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BUS MODULE AND SERVER

Abstract

A bus module and a server are disclosed. The bus module includes: a housing, where a second connector is connected to a first end of the housing for plugging into a first connector; a bus network interface card, including a card body and a blocking piece, where a first bending portion extending in a direction away from the network interface card body is formed at one end of the blocking piece, and a first shielding portion arranged around the first bending portion is formed on the housing; and a lever structure, including a hinge end, an operating end, and a second bending portion, where the hinge end is hinged to one side away from the first bending portion of the second end, the second bending portion is connected to the operating end, and the second bending portion is configured to contact and detachably connect the first shielding portion.

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Background/Summary

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims priority to Chinese Patent Application No. 2023113400815 filed with the China National Intellectual Property Administration on Oct. 17, 2023 and entitled "BUS MODULE AND SERVER", which is incorporated herein by reference in its entirety.

FIELD

[0002] The present application relates to a bus module and a server.

BACKGROUND

[0003] A bus module is a peripheral component interconnect express (PCIe) module, which is internally provided with a PCIe card. PCIe is a high-speed serial computer expansion bus standard, and a PCIe card is a standard card in a server industry.

[0004] In a related art, a slot for a bus module to plug in is formed in a case. A first connector is arranged in the slot. The bus module includes a housing, a bus network interface card arranged in the housing, and a second connector connected to the bus network interface card. The first connector is configured to be plugged with the second connector. However, a blocking piece of the bus network interface card is L-shaped and needs to occupy a relatively large space in the housing, thereby increasing an overall size of the bus module. Both the first connector and the second connector are high-density connectors, resulting in that a relatively high plugging and unplugging force is required for disassembling and assembling the bus module, disassembling and assembling processes are laborious, and labor intensity of an operator is improved.

SUMMARY

[0005] According to an embodiment disclosed in the present application, in a first aspect, a bus module is provided. The bus module is configured to be plugged into a slot of a case, and a first connector is arranged in the slot. The bus module includes: [0006] a housing, having a first end and a second end; [0007] a second connector, connected to a first end of the housing, and configured to be plugged with the first connector; [0008] a bus network interface card, arranged in the housing, where the bus network interface card includes a network interface card body and a blocking piece, the blocking piece is connected to one end away from the second connector of the network interface card body, a first bending portion is formed at one end of the blocking piece, the first bending portion extends in a direction away from the network interface card body, and a first shielding portion arranged around the first bending portion is formed at a position corresponding to the first bending portion of the housing; and [0009] a lever structure, including a hinge end, an operating end, and a second bending portion, where the hinge end is hinged to one side away from the first bending portion of the second end, the second bending portion is connected to the operating end, the second bending portion is configured to be in contact with the first shielding portion and is detachably connected to the first shielding portion, and the lever structure is configured to assist in plugging or unplugging of the second connector and the first connector.

[0010] According to an embodiment disclosed in the present application, in a first aspect, a server is further provided, including: [0011] a case, where a slot is formed in one side of the case; and [0012] a bus module involved in the first aspect of the present application, where the bus module is configured to be plugged into the slot.

[0013] Details of one or more embodiments of the present application are provided in

accompanying drawings and descriptions below. Other features and advantages of the present application will become apparent from the specification, the accompanying drawings, and the claims.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] To describe technical solutions in implementations of the present application or in a related art more clearly, the following briefly introduces accompanying drawings for describing the implementations or the related art. Apparently, the accompanying drawings in the following description show some implementations of the present application, and a person of ordinary skill in the art may still obtain other accompanying drawings from the accompanying drawings without creative efforts.

[0015] FIG. **1** is a three-dimensional diagram of a bus module according to an embodiment of the present application;

[0016] FIG. **2** is a three-dimensional diagram of a bus module according to an embodiment of the present application from another perspective;

[0017] FIG. **3** is a first bracket of a bus module according to an embodiment of the present application;

[0018] FIG. **4** is an exploded view of a lever structure of a bus module according to an embodiment of the present application;

[0019] FIG. **5** is a lever main body of the lever structure shown in FIG. **5**;

[0020] FIG. **6** is a locking structure of the lever structure shown in FIG. **5**;

[0021] FIG. **7** is a locking structure of the lever structure shown in FIG. **5**, and a dotted portion in the figure is an internal structure of the locking structure;

[0022] FIG. **8** is an exploded view of a bus module according to an embodiment of the present application;

[0023] FIG. **9** is a three-dimensional diagram of a first bracket of a bus module according to an embodiment of the present application from another perspective;

[0024] FIG. **10** is an enlarged view of A in FIG. **9**;

[0025] FIG. **11** is a second bracket of a bus module according to an embodiment of the present application;

[0026] FIG. **12** is a tail bracket of a bus module according to an embodiment of the present application;

[0027] FIG. **13** is a server according to an embodiment of the present application;

[0028] FIG. **14** is an enlarged view of B in FIG. **13**;

[0029] FIG. **15** is a three-dimensional diagram of a server according to an embodiment of the present application from another perspective;

[0030] FIG. **16** is an enlarged view of C in FIG. **15**;

[0031] FIG. **17** is a server according to some other embodiments of the present application; and

[0032] FIG. **18** is an enlarged view of a notch of a slot of the server shown in FIG. **17**.

DETAILED DESCRIPTION

[0033] To make the objectives, technical solutions, and advantages of embodiments of the present application clearer, the following clearly and completely describes the technical solutions in the embodiments of the present application with reference to the accompanying drawings in the embodiments of the present application. Apparently, the described embodiments are part rather than all of the embodiments of the present application. Based on the embodiments in the present application, all other embodiments obtained by those skilled in the art without creative work fall within the scope of protection of the present application.

[0034] Hot plugging, that is, hot swap, refers to that a module and an expansion card are plugged in or unplugged from a system without affecting normal work of the system in a case of not shutting down a power supply, which can improve reliability, rapid maintainability, redundancy, capability to recover disasters in time, and the like of the system. A bus module is generally connected to an interior of a case by bolts. An operator needs to open an upper cover of the case, and then installs the bus module in the case. This installation manner is complex, and the module cannot be assembled and disassembled in a case of not shutting down a system power supply. To facilitate assembly, disassembly, and maintenance of the bus module, the bus module needs to be configured to be hot pluggable.
[0035] To facilitate plug-in maintenance of the bus module, in a related art, a first connector is also arranged at a slot of the case, and a second connector is arranged on the bus module. The first connector can be plugged with the second connector. However, in such a bus module, a hole position in a blocking piece of the bus module is in an idle state, the blocking piece on a bus network interface card is L-shaped, so that the blocking piece needs to occupy a relatively large space in a housing, thereby increasing an overall size of the bus module.
[0036] To save space, the blocking piece needs to be removed, and a new blocking piece needs to be customized. However, an original manufacturer of the bus network interface card is not maintained any longer due to the removal of the blocking piece, which brings inconvenience to a customer. To customize the new blocking piece, a system factory needs to newly develop spare parts for fixing screws of the blocking piece, which will increase the cost of the bus module.
[0037] In addition, both the first connector and the second connector are high-density connectors, which results in great plugging and unplugging resistance of the first connector and the second connector. To facilitate force application of an operator, a handle is generally arranged on a housing **1** of the bus module. When the bus module is plugged into a slot **701** of a case **7**, the handle is located at a notch of the slot **701**, and the operator can apply a force to the bus module through the handle. However, the operator needs to apply a relatively great force to complete plugging and unplugging operations of the bus module through such a handle. In addition, the handle is located at the notch, so that a relatively large space in the slot **701** needs to be occupied. Embodiments of the present application are described with reference to FIG. **1** to FIG. **18**.
[0038] According to an embodiment of the present application, in a first aspect, a bus module is provided. The bus module is configured to be plugged into a slot **701** of a case **7**, and a first connector **702** is arranged in the slot **701**. The bus module includes a housing **1**, a bus network interface card **2**, a second connector **3**, and a lever structure **4**. The housing **1** has a first end and a second end. The second connector **3** is connected to the first end of the housing **1**, and is configured to be plugged with the first connector **702**. The bus network interface card **2** is arranged in the housing **1**, and the bus network interface card **2** includes a network interface card body **201** and a blocking piece **202**. The blocking piece **202** is connected to one end of the network interface card body **201** away from the second connector **3**. A first bending portion **2021** is formed at one end of the blocking piece **202**. The first bending portion **2021** extends in a direction away from the network interface card body **201**. A first shielding portion arranged around the first bending portion **2021** is formed at a position corresponding to the first bending portion **2021** of the housing **1**. The lever structure **4** includes a hinge end, an operating end, and a second bending portion **4014**. The hinge end is hinged to one side away from the first bending portion **2021** of the second end. The second bending portion **4014** is connected to the operating end. The second bending portion **4014** is configured to be in contact with the first shielding portion and is detachably connected to the first shielding portion, and the lever structure **4** is configured to assist in plugging or unplugging of the second connector **3** and the first connector **702**.
[0039] According to the bus module of this embodiment, a lever structure **4** is arranged at the second end of the housing **1**. An operator can separate the operating end of the lever structure **4** from the second end of the housing **1** first, then hold the operating end of the lever structure **4**, and

applies a force through the operating end to assist in plugging or unplugging the second connector **3** and the first connector **702**, so that a plugging and unplugging force required for assembling and disassembling the bus module can be reduced, assembling and disassembling processes are laborious, and labor intensity of the operator is improved.

[0040] In addition, the bus module in this embodiment remains the original blocking piece **202** of the bus network interface card **2**, and the housing **1** is configured to include the first shielding portion arranged around the first bending portion **2021**. The second bending portion **4014** of the lever structure **4** is detachably connected to the first shielding portion. Through such an arrangement, the first shielding portion is configured to be connected to the lever structure **4**, and one side of the bus network interface card **2** away from the second connector **3** is configured to accommodate the lever structure **4**, so that space of this part of the first bending portion **2021** is fully used, a structure of the bus module is more compact, and reducing of an overall size is facilitated. The bus module of this embodiment cannot occupy too much space while remaining the blocking piece **202** of the bus network interface card **2**, so that the costs are low, and the structure is compact.

[0041] Therefore, the bus module of this embodiment can overcome defects that a relatively high plugging and unplugging force is required for disassembling and assembling the bus module, the disassembling and assembling processes are laborious, and labor intensity of the operator is improved, and cannot occupy too much space while remaining the blocking piece **202** of the bus network interface card **2**, so that the costs are low, and the structure is compact.

[0042] Preferably, both the first connector **702** and the second connector **3** are high-density connectors.

[0043] In one or more embodiments, as shown in FIG. **2**, a first abutting protrusion **4011** is connected at the hinge end. The first abutting protrusion **4011** is in contact with the notch of the slot **701**. When the operator applies a force to the operating end of the lever structure **4** to force the operating end to rotate in a direction away from the housing **1**, the hinge end of the lever structure **4** can rotate reversely, so that the first abutting protrusion **4011** applies a pressure to the notch of the slot **701** to enable the bus module to be falling off from the slot **701** under a counter-acting force at the notch.

[0044] As a variable implementation, a protruding contact portion is formed on a side wall of the slot **701**, and the first abutting protrusion **4011** is in contact with the contact portion.

[0045] In one or more embodiments, as shown in FIG. **3** and FIG. **4**, the hinge end includes a second abutting protrusion **4012**, and a contact slot **703** is formed in a slot wall of the slot **701**. The second abutting protrusion **4012** is in contact with a side wall of one side of the contact slot **703** away from the second connector **3** when the second bending portion **4014** is connected to the first shielding portion. The second abutting protrusion **4012** is configured to be separated from the contact slot **703** when the lever structure **4** rotates in a direction away from the housing **1**.

[0046] Through such an arrangement, when the bus module needs to be plugged into the slot **701**, the operator can plug the bus module into the slot **701** first, and then the operating end is driven to rotate in a direction close to the housing **1**, so that cooperation between the second abutting protrusion **4012** and the contact slot **703** assists in a connection between the second connector **3** and the first connector **702**. The second abutting protrusion **4012** can be constrained within the contact slot **703** after the second bending portion **4014** is connected to the first shielding portion, so as to prevent the bus module from sliding in a plugging direction of the bus module and the slot **701**, thereby preventing the bus module from falling off from the slot **701** under an external acting force or due to an error operation.

[0047] When the bus module needs to be unplugged from the slot **701**, the operator can release the connection between the second bending portion **4014** and the first shielding portion, so that the operating end rotates in a direction away from the housing **1**, and the second abutting protrusion **4012** can be separated from the contact slot **703** to allow the bus module to be unplugged from the

slot **701**.
[0048] In one or more embodiments, a connecting port is formed in one side of the second end hinged to the lever structure **4**. The hinge end penetrates through the connecting port and is hinged to an interior of the housing **1**. The second abutting protrusion **4012** penetrates through the connecting port and is plugged into the contact slot **703** when the second bending portion **4014** is connected to the first shielding portion. Through such an arrangement, a hinge point between the lever structure **4** and the housing **1** can be located in the housing **1**, which helps to enhance attractiveness of the bus module, and prevent a pollutant from being in contact with a hinge shaft to lead to unsmooth rotation of a lever. The second abutting protrusion **4012** can be located in the housing **1** when a user plugs the bus module into the slot **701**, so that a gap does not need to be formed between the bus module and the slot **701** to accommodate the second abutting protrusion **4012**, and a structure of the case is more compact.
[0049] In one or more embodiments, as shown in FIG. **5**, the connecting port includes a first connecting port **1013** and a second connecting port **1014**. The first connecting port **1013** and the second connecting port **1014** are respectively formed in two adjacent side walls of the second end. A connecting portion **1015** is formed between the first connecting port **1013** and the second connecting port **1014**. An avoidance opening **4013** is formed between the first abutting protrusion **4011** and the second abutting protrusion **4012**, and the connecting portion **1015** penetrates through the avoidance opening **4013**. The avoidance opening **4013** can prevent the lever structure **4** from interfering with the connecting portion **1015** of the housing **1** during rotating.
[0050] In one or more embodiments, as shown in FIG. **4** to FIG. **7**, the lever structure **4** includes a lever main body **401**, a locking structure **402**, and an elastic piece **403**. The lever main body **401** has a hinge end, an operating end, and a second bending portion. The locking structure **402** is movably connected to the second bending portion **4014**. The locking structure **402** has a locking position locked and connected to the second end and an unlocking position separated from the second end of the housing **1**. The elastic piece **403** is connected between the locking structure **402** and the second bending portion **4014**.
[0051] The locking structure **402** can be constrained at the locking position under support of the elastic piece **403** when the bus module is plugged into the slot **701**, and the second abutting protrusion is constrained within a contact slot. An operator can apply a pressure to the locking structure **402** and compress the elastic piece **403** when the bus module needs to be unplugged, so that the locking structure **402** is switched to the unlocking position, then the operating end rotates in a direction away from the housing **1**, and the lever structure **4** assists in unplugging of the bus module.
[0052] Optionally, the lever main body **401** is a rod-like structure. Preferably, in this embodiment, the lever main body **401** is of a wrench structure hinged to the housing **1**.
[0053] As a variable implementation, optionally, the lever structure **4** includes a locking knob. The locking knob is rotatably connected to the operating end of the lever structure **4**. A handle portion is arranged at one end, and a limiting strip is arranged the other end. A strip-shaped hole matching the limiting strip is formed in the housing **1**.
[0054] As another variable implementation, an elastic buckle is arranged on the operating end of the lever structure **4**. A clamping slot that can be clamped with the elastic buckle is correspondingly formed in the housing **1**.
[0055] In one or more embodiments, a sprouting structure **1018** is protruded from the first shielding portion. A locking gap configured to be locked and connected to the sprouting structure **1018** is formed in the locking structure **402**. Through such an arrangement, the sprouting structure **1018** of the first shielding portion can serve as a connecting structure to detachably connected to the locking structure **402** of the lever structure **4**, and a connecting structure does not need to be added to the first shielding portion, so that a quantity of components required by the bus module can be reduced, and the structure of the bus module is more concise.

[0056] In one or more embodiments, the locking structure **402** includes a locking sleeve **4021** and a plug-in port **4022**. The locking sleeve **4021** is provided with a locking gap. The plug-in port **4022** is formed in the locking sleeve **4021**. An edge that faces the bus network interface card **2** is defined as a first edge when the locking structure **402** is locked and connected to the sprouting structure **1018**, the plug-in port **4022** is formed at the first edge, and the second bending portion **4014** is configured to extend into the plug-in port **4022**. Through such an arrangement, a connecting direction between the locking sleeve **4021** and the second bending portion **4014** can be perpendicular to a moving direction of the elastic structure, which can prevent the locking structure **402** from releasing a connection with the second bending portion **4014** under support of the elastic piece **403**.
[0057] Preferably, a locking plate is arranged at a top of the locking sleeve **4021**. The locking gap is formed in the locking plate. The locking plate forms a guide inclined surface at the first edge. The guide inclined surface is inclined downward in a plugging direction of the locking sleeve **4021** and the second bending portion **4014**. When the bus module needs to be locked into the slot **701** of the case **7**, the operator can rotate the lever structure **4** to a direction close to the housing **1**, so that the guide inclined surface is in contact with the sprouting structure **1018**. The guide inclined surface can guide the locking sleeve **4021** to move downward, so that the sprouting structure **1018** is allowed to enter the locking gap, and the sprouting structure **1018** and the locking sleeve **4021** are interlocked.
[0058] The locking gap is preferably, but not limited to, a semicircular gap, a square gap, a triangular gap, and the like, and is preferably a semicircular gap that accommodate a periphery of the sprouting structure **1018** in a matched manner.
[0059] In one or more embodiments, the locking sleeve **4021** is connected to the second bending portion **4014** through a guide structure, and the guide structure is configured to guide the locking sleeve **4021** to slide in a deformation direction of the elastic piece **403**. The guide structure is configured to constrain a movement trajectory of the locking sleeve **4021**, so that an operating process of the locking structure **402** is more stable.
[0060] In one or more embodiments, as shown in FIG. **6** and FIG. **7**, the guide structure includes a chute **4015** and an elastic snap hook **4023**. The chute **4015** is formed in the second bending portion **4014**. The elastic snap hooks **4023** are formed on the locking sleeve **4021** and are located on two sides of the plug-in port **4022**. The elastic snap hooks **4023** are configured to extend into the chute **4015** and slide along the chute **4015**. Through such an arrangement, the elastic snap hook **4023** can slide along the chute **4015** to guide and can hook a side wall of the chute **4015**, so as to prevent the locking sleeve **4021** from falling off from the second bending portion **4014**.
[0061] Preferably, the elastic snap hook **4023** includes a clamping surface and a guide inclined surface that are sequentially connected in a direction in which the elastic snap hook **4023** is clamped into the chute **4015**. The clamping surface is parallel to the side wall of the chute **4015**, and can be in contact with the side wall of the chute **4015** after the elastic snap hook **4023** is clamped into the chute **4015**. The guide inclined surface is inclined toward a direction close to the side wall of the plug-in port **4022** in the direction in which the elastic snap hook **4023** is clamped into the chute **4015**. Through such an arrangement, the guide inclined surface can guide side walls of two sides of the plug-in port **4022** to be separated from each other when in contact with the second bending portion **4014**, so that the second bending portion **4014** is allowed to enter the locking sleeve **4021**.
[0062] Preferably, there are a plurality of elastic snap hooks **4023**. In a deformation direction of the elastic piece **403**, the plurality of elastic snap hooks **4023** are arranged on groove walls of the two sides of the plug-in port **4022**, so that a contact surface between the locking sleeve **4021** and the second bending portion **4014** is stressed more uniformly, and the locking sleeve **4021** slides more smoothly.
[0063] In one or more embodiments, two ends of the elastic snap hook **4023** are respectively configured to be in contact with corresponding chute walls of the chute **4015**. Through such an

arrangement, an upper wall of the elastic snap hook **4023** can be in contact with the chute wall of the chute **4015** when the locking sleeve **4021** moves upward with jacking of the elastic piece **403**, and the locking sleeve **4021** is prevented from falling off from an upper part of the second bending portion **4014** due to the jacking of the elastic snap hook **4023**.

[0064] In one or more embodiments, the elastic piece **403** is a spring, and the locking structure **402** further includes an accommodating blind hole **4024**. The accommodating blind hole **4024** is formed in the locking sleeve **4021**. The accommodating blind hole **4024** is located on one side of the locking sleeve **4021** away from the plug-in port **4022**. A limiting stud **4016** is arranged on the second bending portion **4014**. The limiting stud **4016** is arranged in the accommodating blind hole **4024** in a sliding manner. One end of the spring is sleeved over the limiting stud **4016**, and the other end is in contact with a hole wall of the accommodating blind hole **4024**. Through such an arrangement, the elastic piece **403** can be constrained within the locking sleeve **4021**, so as to prevent the elastic piece from falling off due to exposure of the elastic piece **403** or interfering with another structure.

[0065] In one or more embodiments, a step portion **4017** is formed on the second bending portion **4014**, the limiting stud **4016** is arranged on the step portion **4017**, and cross-sectional area of the step portion **4017** is greater than cross-sectional area of the limiting stud **4016**; and the locking sleeve **4021** further includes an accommodating cavity **4025**. The accommodating blind hole **4025** is connected a lower part of the accommodating blind hole **4024**, and is communicated with the plug-in port **4022**. The accommodating cavity **4025** is configured to accommodate the step portion **4017**. The accommodating cavity **4025** can accommodate the step portion **4017** to match the step portion **4017** to shield the elastic piece **403**, thereby preventing the elastic piece **403** from falling off.

[0066] In one or more embodiments, an edge of the lever main body **401** opposite to the network interface card body **201** is defined as a second edge when the second bending portion is connected to the first shielding portion. A first limiting protrusion **4018** is formed on the second edge. A first limiting groove **1017** configured to accommodate the first limiting protrusion **4018** is formed in the housing **1**. The first limiting groove **1017** can enter the first limiting protrusion **4018** when the second bending portion is connected to the first shielding portion, and a groove wall of the first limiting groove **1017** provide a support force in the deformation direction of the elastic piece **403** to the first limiting protrusion **4018**, so as to protect a hinge shaft of the lever structure **4**, and avoid the lever main body **401** from being biased by the elastic piece **403**.

[0067] As a variable implementation, the first limiting protrusion is optionally formed on the housing, and the first limiting groove is optionally formed on the lever structure **4**.

[0068] In one or more embodiments, as shown in FIG. **8**, the housing **1** includes a first bracket **101** and a second bracket **102**. The first bracket **101** includes a first shielding wall **1011** and a second shielding wall **1012**. The first shielding wall **1011** is connected to the second shielding wall **1012**, and shields one side of the blocking piece **202** away from the network interface card body **201**. A baffle plate **1016** is formed at one end of the second shielding wall **1012** away from the first shielding wall **1011**. The baffle plate **1016** is bent toward one side away from the network interface card body **201**. The second bracket **102** includes a third shielding wall **1021**. The second bracket **102** is detachably connected to the first bracket **101**. The bus network interface card **2** is detachably arranged on the second bracket **102**. The third shielding wall **1021** is configured to shield one side of the bus network interface card **2** away from the third shielding wall **1021**. The first bending portion **2021** is sandwiched between the baffle plate **1016** and the third shielding wall **1021**.

[0069] Through such an arrangement, the first bracket **101** and the second bracket **102** can be connected with each other in a width direction of the bus network interface card **2**, and the third shielding wall **1021** and the baffle plate **1016** can be sandwiched on the first bending portion **2021** from two sides of the first bending portion **2021**, thereby limiting and protecting the first bending portion **2021** without occupying too much space.

[0070] In one or more embodiments, as shown in FIG. **9** to FIG. **11**, a first connecting hole **10211**, a second connecting hole **20211**, and a third connecting hole **10161** are respectively formed in the third shielding wall **1021**, the first bending portion **2021**, and the baffle plate **1016**. A first fastener is sequentially connected to the first connecting hole **10211**, the second connecting hole **20211**, and the third connecting hole **10161**, and the sprouting structure **1018** is formed at the third connecting hole **10161**. Therefore, the sprouting structure **1018** generated at a connection between the first fastener and the baffle plate **1016** can match the locking structure **402**, so that the lever structure is connected to the baffle plate by fully using a structure of the housing **1**. Therefore, the bus module is self-locked without increasing a quantity of components on the bus module, the quantity of the components required by the bus module can be reduced, an assembling process of the bus module is simplified, and reducing of space occupied by the bus module is facilitated.
[0071] The first fastener is preferably, but not limited to, a thumb screw, a captive screw, or the like.
[0072] In one or more embodiments, the second bracket **102** further includes a bottom support plate **1022** connected to the third shielding wall **1021**. The bottom support plate **1022** extends in a direction close to the first shielding wall **1011**. The first bracket **101** includes a first folded edge **1019** connected to the first shielding wall **1011**, and the first folded edge **1019** is configured to fit the bottom support plate **1022**. A fourth connecting hole and a fifth connecting hole **1020** are respectively formed in the bottom support plate **1022** and the first folded edge **1019**, and a second fastener is sequentially connected to the fourth connecting hole and the fifth connecting hole **1020**. Through such an arrangement, area at a connection between the first bracket **101** and the second bracket **102** can be increased, which helps to improve connecting strength of the first bracket **101** and the second bracket **102**.
[0073] Preferably, a bump is formed on one side of the second shielding wall **1012** away from the bottom support plate **1022**, and electromagnetic interference (EMI) gasket is adhered to the bump. An opening is formed in one end of the second bracket **102** away from the second connector **3**, and an EMI elastic sheet is mounted at the opening, which can prevent internal components in the bus module from external interference. Preferably, an installation port is formed in one side of the second shielding wall **1012** away from the second connector **3**, and an input/output (I/O) connector is arranged at the installation port.
[0074] As a variable implementation, the bottom support plate **1022** is optionally connected to the first shielding wall **1011** or the second shielding wall **1012**.
[0075] As a variable implementation, the first bracket **101** and the second bracket **102** are optionally detachably connected with each other in a manner of riveting, clamping, and the like.
[0076] In one or more embodiments, as shown in FIG. **10**, a limiting bump **10192** and a guide bump **10193** that protrude upward are formed on the first folded edge **1019**. The guide bump **10193** is connected to the limiting bump **10192**. A height of the guide bump **10193** that protrudes from the bottom support plate **1022** gradually increases toward the limiting bump **10192**. The fourth connecting hole includes a first hole section **10201** and a second hole section **10202**. The first hole section **10201** is formed on the guide bump **10193**. The second hole section **10202** is formed on the limiting bump **10192**. A hole diameter of the first hole section **10201** is greater than a hole diameter of the second hole section **10202**. The first hole section **10201** is communicated with the second hole section **10202** to form a gourd-shaped hole. The second fastener is a push pin, one end of the push pin is connected to the fourth connecting hole, and the other end is detachably connected to the gourd-shaped hole.
[0077] Preferably, a hole diameter of the first hole section **10201** of the gourd-shaped hole is greater than or equal to an outside diameter of a handle portion of the push pin, so that the handle portion of the push pin can penetrate through. A hole diameter of the second hole section **10202** of the gourd-shaped hole is less than or equal to the outside diameter of the handle portion of the push pin, so that the push pin can be clamped on the first folded edge **1019**.

[0078] Through such an arrangement, when the first bracket **101** needs to be connected to the second bracket **102**, an operator can enable the push pin to penetrate through the first hole section **10201** of the gourd-shaped hole first, and then push the bottom support plate to the limiting bump **10192**, so that the handle portion of the push pin can be clamped at the second hole section **10202** of the gourd-shaped hole, and a height of the guide bump **10193** that protrudes from the bottom support plate **1022** gradually increases. As push pin enters the second hole section **10202** along the first hole section **10201** of the gourd-shaped hole, and the bottom support plate can be tightly pressed onto a folded edge to complete pre-positioning of the first bracket **101** and the second bracket **102**.
[0079] Preferably, the housing **1** further includes a first thumb screw. The first thumb screw is rotatably connected to the first folded edge **1019**. A screw hole is correspondingly formed in the bottom support plate **1022**, and the first thumb screw is in threaded connection with the screw hole. Through such an arrangement, the push pin can match the gourd-shaped hole, the guide bump **10193**, and the limiting bump **10192** to pre-position the first bracket **101** and the second bracket **102**. The first bracket **101** can be fixedly connected to the second bracket **102** through the first thumb screw, so that the first bracket **101** is connected to the second bracket **102** without using a tool such as a wrench or a screwdriver, which can simplify an assembling process of the bus module, and avoid a damage to the first bracket **101** or the second bracket **102** by the tool.
[0080] As a variable implementation, the second fastener is a screw.
[0081] In one or more embodiments, as shown in FIG. **12**, the bus module further includes a tail bracket **103**, connected to the first end, and detachably connected to both the first bracket **101** and the second bracket **102**. The tail bracket **103** can protect a tail end of the bus network interface card **2**, and enhance overall strength of the housing **1**.
[0082] In one or more embodiments, a limiting housing **1031** is formed on the tail bracket **103**. The second connector **3** is limited in the limiting housing **1031**. The limiting housing **1031** can perform limiting protection on the second connector **3**, and prevent the second connector **3** from displacing during plugging or unplugging the bus module.
[0083] As a variable implementation, the limiting housing **1031** is fixedly connected to the first bracket **101**, and the second connector **3** is limited on the limiting housing **1031**.
[0084] In one or more embodiments, the limiting housing **1031** covers the bottom support plate **1022**. A limiting space is formed between the limiting housing **1031** and the bottom support plate **1022**, and an avoidance port **10311** for the second connector **3** to penetrate through is formed in one side of the limiting housing **1031** close to the bottom support plate **1022**. The operator can cover the tail bracket **103** from the upper part of the second connector **3** to second connector **3**, and the second connector **3** can penetrate through the avoidance port **10311** to enter the limiting space. Compared with that the second connector **3** is installed in the limiting housing **1031** in a manner of plugging with the first connector **702**, in this solution, the avoidance port **10311** for the second connector **3** to penetrate through does not need to be formed between the limiting housing **1031** and the bus network interface card **2**, so that a support force can be better provided when the second connector **3** is plugged with the first connector **702**.
[0085] In one or more embodiments, a bus network interface card fixing groove **1032** is formed in one side of the tail bracket **103** toward the bus network interface card **2**. A tail of the bus network interface card **2** can be clamped in the bus network interface card fixing groove **1032**.
[0086] A sixth connecting hole **1033** is formed in the tail bracket **103**, and a third fastener is connected to the bus network interface card **2** through the sixth connecting hole **1033**, so that the bus network interface card **2** is fixedly connected to the tail bracket **103**. The third fastener is preferably, but not limited to, a captive screw, or a thumb screw, or the like.
[0087] The tail bracket **103** further includes a bracket main body and a connecting plate **1034**. The connecting plate **1034** is connected to one side of the bracket main body close to the bus network interface card **2** and covers the first folded edge **1019**. A second limiting protrusion **10194** is

formed on the first folded edge **1019**. A second limiting groove **10341** is formed in the connecting plate **1034**. The second limiting protrusion **10194** is limited in the second limiting groove **10341**. A seventh connecting hole **10342**, an eighth connecting hole **10195**, and a ninth connecting hole **10223** are respectively formed in the connecting plate **1034**, the first folded edge **1019**, and the bottom support plate **1022**, the housing further includes a second thumb screw, and the second thumb screw is sequentially connected to the seventh connecting hole **10342**, the eighth connecting hole **10195**, and the ninth connecting hole **10223**.

[0088] Through such an arrangement, the second limiting protrusion **10194** can enter a third limiting groove when the tail bracket **103** is pressed onto the second connector **3**, so as to pre-position the tail bracket **103** and the first folded edge **1019**. Then, the operator can enable the second thumb screw to connected to the ninth connecting hole **10223** through the seventh connecting hole **10342** and the eighth connecting hole **10195**, so that a tail fixing bracket, the first bracket **101**, and the second bracket **102** are reliably connected without using a tool such as a wrench and a screwdriver.

[0089] Preferably, a positioning bump is formed on the first folded edge **1019**. Both the second limiting protrusion **10194** and the eighth connecting hole **10195** are formed on the positioning bump. A matching bump is formed at a positioning corresponding to the positioning bump on the bottom support plate, and the ninth connecting hole **10223** is formed on the matching bump. The matching bump can match the positioning bump, and pre-position the bottom support plate and the first folded edge **1019**.

[0090] As a variable implementation, a second limiting groove **10341** is formed in the first folded edge **1019**, and the second limiting protrusion **10194** is formed on the connecting plate **1034**.

[0091] A second folded edge **1035** is formed on one side of the tail bracket **103** close to the third shielding wall **1021**. The second folded edge **1035** is configured to be in contact with the third shielding wall **1021**. A tenth connecting hole **10212** and an eleventh connecting hole **10351** are respectively formed in the third shielding wall **1021** and the second folded edge **1035**. A fourth fastener is sequentially connected to the tenth connecting hole **10212** and the eleventh connecting hole **10351**. The fourth fastener is preferably, but not limited to, a captive screw, or a thumb screw, or the like.

[0092] As a variable implementation, the tail bracket **103** is optionally detachably connected to the third shielding wall **1021** in a manner of clamping, riveting, and the like.

[0093] A twelfth connecting hole **10121** and a thirteenth connecting hole are respectively formed in the first shielding wall **1011** and the tail bracket **103**, and a fifth fastener is sequentially connected to the twelfth connecting hole **10121** and the thirteenth connecting hole **10321**.

[0094] The fifth fastener is preferably, but not limited to, a captive screw, or a thumb screw, or the like.

[0095] As a variable implementation, the tail bracket **103** is optionally detachably connected to the first shielding wall **1011** in a manner of clamping, riveting, and the like.

[0096] In one or more embodiments, the bus module further includes an adapter card **5** and a conducting wire **6**. The adapter card **5** is connected to the first shielding wall **1011**. A wire passing hole **10312** is formed in a side wall of the limiting housing **1031**. One end of the conducting wire **6** is connected to the second connector **3**, and the other end of the conducting wire **6** penetrates through the wire passing hole **10312** to the adapter card **5**. The wire passing hole **10312** is preferably provided in a side wall of one side of the limiting housing **1031** close to the adapter card **5**, which can prevent the limiting housing **1031** from interfering with the conducting wire **6** during installing the limiting housing **1031** in the second connector **3**. The conducting wire **6** is preferably a bonding wire.

[0097] The adapter card **5** is preferably a Riser card, is a function expansion card or an adapter card **5** plugged into a PCI-E interface. An interface is formed in one side of the adapter card **5** close to the bus network interface card **2**. A card edge connector is formed on one side of the bus network

interface card **2** close to the adapter card **5**. The edge connector on a side of the bus network interface card **2** can be plugged with the interface of the adapter card **5**.
[0098] As a variable implementation, the second connector **3** is preferably directly connected to the adapter card **5**.
[0099] The applicant found that a signal needs to be transmitted to the second connector through a long path on the adapter card if the second connector is directly connected to the adapter card, resulting that the signal cannot meet a requirement. In this embodiment, the second connector **3** is configured to be connected to the adapter card **5** through the conducting wire **6**, so that the conducting wire **6** can partially replace the adapter card **5** to transmit the signal, a length of the adapter card **5** can be configured to be relatively short, and the bus module of this embodiment has a relatively good signal transmission effect because a transmission effect of the signal in the conducting wire **6** is better than a transmission effect of the adapter card **5**.
[0100] In one or more embodiments, a plurality of connecting columns **10111** are spaced on the first shielding wall **1011**. A plurality of fourteenth connecting holes **501** corresponding to the connecting columns **10111** are formed in the adapter card **5**. Sixth fasteners are connected to the connecting columns **10111** through the fourteenth connecting holes **501**. A cushion pad **10112** is arranged on one side of the first shielding wall **1011** close to the second connector **3**. The cushion pad **10112** is configured to be in contact with the adapter card **5**. Through such an arrangement, the cushion pad **10112** can be in contact between a suspended end of the adapter card **5** and the first shielding wall **1011**, which can cushion and support the adapter card **5**, and avoid the adapter card **5** from being damaged during assembling. The cushion pad **10112** is preferably, but not limited to, a rubber pad, a foam pad, or the like.
[0101] In one or more embodiments, a first sliding rail **704** and a second sliding rail are respectively formed on slot walls on two sides of the slot **701**, a first guide portion and a second guide portion are respectively formed on two opposite sides of the housing **1**, and the first guide portion and the second guide portion are respectively in sliding fit with the first sliding rail **704** and the second sliding rail. Through such an arrangement, the first sliding rail **704** and the second sliding rail **705** can constrain a movement path of the bus module, which ensures that the second connector **3** can be accurately butted with the first connector **702**, and avoid damage to the bus module or the slot **701** of the case **7** caused by misalignment of the second connector **3** and the first connector **702**.
[0102] Preferably, a height of the first sliding rail **704** is inconsistent with that of the second sliding rail **705**, which can prevent an error, and avoid assembling a module reversely to damage a device.
[0103] In one or more embodiments, as shown in FIG. **13** to FIG. **16**, the first guide portion includes a first guide folded edge **10213** formed on an edge of the third shielding wall **1021** away from the bottom support plate **1022** when the bottom support plate **1022** is located on a bottom surface. The first guide folded edge **10213** is formed by bending the edge of the third shielding wall **1021** away from the bottom support plate **1022** to an inner side of the housing **1**. Through such an arrangement, the first guide folded edge **10213** can be in sliding fit with a first sliding rail, and can prevent a sharp edge of the third shielding wall **1021** from scratching an operator or a side wall of the slot **701**.
[0104] As a variable implementation, the first guide portion includes a strip-shaped groove formed in the third shielding wall **1021**. The strip-shaped groove extends in a direction in which a bus module is plugged with the slot **701**, and is configured to be in sliding fit with the first sliding rail.
[0105] The second guide portion includes a second guide folded edge **10113** formed on an edge of the first shielding wall **1011** away from the bottom support plate **1022** when the bottom support plate **1022** is located on a bottom surface. The second guide folded edge **10113** is formed by inward bending the edge of the first shielding wall **1011** away from the bottom support plate **1022**. Through such an arrangement, the second guide folded edge **10113** can be in sliding fit with a second sliding rail, and can prevent a sharp edge of the first shielding wall **1011** from scratching an

operator or a side wall of the slot **701**. As a variable implementation, the second guide portion includes a strip-shaped groove formed in the first shielding wall **1011**. The strip-shaped groove extends in a direction in which a bus module is plugged with the slot **701**, and is configured to be in sliding fit with the second sliding rail.

[0106] In one or more embodiments, a stop edge **10214** folded toward the first shielding wall **1011** is formed on the third shielding wall **1021**, and the stop edge **10214** is configured to be in contact with an end portion of the first sliding rail. The stop edge **10214** can be in contact with an end portion of the first sliding rail and prevent the bus module from continue moving after the first connector **3** is plugged with the first connector **702**, so as to prevent the first connector **702** or the second connector **3** from being damaged.

[0107] In one or more embodiments, the stop edge **10214** is configured to cover a top of the second shielding wall **1012**. A fifteenth connecting hole **10215** and a sixteenth connecting hole **10122** are respectively formed in the stop edge **10214** and the second shielding wall **1012**. A seventh fastener is sequentially connected to the fifteenth connecting hole **10215** and the sixteenth connecting hole **10122**.

[0108] Through such an arrangement, the stop edge **10214** can limit a plugging depth of the bus module, and can be configured to be connected to the second shielding wall **1012**, thereby improving overall strength of the bus module.

[0109] As a variable implementation, the stop edge **10214** is optionally detachably connected to the second shielding wall **1012** in a manner of clamping, riveting, and the like.

[0110] In one or more embodiments, as shown in FIG. **17** and FIG. **18**, the first guide portion includes a guide groove **10196** formed on the first folded edge **1019** when the first shielding wall **1011** is located at a bottom.

[0111] The second guide portion includes a second guide folded edge **10114** formed on an edge of the first shielding wall **1011** away from the bottom support plate **1022** when the first shielding wall **1011** is located at a bottom.

[0112] Through such an arrangement, the bus module can not only match a slot **701** extending in a vertical direction, but also match a slot **701** extending in a horizontal direction, so that an application range of the bus module is expanded, and the bus module can be applied to different cases **7**. In addition, the second folded edge **1035** on the first shielding wall **1011** can not only match the second sliding rail of the slot **701** extending in the horizontal direction, but also match the second sliding rail of the slot **701** extending in the vertical direction, so that functions are diversified, and reducing of a quantity of components of the bus module is facilitated.

[0113] Next, a mounting manner of a bus module according to an embodiment of the present application is described.

[0114] First, an adapter card **5** is connected to a second connector **3** through a conducting wire **6**, and then, a sixth fastener penetrates through a fourteenth connecting hole **501** and a connecting column **10111** to fixedly connect the adapter card **5** to a first bracket **101**. An edge connector of the bus module is plugged into an interface of the adapter card **5**.

[0115] Then, a second bracket **102** is connected to the first bracket **101**, and a third shielding wall **1021** and a baffle plate **1016** respectively cover two sides of a first bending portion **2021**. The second bracket **102** is fixedly connected to the first bracket **101** by using a first thumb screw. A bus network interface card **2** is fixedly connected to the first bracket **101** by using a fastener.

[0116] Then, a tail bracket **103** is installed onto the second connector **3** from top to bottom. At this moment, a third limiting protrusion can penetrate through a third limiting groove to pre-position the tail bracket **103**. An operator can fixedly connect the tail bracket **103**, a first folded edge **1019**, and a bottom support plate **1022** through a second thumb screw. One end of the bus network interface card **2** close to the second connector **3** can be clamped in a bus network interface card fixing groove **1032**, and a third fastener is connected to the bus network interface card **2** through a sixth connecting hole **1033**, so that the bus network interface card **2** is fixedly connected to the tail

bracket **103**. A fourth fastener sequentially penetrates through a tenth connecting hole **10212** and an eleventh connecting hole **10351**. A fifth fastener is connected to a thirteenth connecting hole **10321** through a twelfth connecting hole **10121**, so that the tail bracket **103** is fixedly connected to the first bracket **101** and the second bracket **102**.

[0117] Finally, a locking sleeve **4021** is pressed to release a locking connection between the locking sleeve **4021** and a sprouting structure **1018**. A handle is rotated in a direction away from a housing **1**, and a second abutting protrusion **4012** can enter the housing **1**, so that the bus module is allowed to be plugged into a slot **701** of a case **7**. A first sliding rail and a second sliding rail on slot walls on two sides of the slot **701** match a first guide portion and a second guide portion on two sides of the bus module to guide the second connector **3** to a first connector **702**. After the second connector **3** is in contact with the first connector **702**, the operator rotates the lever structure **4** to a direction close to the housing **1**. The second abutting protrusion **4012** can match a contact slot **703**. The bus module is pushed into the slot **701** to assist in plugging between the second connector **3** and the first connector **702**. A locking gap in the locking sleeve **4021** can be locked with the sprouting structure **1018**, and the second abutting protrusion **4012** is locked in the contact slot **703**. At this moment, the second abutting protrusion **4012** can match a slot wall of the contact slot **703** to prevent the bus module from being pulled out from the slot **701**.

[0118] According to an embodiment of the present application, in another aspect, a sever is further provided, including a case **7** and a bus module. A slot **701** is formed in one side of the case **7**. The bus module is a bus module involved in the first aspect of the present application, where the bus module is configured to be plugged into the slot **701**.

[0119] The server according to the second aspect of the present application includes or uses the bus module according to the first aspect of the present application, so that the server has beneficial effects of the bus module, and can overcome defects that a relatively high plugging and unplugging force is required for disassembling and assembling the bus module, the disassembling and assembling processes are laborious, and labor intensity of the operator is improved. The lever structure **4** occupies a small space and is not prone to touching by mistake to affect stability of the bus module.

[0120] In one or more embodiments, the case **7** further includes a back plate **706**, detachably arranged in the case **7**, and arranged opposite to the slot **701**, wherein a second connector **3** is formed on the back plate **706**, and the second connector **3** is configured to be plugged into a first connector **702**.

[0121] Through such an arrangement, an operator only needs to replace the back plate **706** to enable a slot position of the case **7** to be adapted to another module, for example, a hard disc module, which improves the modularity and reuse rate of the case **7**, and helps to reduce costs of the case **7**.

[0122] Although the embodiments of the present application have been described in combination with the accompanying drawings, a person of ordinary skill in the art may make various modifications and variations without departing from the spirit and scope of the present application, and such modifications and variations fall within the scope defined by the appended claims.

Claims

1. A bus module, for plugging into a slot of a case, wherein a first connector is arranged in the slot, and the bus module comprises: a housing, having a first end and a second end; a second connector, connected to the first end of the housing, and configured to be plugged with the first connector; a bus network interface card, arranged in the housing, wherein the bus network interface card comprises a network interface card body and a blocking piece, the blocking piece is connected to one end of the network interface card body away from the second connector, a first bending portion is formed at one end of the blocking piece, the first bending portion extends in a direction away

from the network interface card body, and a first shielding portion arranged around the first bending portion is formed at a position on the housing corresponding to the first bending portion; and a lever structure, comprising a hinge end, an operating end, and a second bending portion, wherein the hinge end is hinged to one side of the second end away from the first bending portion, the second bending portion is connected to the operating end, the second bending portion is configured to be in contact with the first shielding portion and is detachably connected to the first shielding portion, and the lever structure is configured to assist in plugging or unplugging of the second connector to or from the first connector.

2. The bus module according to claim 1, wherein a first abutting protrusion is connected at the hinge end, and the first abutting protrusion is in contact with a notch of the slot.

3. The bus module according to claim 2, wherein the hinge end comprises a second abutting protrusion, a contact slot is formed in a slot wall of the slot, the second abutting protrusion is in contact with a side wall of one side of the contact slot away from the second connector when the second bending portion is connected to the first shielding portion, and the second abutting protrusion is configured to be separated from the contact slot when the lever structure rotates in a direction away from the housing.

4. The bus module according to claim 3, wherein a connecting port is formed in one side of the second end hinged to the lever structure, the hinge end penetrates through the connecting port and is hinged to an interior of the housing, and the second abutting protrusion penetrates through the connecting port and is plugged into the contact slot when the second bending portion is connected to the first shielding portion.

5. The bus module according to claim 4, wherein the connecting port comprises a first connecting port and a second connecting port, the first connecting port and the second connecting port are respectively provided in two adjacent side walls of the second end, a connecting portion is formed between the first connecting port and the second connecting port, an avoidance opening is formed between the first abutting protrusion and the second abutting protrusion, and the connecting portion penetrates through the avoidance opening.

6. The bus module according to claim 1, wherein the lever structure comprises: a lever main body, comprising the hinge end, the operating end, and the second bending portion; a locking structure, movably connected to the second bending portion, wherein the locking structure has a locking position locked and connected to the second end and an unlocking position separated from the second end of the housing; and an elastic piece, connected between the locking structure and the second bending portion.

7. The bus module according to claim 6, wherein a sprouting structure is protrudes from the first shielding portion, and a locking gap configured to be locked and connected to the sprouting structure is formed in the locking structure.

8. The bus module according to claim 7, wherein the locking structure comprises: a locking sleeve, provided with the locking gap thereon; and a plug-in port, formed in the locking sleeve, wherein an edge that faces the bus network interface card is defined as a first edge when the locking structure is locked and connected to the sprouting structure, the plug-in port is formed at the first edge, and the second bending portion is configured to extend into the plug-in port.

9. The bus module according to claim 8, wherein the locking sleeve is connected to the second bending portion through a guide structure, and the guide structure is configured to guide the locking sleeve to slide in a deformation direction of the elastic piece.

10. The bus module according to claim 9, wherein the guide structure comprises: a chute, formed in the second bending portion; and elastic snap hooks, formed on the locking sleeve and located on two sides of the plug-in port, wherein the elastic snap hooks are configured to extend into the chute and slide along the chute.

11. The bus module according to claim 10, wherein two ends of each of the elastic snap hooks are respectively configured to be in contact with corresponding chute walls of the chute.

12. The bus module according to claim 8, wherein the elastic piece is a spring, and the locking structure further comprises: an accommodating blind hole, formed in the locking sleeve, wherein the accommodating blind hole is located on one side of the locking sleeve away from the plug-in port, a limiting stud is arranged on the second bending portion, the limiting stud is arranged in the accommodating blind hole in a sliding manner, one end of the spring is sleeved over the limiting stud, and a second end of the spring is in contact with a hole wall of the accommodating blind hole.
13. The bus module according to claim 12, wherein a step portion is formed on the second bending portion, the limiting stud is arranged on the step portion, and a cross-sectional area of the step portion is greater than a cross-sectional area of the limiting stud, and the locking sleeve further comprises: an accommodating cavity, connected below the accommodating blind hole, and in communication with the plug-in port, and the accommodating cavity is configured to accommodate the step portion.
14. The bus module according to claim 7, wherein an edge of the lever main body opposite to the network interface card body is defined as a second edge when the second bending portion is connected to the first shielding portion, a first limiting protrusion is formed on the second edge, and a first limiting groove configured to accommodate the first limiting protrusion is formed in the housing.
15. The bus module according to claim 7, wherein the housing comprises: a first bracket, comprising a first shielding wall and a second shielding wall, wherein the second shielding wall is connected to the first shielding wall and shields one side of the blocking piece away from the network interface card body, a baffle plate is formed at one end of the second shielding wall away from the first shielding wall, and the baffle plate is bent toward one side away from the network interface card body; and a second bracket, comprising a third shielding wall, wherein the second bracket is detachably connected to the first bracket, the bus network interface card is detachably arranged on the second bracket, the third shielding wall is configured to shield one side of the bus network interface card away from the third shielding wall, and the first bending portion is sandwiched between the baffle plate and the third shielding wall.
16. The bus module according to claim 15, wherein a first connecting hole, a second connecting hole, and a third connecting hole are respectively formed in the third shielding wall, the first bending portion, and the baffle plate; a first fastener is sequentially connected to the first connecting hole, the second connecting hole, and the third connecting hole; and the sprouting structure is formed at the third connecting hole.
17. The bus module according to claim 15, wherein the second bracket further comprises a bottom support plate connected to the third shielding wall, the bottom support plate extends in a direction close to the first shielding wall, the first bracket comprises a first folded edge connected to the first shielding wall, the first folded edge is configured to fit the bottom support plate, a fourth connecting hole and a fifth connecting hole are respectively formed in the bottom support plate and the first folded edge, and a second fastener is sequentially connected to the fourth connecting hole and the fifth connecting hole.
18. (canceled)
19. The bus module according to claim 17, further comprising a tail bracket, connected to the first end, and detachably connected to both the first bracket and the second bracket.
20.-**29**. (canceled)
30. A server, comprising: a case, wherein a slot is formed in one side of the case; and a bus module configured to be plugged into the slot, comprising: a housing, having a first end and a second end; a second connector, connected to the first end of the housing, and configured to be plugged with a first connector arranged in the slot; a bus network interface card, arranged in the housing, wherein the bus network interface card comprises a network interface card body and a blocking piece, the blocking piece is connected to one end of the network interface card body away from the second connector, a first bending portion is formed at one end of the blocking piece, the first bending

portion extends in a direction away from the network interface card body, and a first shielding portion arranged around the first bending portion is formed at a position on the housing corresponding to the first bending portion; and a lever structure, comprising a hinge end, an operating end, and a second bending portion, wherein the hinge end is hinged to one side of the second end away from the first bending portion, the second bending portion is connected to the operating end, the second bending portion is configured to be in contact with the first shielding portion and is detachably connected to the first shielding portion, and the lever structure is configured to assist in plugging or unplugging of the second connector to or from the first connector.

31. The server according to claim 30, further comprising: a back plate, detachably arranged in the case, and arranged opposite to a notch of the slot, wherein the second connector is formed on the back plate.