

(12) **United States Patent**
Liu et al.

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(54) **MICROCONTROLLER WITH SELECTABLE OSCILLATOR SOURCE**

(58) **Field of Search** 713/500, 600, 713/322, 601; 712/1

(75) **Inventors:** **Shyun Liu**, San Jose, CA (US);
Wendell Little, Denton, TX (US);
Steve Grider; **Matt Adams**, both of
Dallas, TX (US)

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(73) **Assignee:** **Dallas Semiconductor Corporation**,
Dallas, TX (US)

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

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(21) **Appl. No.:** **09/007,263**

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(22) **Filed:** **Jan. 14, 1998**

Primary Examiner—Dennis M. Butler

Related U.S. Application Data

(74) *Attorney, Agent, or Firm*—Jenkins & Gilchrist

(63) Continuation-in-part of application No. 08/412,664, filed on Mar. 29, 1995, now abandoned, which is a continuation-in-part of application No. 08/015,691, filed on Feb. 9, 1993, now Pat. No. 5,473,271, and a continuation-in-part of application No. 08/196,273, filed on Feb. 9, 1994, now abandoned.

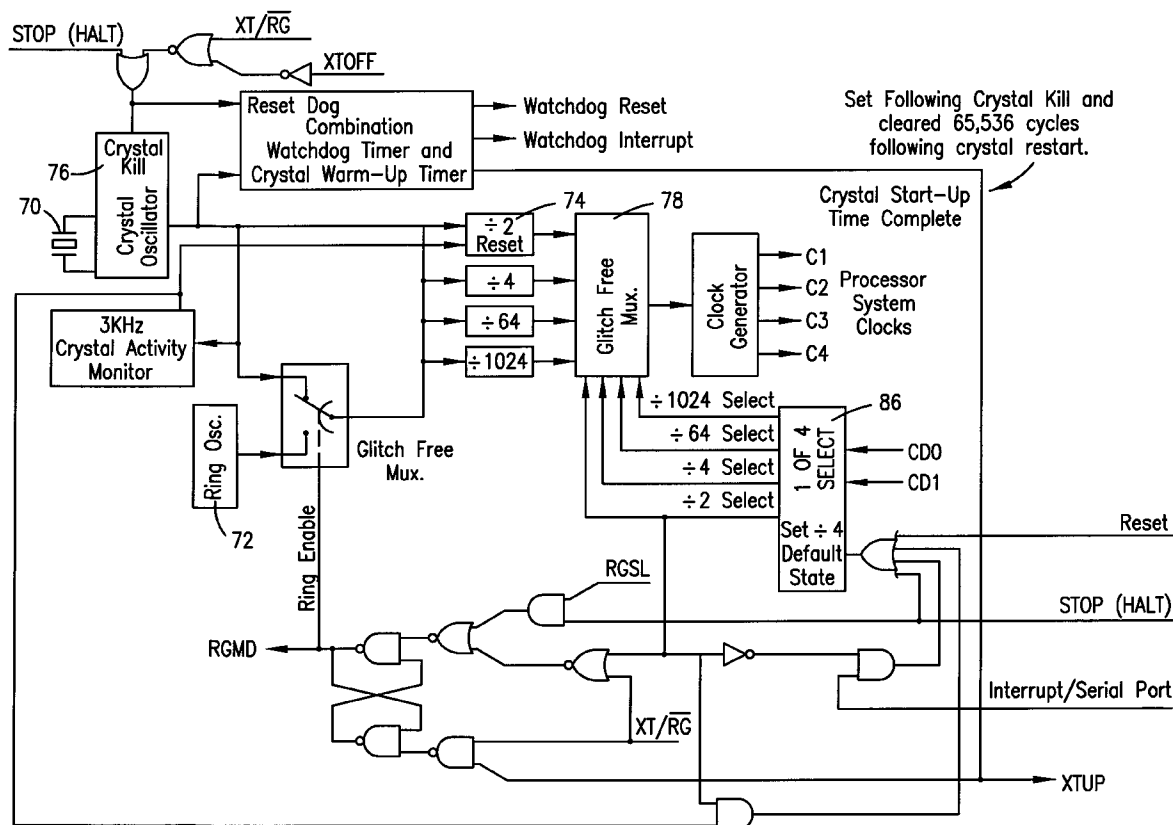
(57) **ABSTRACT**

An 8051 microprocessor core having an ability to operate via an external crystal oscillator or be switched to operate in a low power mode via an internal ring oscillator.

(51) **Int. Cl.⁷** **G06F 1/04**

11 Claims, 7 Drawing Sheets

(52) **U.S. Cl.** **713/500; 713/322; 713/601**



Rubicon Communications, LP
Ex. 1044

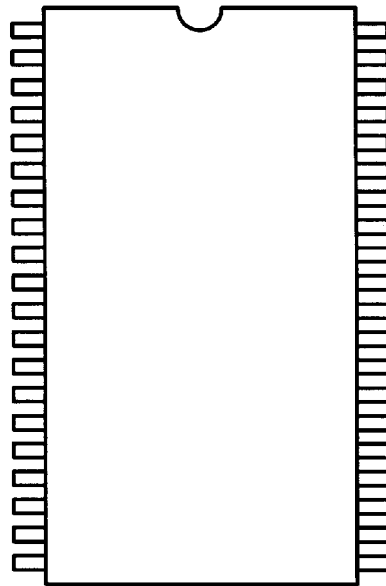


FIG. 1A

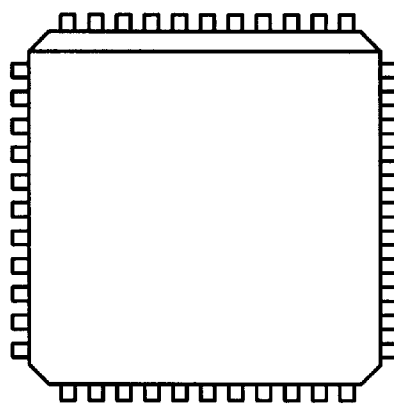


FIG. 1B

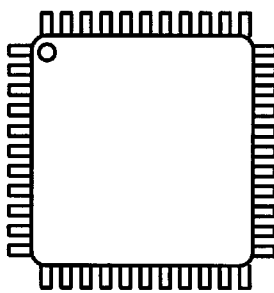


FIG. 1C

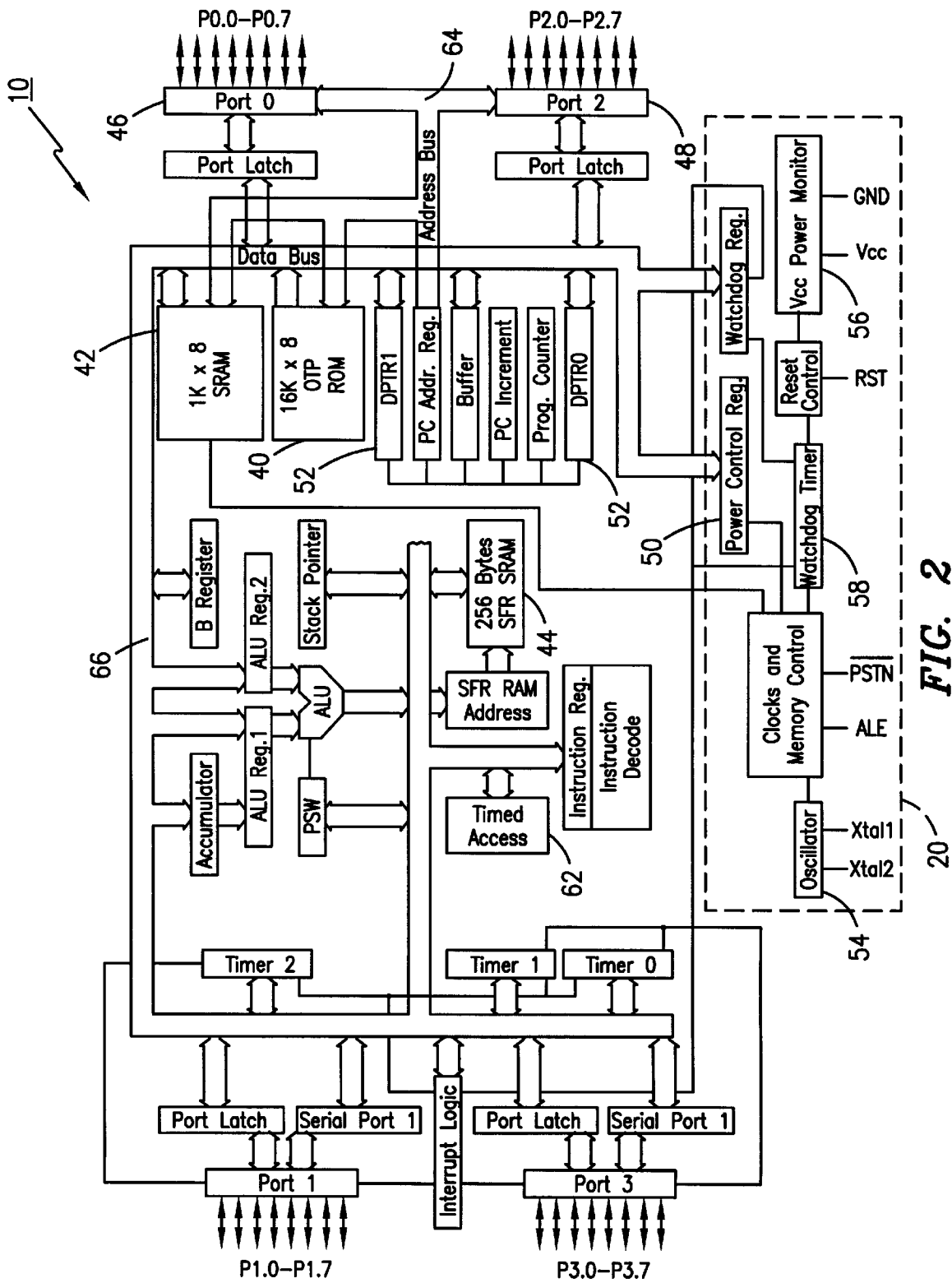


FIG. 2

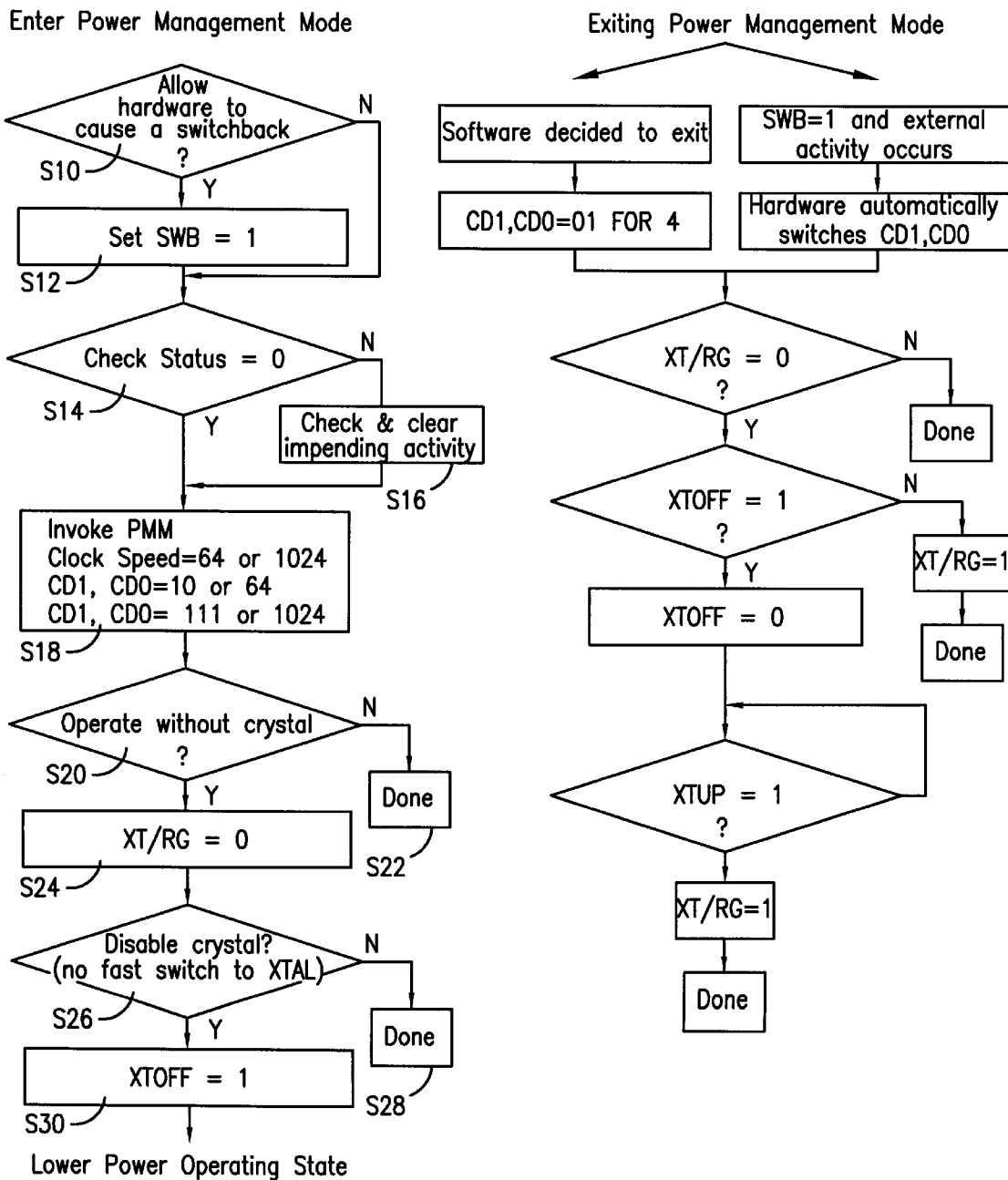


FIG. 3

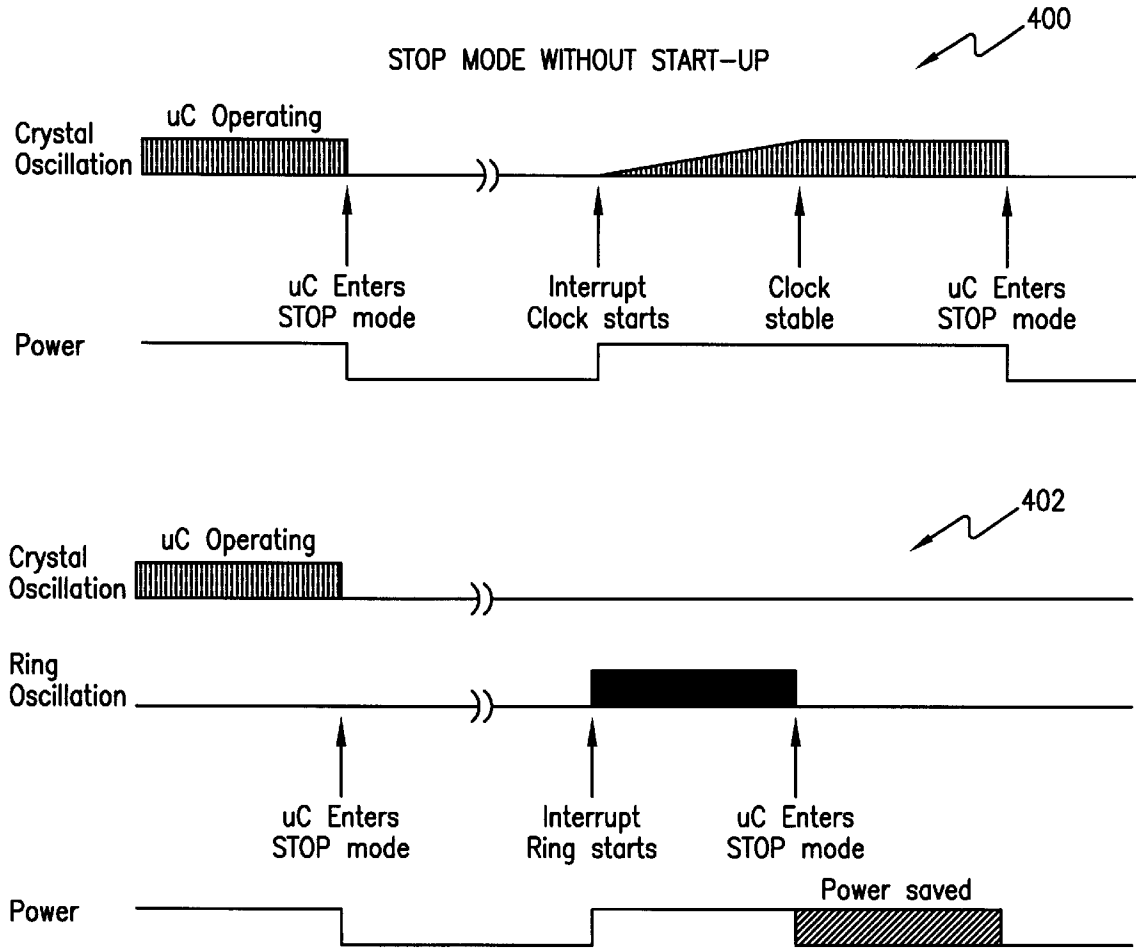


Diagram assumes that the operation following STOP requires less than 16mS to complete.

FIG. 4

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