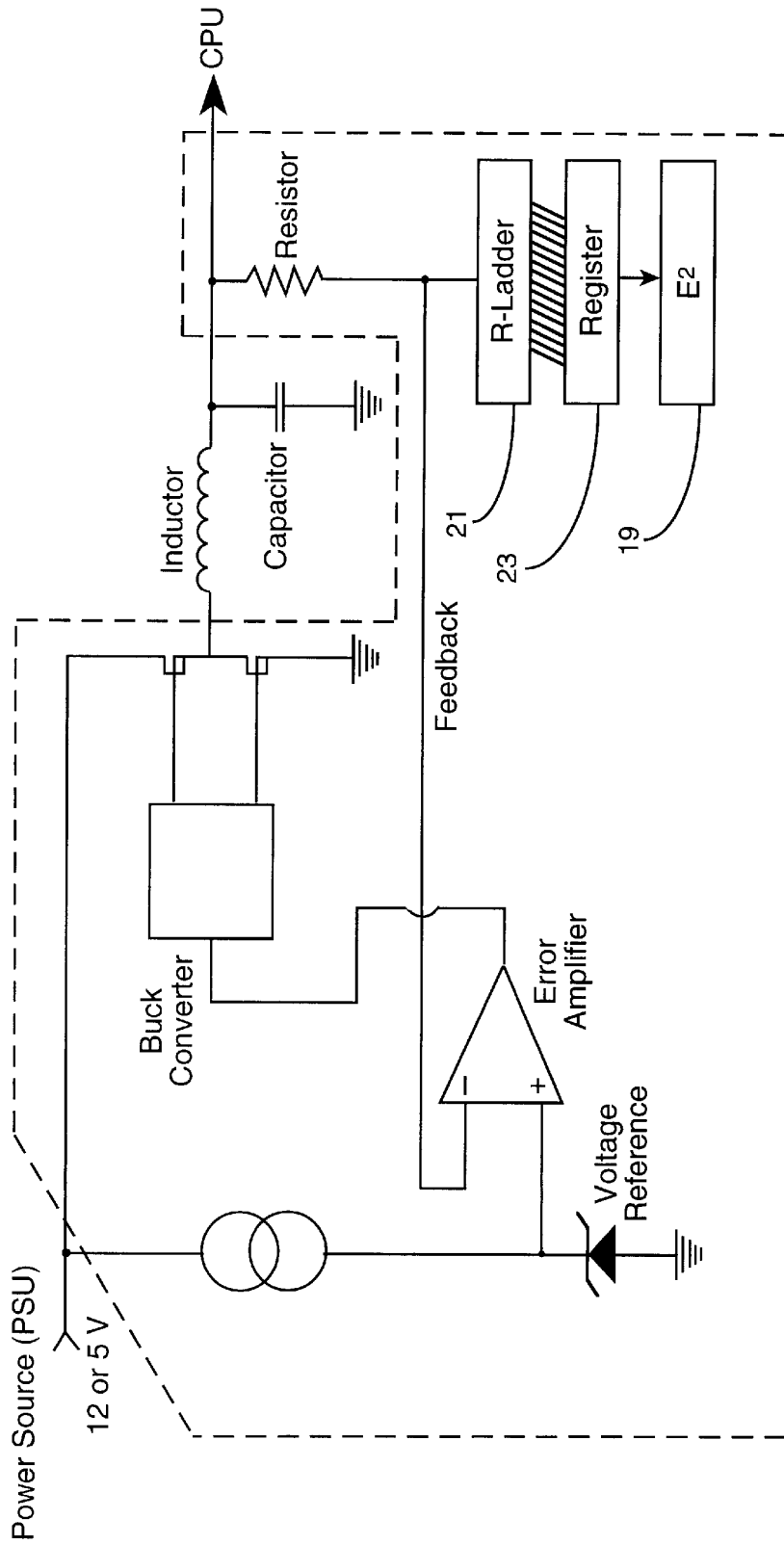


Fig. 4

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