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(54) **SYSTEM AND METHOD FOR ESTABLISHING PROCESSOR REDUNDANCY**

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(58) Field of Search 714/10; 709/222, 709/238; 712/11, 14, 15, 20

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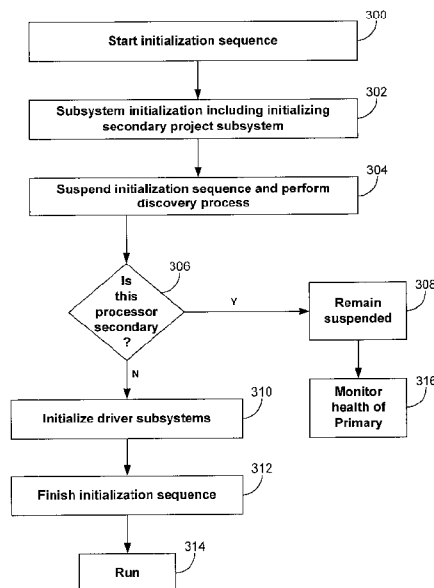
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(57) **ABSTRACT**

The present invention relates to providing processor redundancy in a system such as a router. According to an embodiment of the present invention, in a system having two or more processors, initialization sequence is started. During the initialization sequence, a redundancy subsystem is initialized. The redundancy subsystem identifies the projects or assignments that are to be off loaded from the primary processor to the secondary processor. According to an embodiment of the present invention, the initialization sequence is then suspended and a discovery process is performed. During the discovery process, it is determined whether the processor running the initialization sequence is a primary or a secondary processor. If it is a secondary processor, then the initialization sequence remains suspended and the secondary processor monitors the health of the primary processor until a failure of the primary processor occurs. If a primary processor failure occurs, then the initialization process is resumed for the secondary processor, hence establishing the secondary processor as the new primary processor.
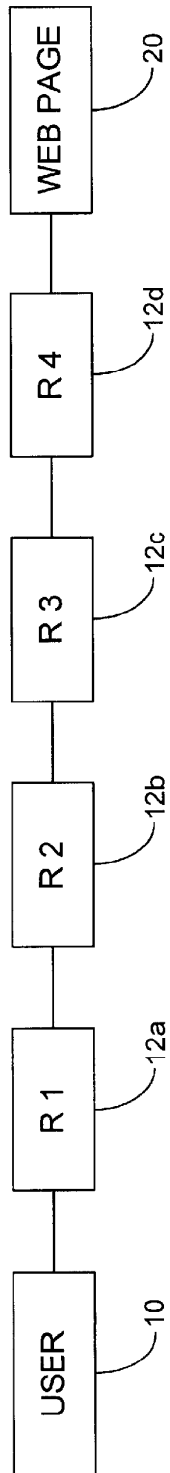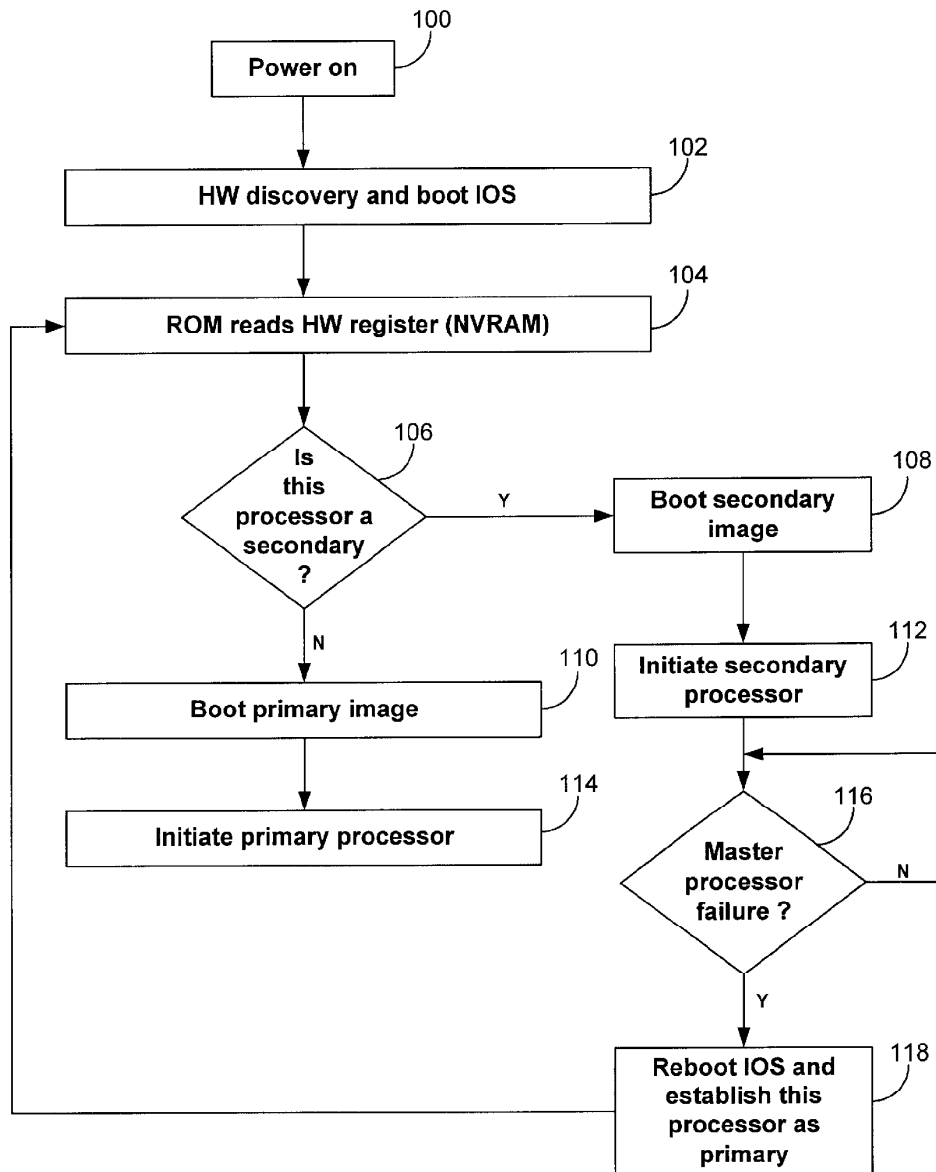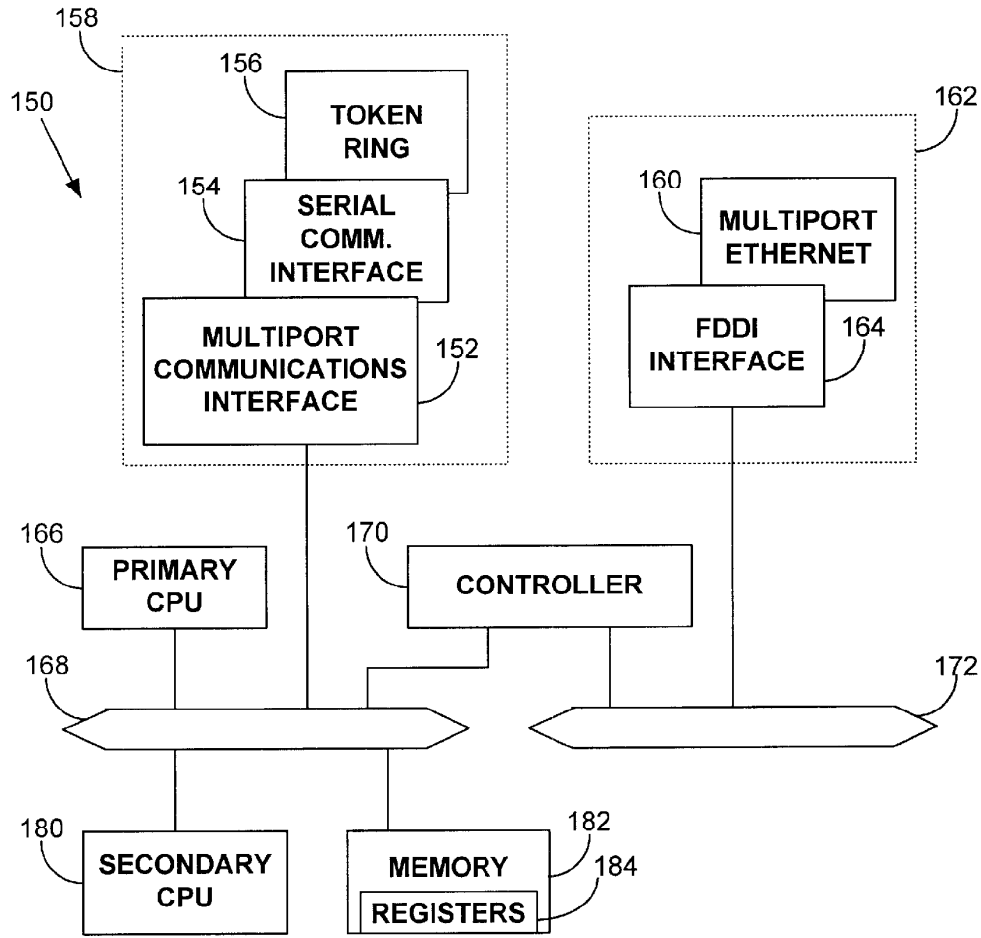
19 Claims, 8 Drawing Sheets

FIG. 1

100

Power on

102

HW discovery and boot IOS

104

ROM reads HW register (NVRAM)

106

Is this processor a secondary ?

— Y →

108

Boot secondary image

N

110

Boot primary image

112

Initiate secondary processor

114

Initiate primary processor

116

Master processor failure ?

— N

Y

118

Reboot IOS and establish this processor as primary

FIG. 2

158

156

150

TOKEN
RING

154

SERIAL
COMM.
INTERFACE

162

160

MULTIPORT
ETHERNET

MULTIPORT
COMMUNICATIONS
INTERFACE

152

FDDI
INTERFACE

164

166

PRIMARY
CPU

170

CONTROLLER

168

172

180

SECONDARY
CPU
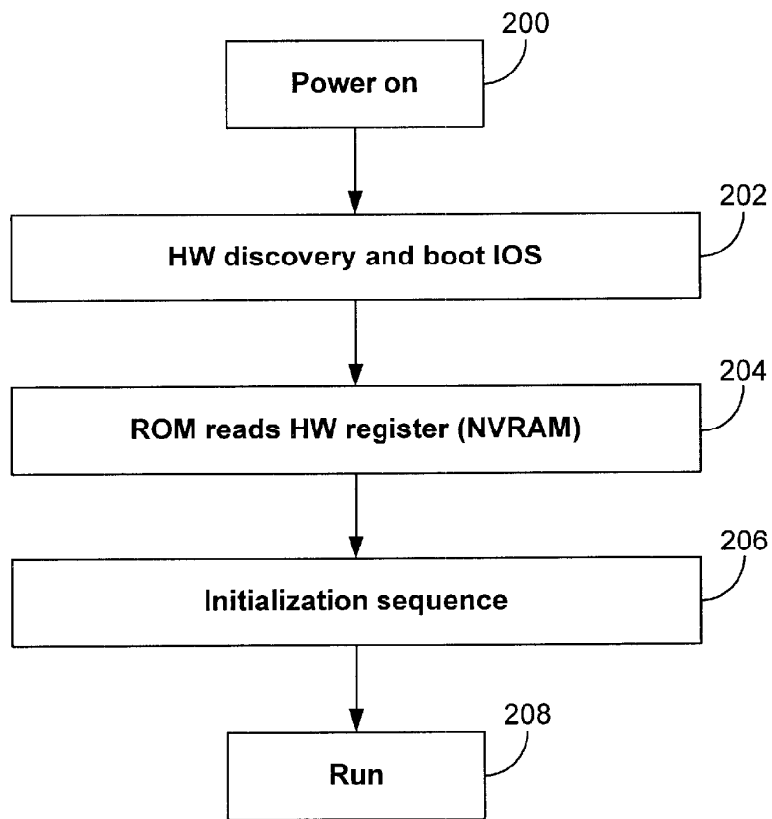
182

MEMORY

184

REGISTERS

FIG. 3

FIG. 4

DOCKET ALARM

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