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United States Patent [19]

Watabe et al.

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[45] Date of Patent: Aug. 18, 1998

[54] **DISTRIBUTED CONTROL SYSTEM IN WHICH INDIVIDUAL CONTROLLERS EXECUTED BY SHARING LOADS**

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[73] Assignee: **Hitachi, Ltd.**, Tokyo, Japan

[21] Appl. No.: **801,923**

[22] Filed: **Feb. 14, 1997**

Related U.S. Application Data

[63] Continuation of Ser. No. 203,295, Mar. 1, 1994, abandoned.

[30] **Foreign Application Priority Data**

Mar. 1, 1993 [JP] Japan 5-39643

[51] **Int. Cl.**[6] **G06F 13/00**

[52] **U.S. Cl.** **395/182.09**

[58] **Field of Search** 395/182.09, 182.08, 395/182.02, 182.01, 183.01

[56] **References Cited**

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[57] **ABSTRACT**

A distributed control system includes a plurality of controllers each composed of a plurality of processors and being coupled through a network. Each controller includes a scheduler for measuring a load; internal backup means for controlling which controller bears the load; backup request means for requesting another controller to bear the load; and backup accept means for answering to a request for bearing the load from another controller in accordance with the load of the requesting controller. Thus, the load which cannot be executed by one controller can be distributed and executed by other controllers in accordance with their loads.

21 Claims, 14 Drawing Sheets

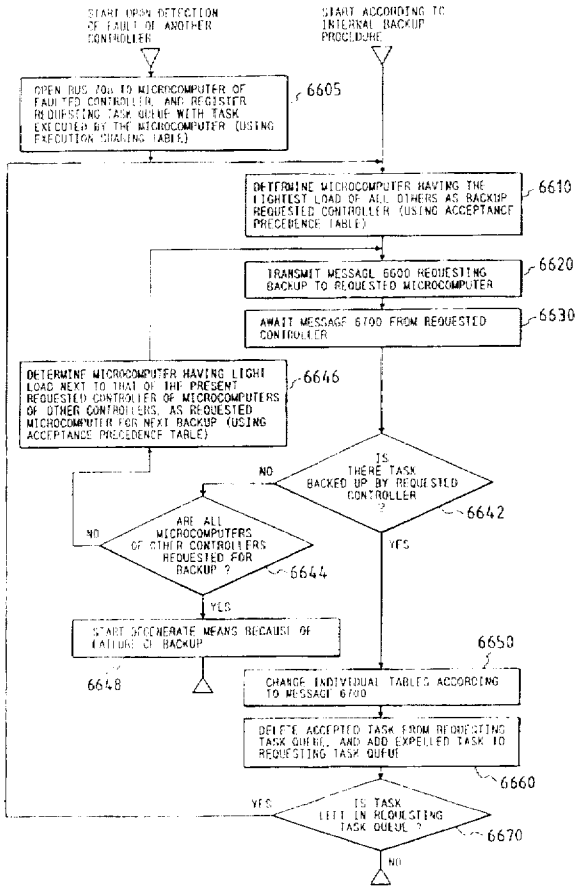

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FIG. 1

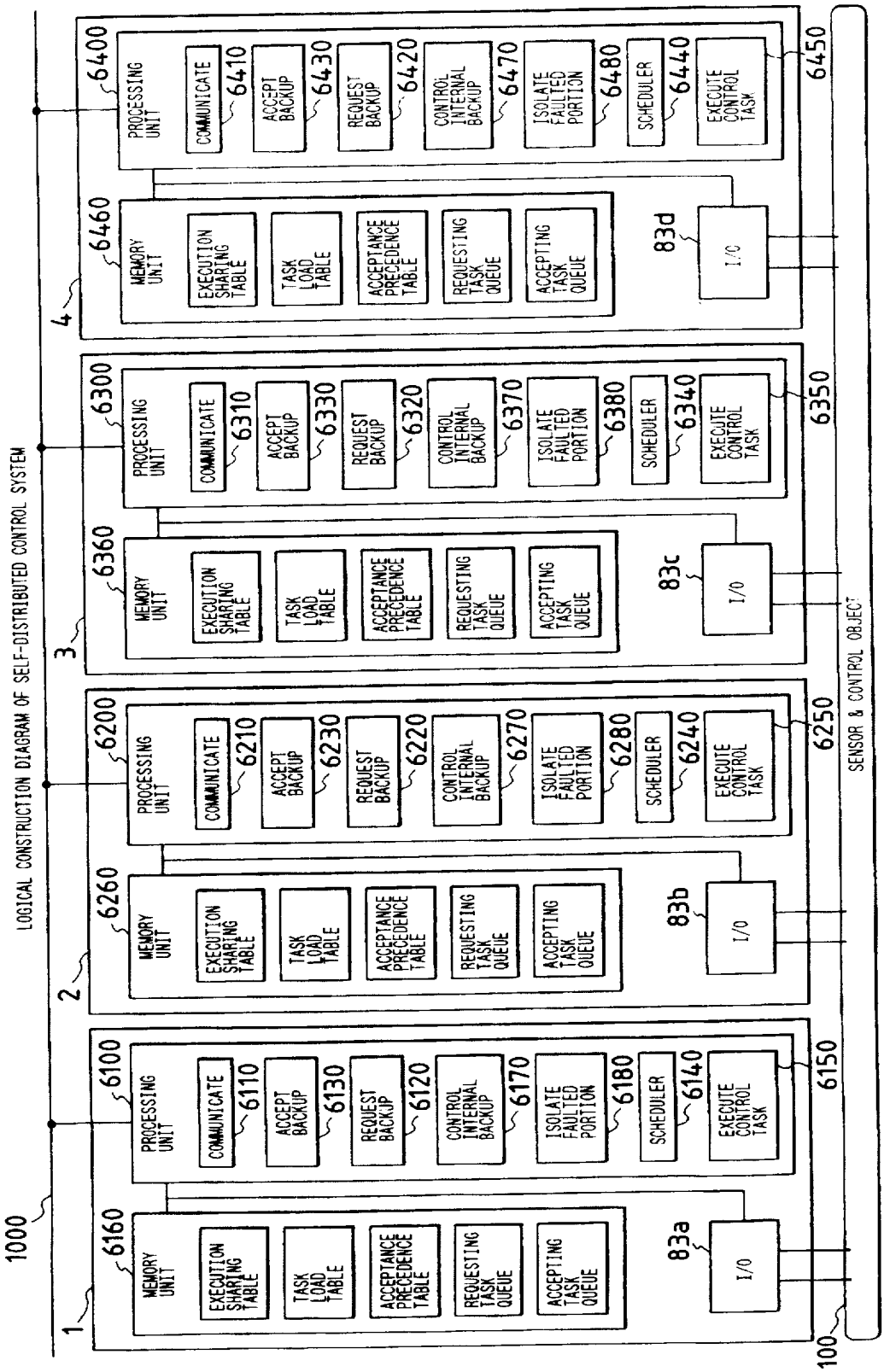

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FIG. 2

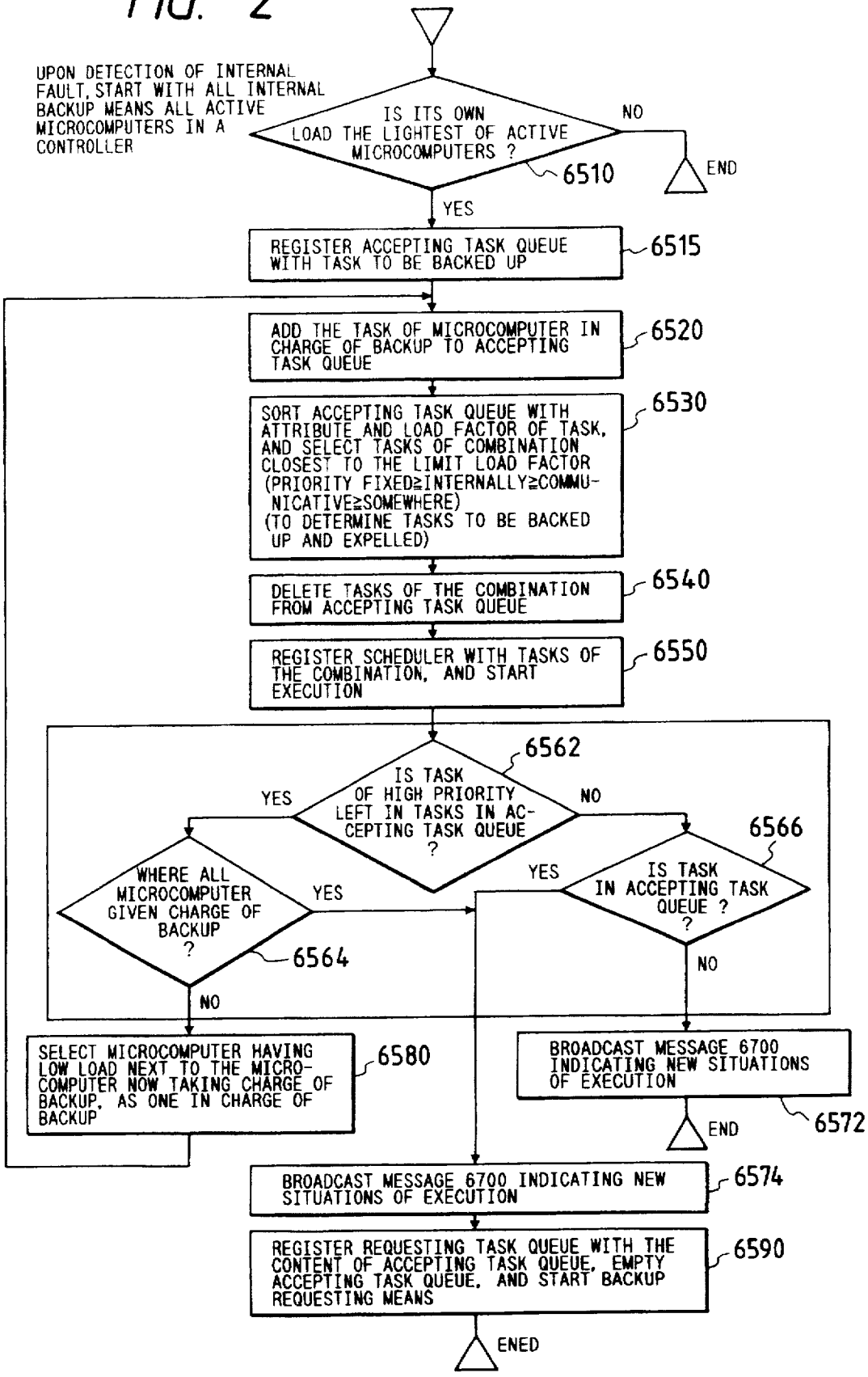

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FIG. 3

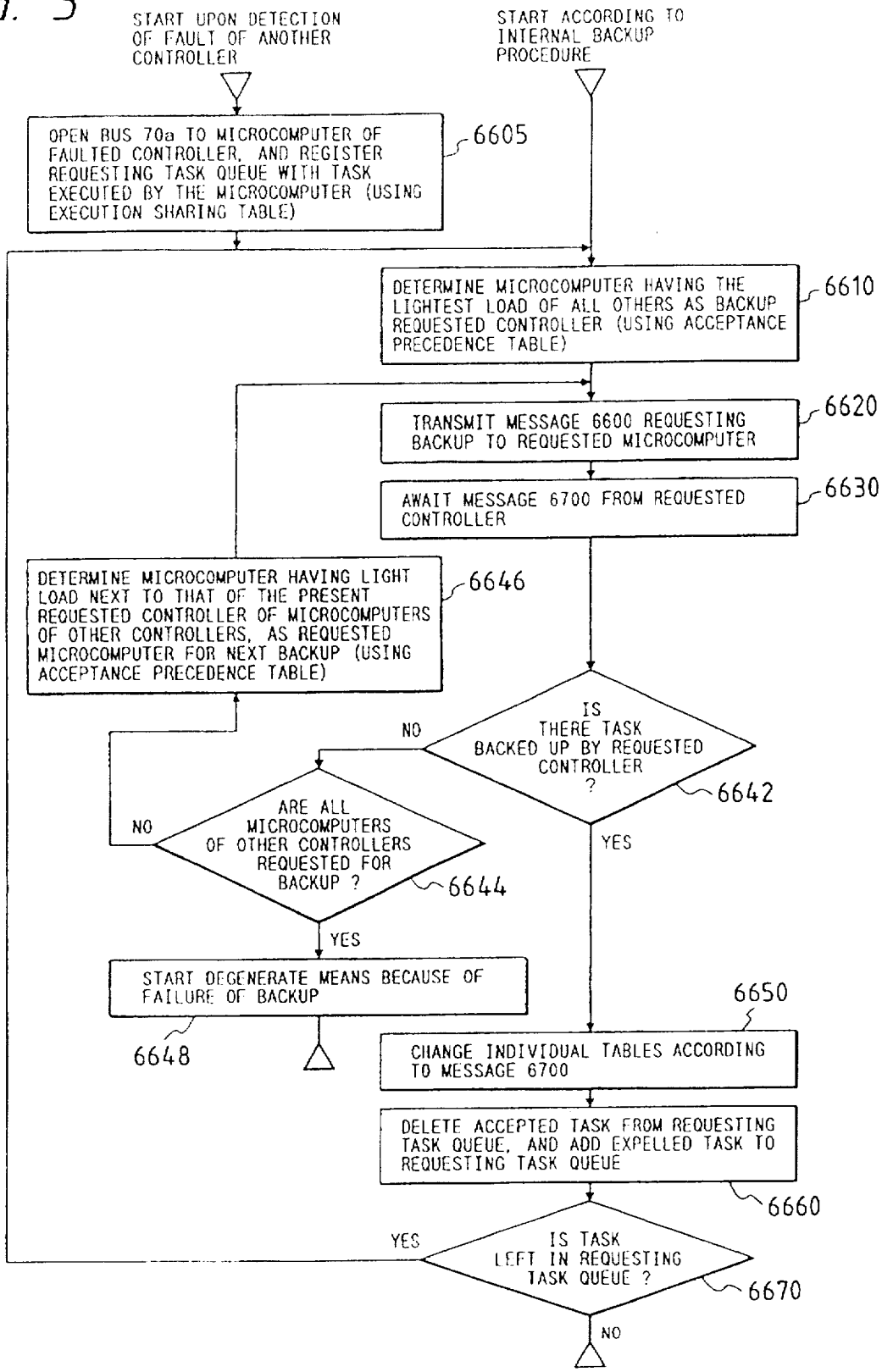

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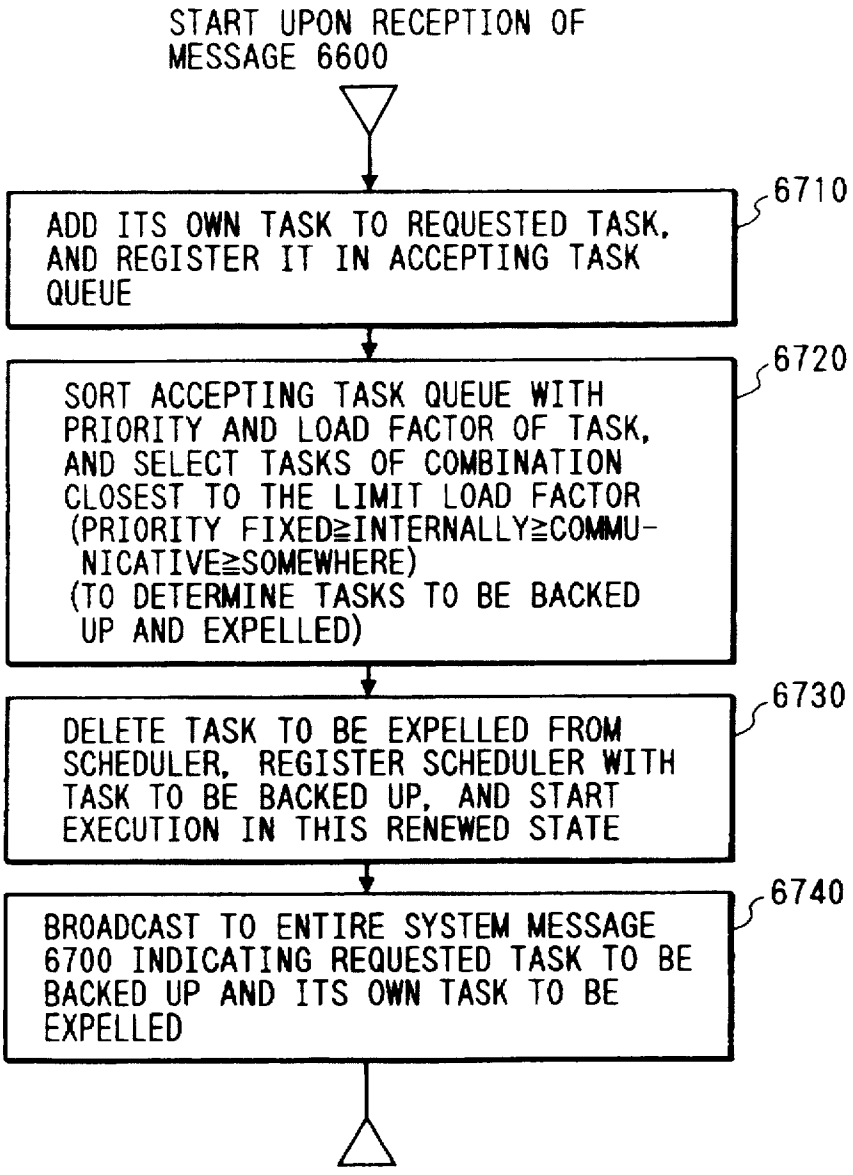
FIG. 4



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