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SECURE, TOOL-FREE LATCH/RELEASE FOR BOTTOM COVER ACCESS

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Secure, Tool-Free Latch/Release for Bottom Cover Access

Abstract: A slim, security-lockable, tool-free latch and release mechanism for a bottom cover of an electronic device.

This disclosure relates to the field of electronic devices, and more specifically, computers.

A technique is disclosed that provides a slim, security-lockable, tool-free latch and release mechanism for access to the interior of an electronic device from its bottom side.

As computers become both smaller and more powerful, more and more components are packed into a decreasing amount of space. One technique that is employed to accomplish this is to move certain components, such as DIMM memory, the WLAN module, and others, from the top side of the motherboard to the bottom side.

However, typically the space between the bottom side of the motherboard and the enclosure of the computer is minimal. The placement of components on the bottom side of the motherboard further constricts this. In addition, there is a need to provide access to the bottom side of the motherboard both in the factory and by end users in order, for example, to add, upgrade, or replace the bottom-side components. There is also a need to prevent unauthorized access to these components

According to the present disclosure, and as understood with reference to the Figure, a first schematic side view 10 of the bottom portion of an electronic device shows a bottom access door 20 in a closed position, while a second schematic side view 50 of the bottom portion of the electronic device shows the bottom access door 20 in a closed position.

Certain components (e.g. CPU, M.2 devices) are mounted on the top side 32 of a motherboard, while other components (DIMM, WLAN) are mounted on the bottom side 34 of the motherboard. The bottom-side components are accessible only from the bottom of the device.

When a release mechanism 40 is operated, the latch 22 is released and the bottom access door 20 can be opened. In some configurations, the release mechanism 40 can be operated manually by a user without the use of tools.

The latch release mechanism 40 is not operable from the bottom side of the enclosure. Furthermore, in some configurations the latch release mechanism 40 is operable only from the interior of the enclosure after, for example, removing the top cover or a side cover of the device. As a result, access to the components on the bottom side 34 of the motherboard can be protected by, for example, a security lock that prevents a user from gaining access to the interior in order to operate the release mechanism 40. A separate security lock for the bottom is not required.

The disclosed technique advantageously allows components to be mounted on the bottom side of the motherboard, which increases placement flexibility and maximizes space utilization. Placing these components on the bottom side allows access to them without having to first remove other components (for example, hard disk drives, heatsinks, fans,

and duct work) that inhibit access to the top side of the motherboard. The same security mechanism that controls access to the interior of the device via the top or sides can also prevent unauthorized access through the bottom side of the device. Once interior access is permitted, the bottom cover can be opened or removed without the use of tools.

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