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New GPU Standard PCIe Card Holder Design

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New GPU Standard PCIe Card Holder Design

Abstract

The technique disclosed conveniently delivers a holder for GPU computing cards or any standard PCIe form factor card within a computer system. To ensure the computer system can fix in place a GPU computing card or any PCIe form factor card installed, a holder to fix the card within the chassis enclosure to resist the shock and vibration is an effective solution. Artificial Intelligence (AI) and Machine Learning (ML) based computer systems may require multiple embedded GPU computing cards. In such examples, this new idea can provide a solid holder to fix the GPU computing cards, as well as provide effective use of the limited space inside the computer system. The key feature of the present invention is to provide flexible mounting orientations and to fix the GPU computing card or any PCIe form factor card inside a computer system.

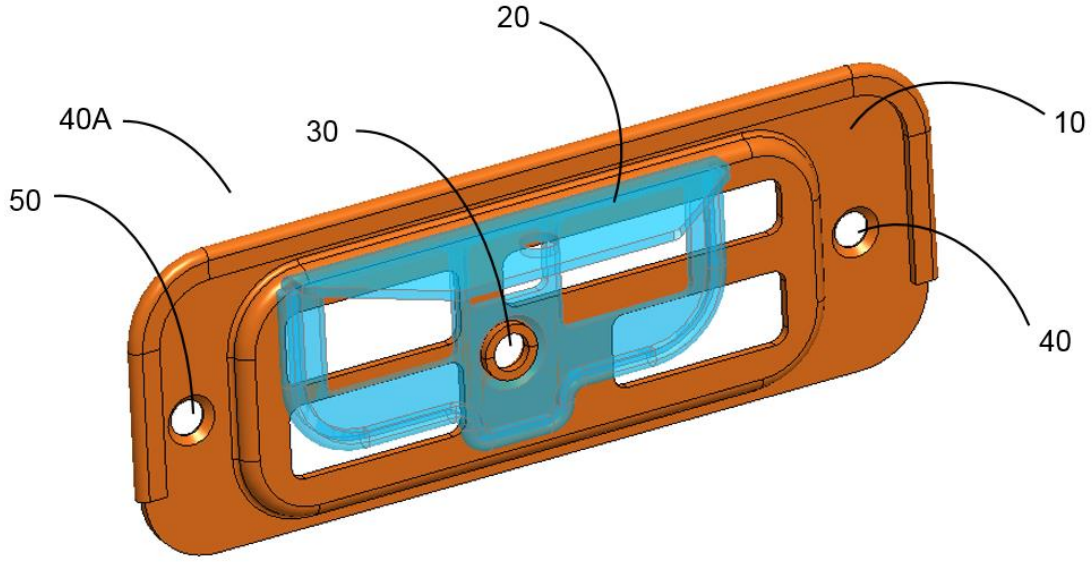
Description

This disclosure relates to the field of the computer system. Such as server systems. The present invention relates to the installation of PCIe cards, especially GPU computing cards. This new design is not limited to the GPU computing cards, as it also can be used on any Standard PCIe card form factor including full-length or half-length. Disclosed is a GPU/Standard PCIe card holder that securely holds the GPU/Standard PCIe cards in place in a computer system during transport and/or normal operation. Some GPU computing cards or full-length cards are heavy. If such cards are not properly secured in the computer system, the cards and/or other components of the system can be broken if shock and/or vibration is applied to the computer system during transportation or normal operation. Even if not broken, an improperly secured card can be unseated under such conditions and the computer system will then fail to operate properly.

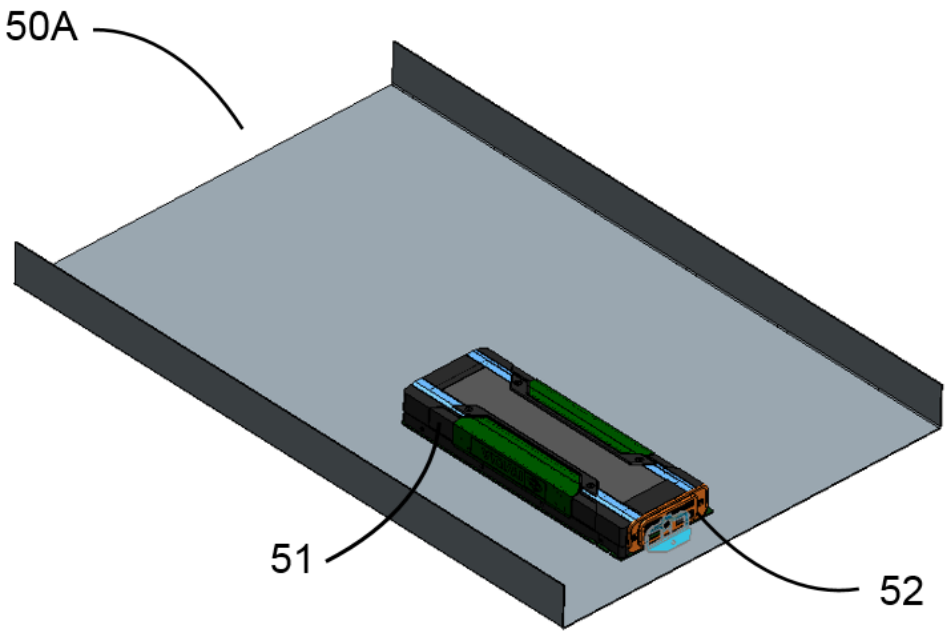
Under normal circumstances, the computer system supports more than one GPU/PCIe card. The common design only can fix the GPU computing/PCIe cards in a certain installation orientation. Users are looking for a solution to effectively utilize the limited space to support more hardware modules inside a computer system. This new design can provide a flexible and cost-competitive solution to fix the GPU/PCIe in many different orientations inside the computer system.

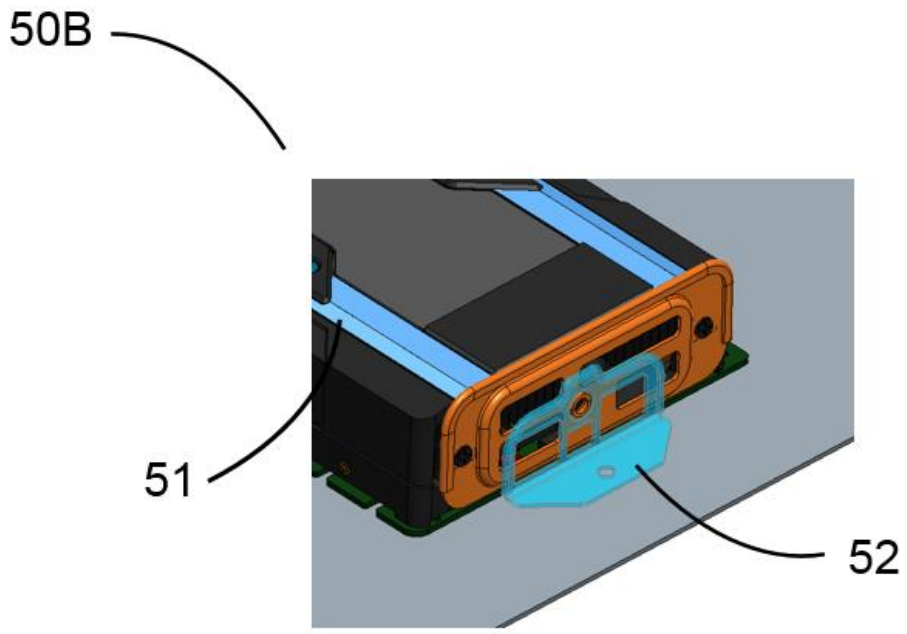
The new holder idea is to combined two sheet metal parts 10 and 20 into a holder assembly as shown in view 40A. The sheet metal parts 10 and 20 may be combined together by

a stamping (also known as pressing) manufacturing process. Key feature 30 can provide a solid rotating center to allow the sheet metal part 20 to rotate on the sheet metal part 10. There are two screw holes 40 and 50 on the sheet metal part 10. A user can take advantage of screw holes 40 and 50 to fix the whole assembly to a GPU computing/PCIe card.

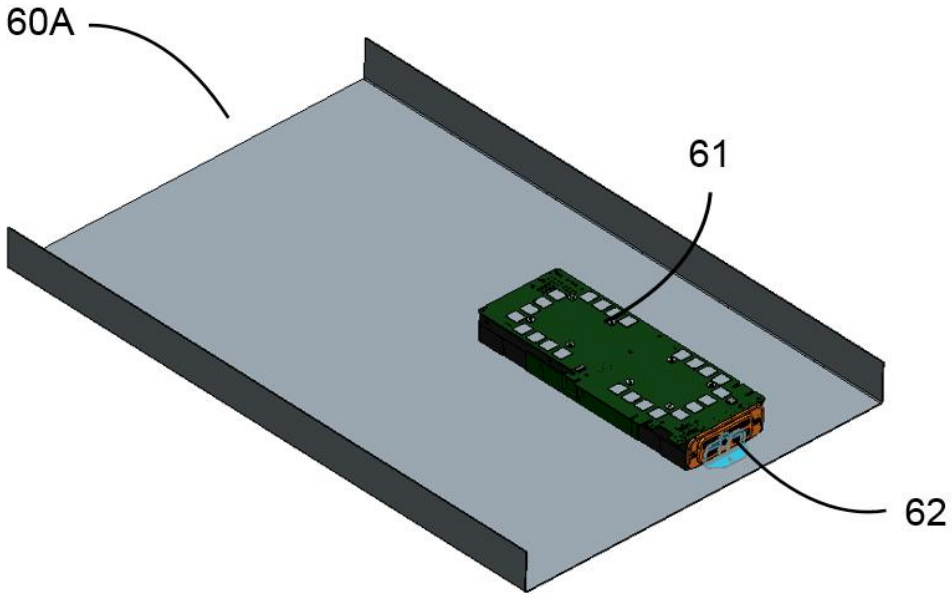


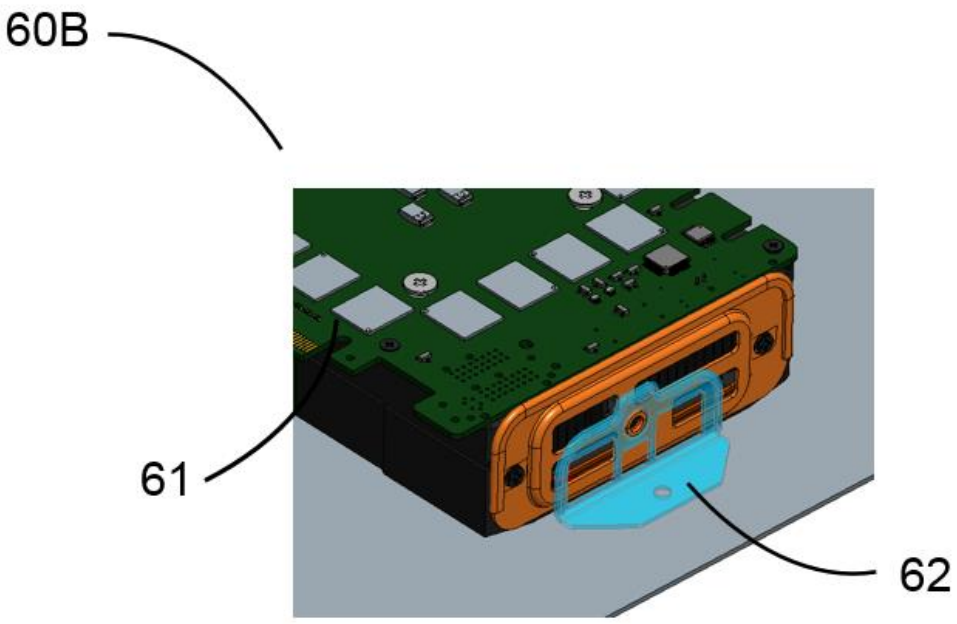
In view 50A and close view 50B, the holder assembly 52 can fix the GPU/PCIe card 51 in place.





View 60A and close view 60B, represents another orientation (upside-down in this example) installation to fix the GPU/PCIe card 61 in place. For high-density computer systems, this new idea can efficiently utilize the space inside the computer system and only two parts can fulfill different orientations of GPU/PCIe card installation.




60B
61
62