



United States Patent [19]

Mirov et al.

[11] **Patent Number:** **6,138,236**

[45] **Date of Patent:** ***Oct. 24, 2000**

- [54] **METHOD AND APPARATUS FOR FIRMWARE AUTHENTICATION**
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[*] Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

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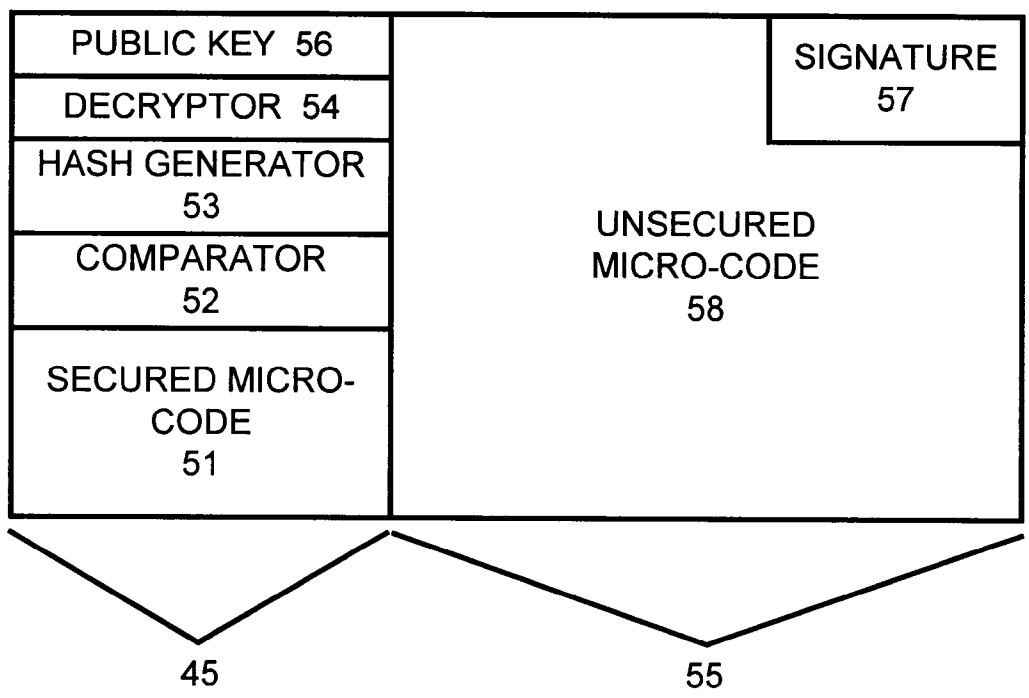
[57] ABSTRACT

An apparatus for firmware authentication and methods of operating the same result in software upgradability to firmware without compromising the integrity of the firmware. The apparatus for firmware authentication of a boot PROM comprises a software programmable data section having a plurality of micro-code. An authentication section having a hash generator configured to generate a data hash in response to the plurality of micro-code programmed in the software programmable data section to authorize execution of the plurality of micro-code of the data section.

- [21] Appl. No.: **08/674,026**
- [22] Filed: **Jul. 1, 1996**
- [51] **Int. Cl.**⁷ **G06F 11/30**; H04L 9/00
- [52] **U.S. Cl.** **713/200**; 713/202
- [58] **Field of Search** 713/200, 201,
713/202, 155, 161, 180; 380/282, 281

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17 Claims, 4 Drawing Sheets



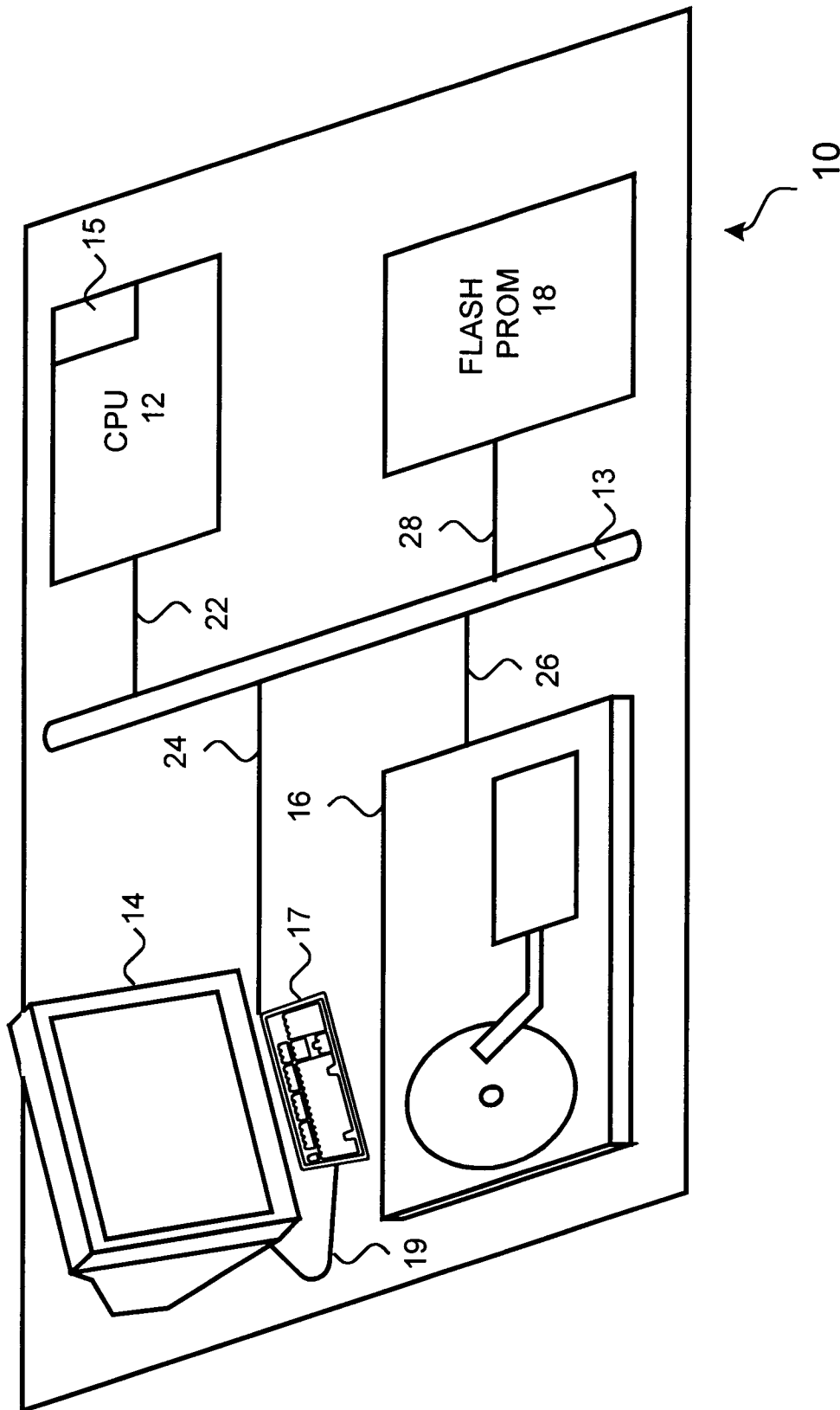


FIG. 1

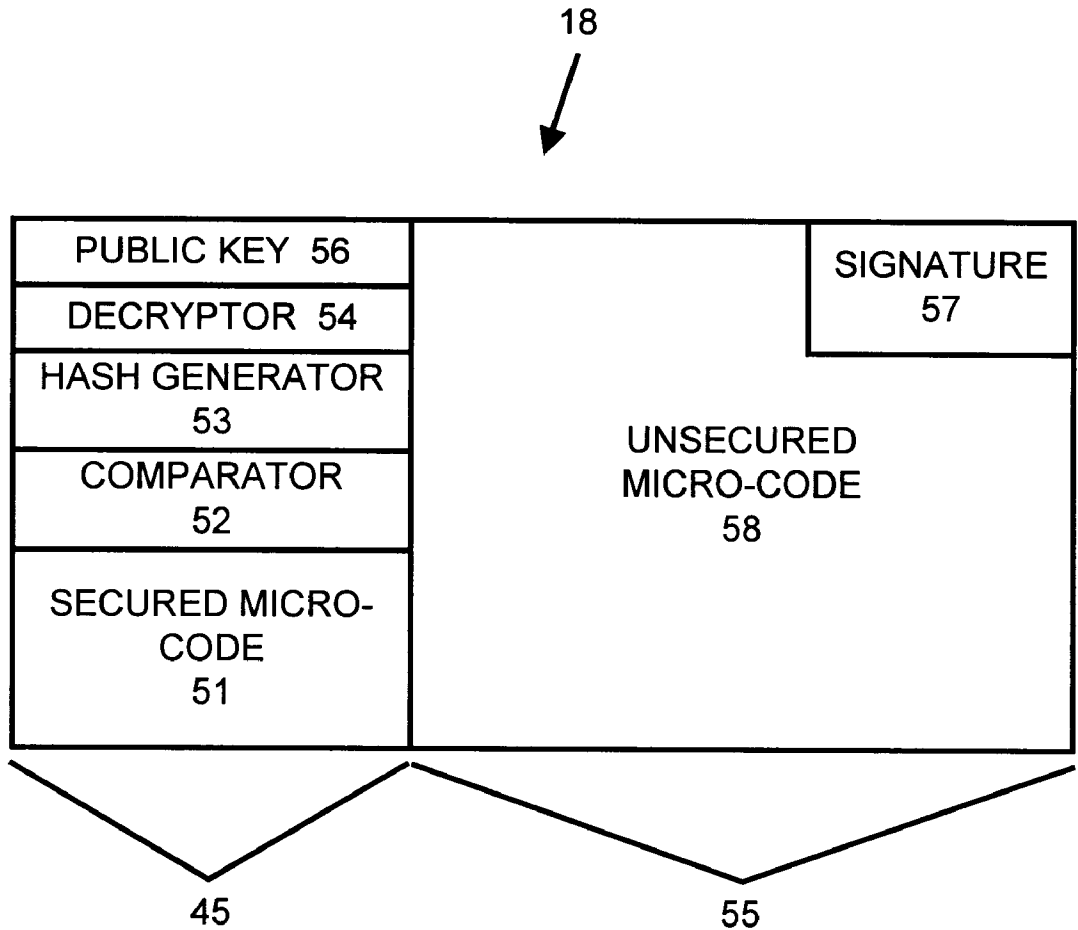


FIG. 2

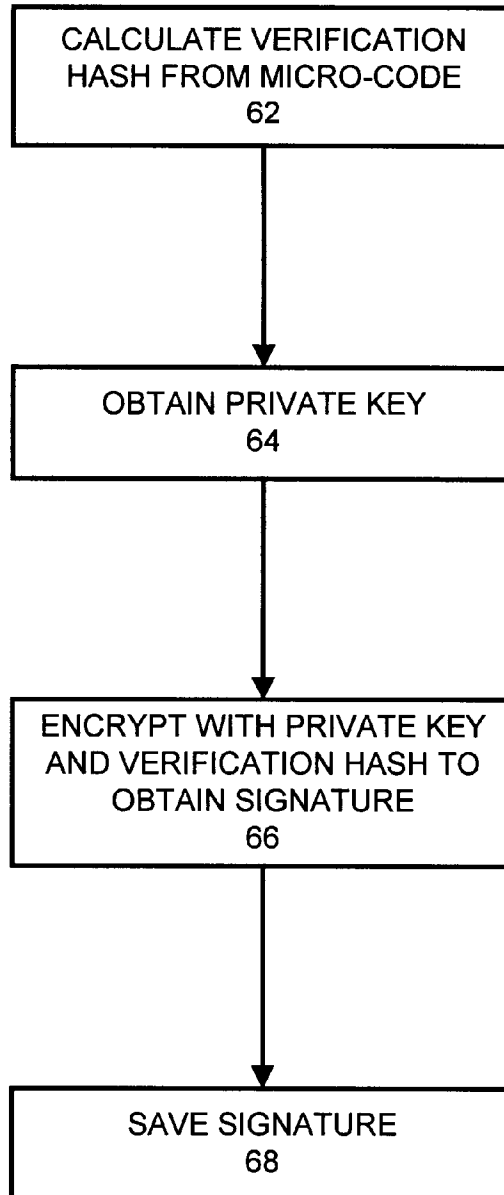


FIG. 3

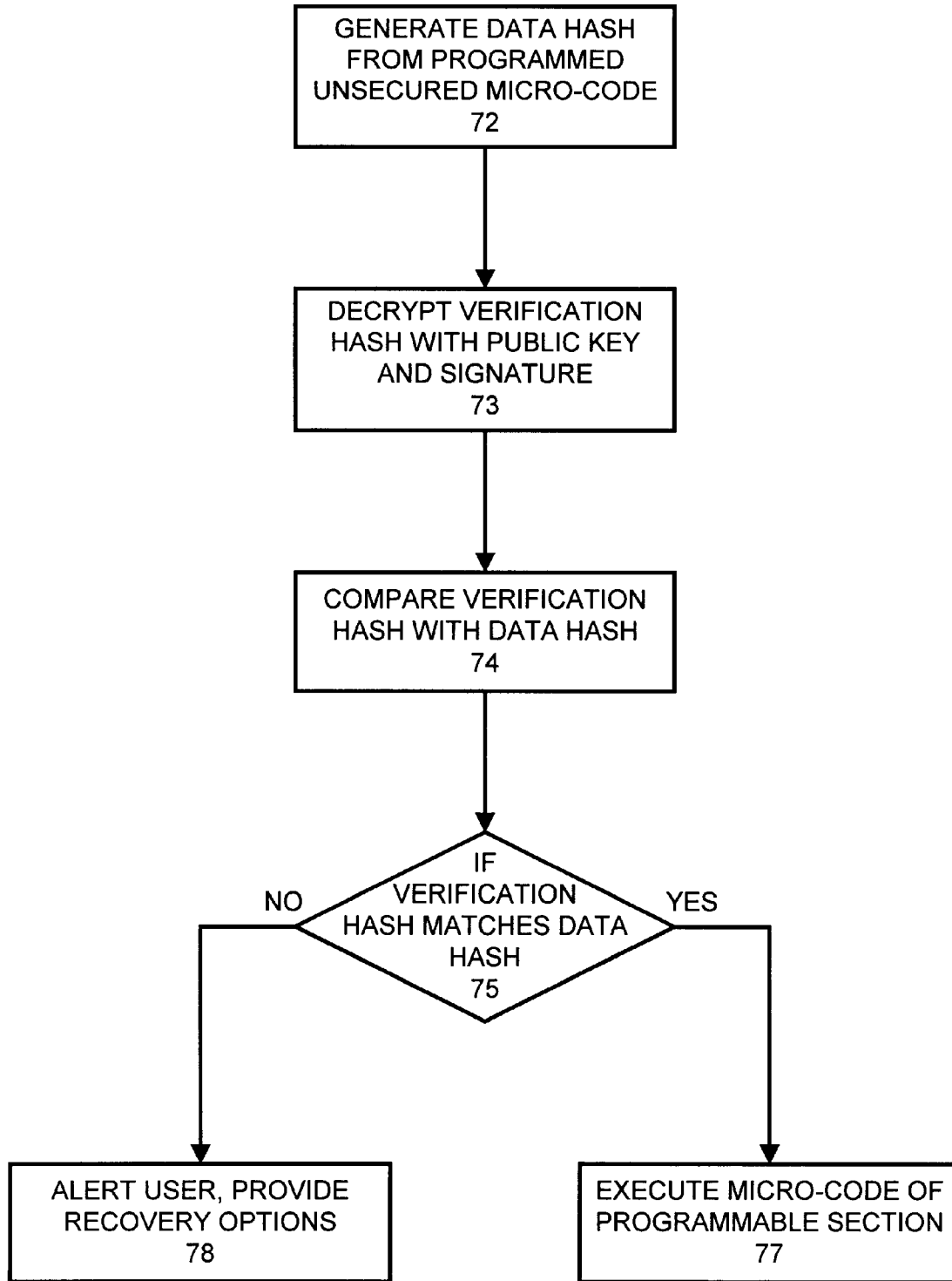


FIG. 4

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