



Title : Parallel Expansion Local Bus Interface Card - Type I, II & III

Field : Computer

Background :

Generally computers use various forms of interface standards architecture like ISA, EISA, MCA, VL-Bus, PCI, AGP and other types of expansion bus to connect directly the main board to the peripheral add-on cards (like video display cards, sound cards, ethernet cards.) which are at 90 degrees position to the main boards.

The main board have one or more central processing unit (CPU) as the brain centre and any additional CPU increases the performance of the computer, other than by increasing the RAM memory type and memory size (megabytes). The result is that the minimal size for the computers are based on the dimensions of the main board and the height of the peripheral add-on cards, generally 3.5 inches.

Current main boards do not have the male local bus interface at one or more edges of the printed circuit board. They have instead the female local bus interface slots on the main board itself. Current computer main boards operate individually and independently in separate casings unless they are indirectly connected externally via a network using network cards. To join two or more main boards will allow the computer/network to be faster and increase its capability.

To make computers more compact will need these peripheral add-on cards to be of lower height while putting in more electronic components on to the printed circuit board (PCB). Alternatively, these peripheral add-on cards can be positioned parallel to the main board by the use of the proposed parallel expansion local bus interfacing with the main board and with the peripheral add-on card. Another alternative, as is being done for laptops and/or notebooks, is to miniaturise the various components of the computer like the hard drive and the main board with added built in features for sound, communications, display so as to remove the peripheral add-on cards adding to the height of the computer.

The proposed expansion local bus card (Type I - Combined Male & Female) is to position the peripheral add-on cards parallel to the main board, thereby reducing the minimal height for the computer while using standard size components

The proposed expansion local bus card (Type II - Male) is to allow a more compact stacked form of two or more main boards which are directly connected, with greater enhanced performance

The proposed expansion local bus card (Type III - Female) is to allow a more compact stacked form of the new type of two or more main boards (with the male local bus interface at one or more edges of the printed circuit board with one or more Central Processing Units) which are directly connected, with greater enhanced performance and capability.

The proposal includes a new type of main board with one or more male edge connector on one or more edge of the printed circuit board. The proposal also include a new type of add-on peripheral card with one or more male edge connector on more than one edge of the printed circuit board. Combinations of the different variations of Type I, and or II and or III allows a modular architecture for the computer.

ISA refers to Industry Standard Architecture.

EISA refers to Extended Industry Standard Architecture

MCA refers to Micro Channel Architecture.

PCI refers to Peripheral Component Interconnect

AGP refers to Accelerated Graphics Port

RAM refers to Random Access Memory

VL-Bus refers to Video Electronics Standards Association (VESA) Local Bus architecture

Description :

1. Parallel Expansion Local Bus Interface Card (Type I - Combined Male & Female) : For details see Annex 1 with drawings in Annex 1A and Annex 4
2. Parallel Expansion Local Bus Interface Card (Type II - Male) : For details see Annex 2 with drawings in Annex 2A and Annex 4
3. Parallel Expansion Local Bus Interface Card (Type III - Female) : For details see Annex 3 with drawings in Annex 3A and Annex 4

Materials : PCB with/without components, female interface bus slot with metal connectors and plastic casing

Summary :

The above variations of the various types of bus interface cards (Parallel Type I - Combined Male & Female) (using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet develop) allow the standard size peripheral

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Submitted by : Mr Chen Walter Roland

add-on cards to be interfaced with the main board at a position parallel to the main board, reducing the minimal height of the computer and making it more compact. A particular variation is a new type of main board with the male bus component which can be directly connected in parallel and or in series (on the same plane) to each other and or to the peripheral add-on card/s with the use of the appropriate Parallel Type III (female) local bus card (variation 4)

The above variations of the various types of bus interface cards (Parallel Type II - Male) (using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed) allow a more compact stacked form of two or more main boards directly connected, with greater enhanced performance. A particular variation is a new type of main board with the male bus component and this new type of main board can be directly connected in parallel and or in series (on the same plane) to each other and or to the peripheral add-on card/s with the use of the appropriate Parallel Type III (female) local bus card (variation 4). Another particular variation is a new type of add-on peripheral card with the edge connector on more than one edge of the printed circuit board.

The above variations of the various types of bus interface cards (Parallel Type III - Female) (using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed) allow a more compact stacked form of the new type of two or more main boards allow a more compact stacked form of the new type of two or more main boards (with the male local bus interface at one or more edges of the printed circuit board).which are directly connected, with greater enhanced performance and capability.

Combinations of the Type I, and or II and or III allows a modular architecture for the computer

Where the physical size of the bus interface is varied whether it is smaller or in miniature or in any other size, the various bus interface card (Parallel Type I, II & III) in its appropriate size will apply

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Title : Parallel Expansion Local Bus Interface Card - Type I, II & III

Field : Computer

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Claims :

Patent is to provide protection for the following :

1. The Concept of joining in parallel one printed circuit board (PCB) with female local bus slots to another printed circuit board with male local bus at one or more edge/s of the printed circuit board to reduce the height of the computer using any variation of the expansion local bus card (Parallel Type I - Combined Male & Female) of the appropriate local bus interface architecture using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed
2. Patent rights to all the variations of the new combined expansion local bus card (Parallel Type I - Combined Male & Female) with both female local bus slots and male local bus' / edge connector with one or more edge connector at one or more edge/s of the PCB using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed
3. Patent rights to the new main board/s of any size or shape (rectangular, square, hexagonal shape or any shape) with combined female local bus slots and male local bus / edge connector with one or more edge connector at one or more edge/s of the PCB using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed
4. The Concept of joining in parallel two printed circuit boards with female local bus slot/s like main boards using any of the variations of the expansion local bus card (Parallel Type II - Male) of the appropriate local bus interface architecture using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed
5. Patent rights to the new type of expansion local bus card (Parallel Type II - Male) and its variations using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed.
6. Patent rights to all the variations of the new type of main board/s of any size or shape (rectangular, square, hexagonal shape or any shape) with one or more male local bus on one or more edges of the printed circuit board and as part of the printed circuit board (with or without any female bus slot on the main board/s) using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed.
7. Patent rights to the new type of add-on peripheral cards of any size or shape (rectangular, square, hexagonal shape or any shape) with one or more male local bus on more than one edge of the printed circuit board and as part of the printed circuit board (with or without any female bus slot on the PCB) using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed
8. The Concept of joining the new type of main board/s (with the male local bus interface at one or more edges of the printed circuit board) directly in parallel (on two or more parallel planes) and or in series (on the same plane) to each other and or to the peripheral add-on cards with the use of the appropriate Parallel Type III Female (variation 4) local bus card thereby reducing the height for the computer using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed
9. Patent rights to the new parallel expansion local bus card (Parallel Type III - Female) and its variations using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed.
10. Patent rights particularly to all the variations of the new expansion local bus card/device Parallel Type III Female (variation 4) using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed
11. Patent rights to any and all the mirror image/s of any and or all of the various local bus interface card/s (Parallel Type I, II & III) and or the new type/s of main board/s using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are

Submitted by : Mr Chen Walter Roland

not yet developed using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed

12. Patent rights to the concept and or production of modular computers using the various combinations of Type I, and or II and or III applied to the modular architecture for computers using several special boards each complete for the module and joined to each other on two to four edges with the add-on cards (sound card, ethernet card, display card and others) which require an external port to be placed on the outer margins of the completed modular computer (see Annex 4)
13. Where the physical size of the bus interface and or the new type of main board/s is varied whether it is smaller or in miniature or in any other size, the various bus interface card (Parallel Type I - Combined Male & Female) and or the new type of main board/s in its appropriate size will apply
14. The design, manufacture, utilisation and sale of the any and or all the above items using all or any of the local bus standard architecture known and or being developed and or are not yet developed and the sale of other products using any of the above items in their product, except by the owner of the patent and/or his agent/s
15. All of these claims apply particularly to the personal computer, IBM and compatibles including workstations and servers, and also to other types of computers where applicable.

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Title : Parallel Expansion Local Bus Card - Type I (Combined Male and Female)

Field : Computer

Background :

Generally computers use various forms of interface like ISA, EISA, MCA, VL-Bus, PCI, AGP and other types of expansion bus to connect directly the main board to the peripheral add-on cards (like video display cards, sound cards, ethernet cards.) which are at 90 degrees position to the main boards. The result is that the minimal size for the computers are based on the dimensions of the main board and the height of the peripheral add-on cards, generally 3.5 inches.

To make computers more compact will need these peripheral add-on cards to be of lower height while putting in more electronic components on to the printed circuit board (PCB). Alternatively, these peripheral add-on cards can be positioned parallel to the main board by the use of the proposed parallel expansion local bus interfacing with the main board and with the peripheral add-on card. Another alternative, as is being done for laptops and/or notebooks, is to miniaturise the various components of the computer like the hard drive and the main board with added built in features for sound, communications, display so as to remove the peripheral add-on cards adding to the height of the computer.

The proposed expansion local bus card is to position the peripheral add-on cards parallel to the main board, thereby reducing the minimal height for the computer while using standard size components.

ISA refers to Industry Standard Architecture.

EISA refers to Extended Industry Standard Architecture

MCA refers to Micro Channel Architecture.

PCI refers to Peripheral Component Interconnect

AGP refers to Accelerated Graphics Port

VL-Bus refers to Video Electronics Standards Association (VESA) Local Bus architecture

Description with variations :

1. Variation 1 : A printed circuit board (PCB) of varying sizes and shape and with one 64 bit PCI male local bus (in any size) at one edge (in alignment to the PCI female local bus slot) and as part of the printed circuit board and with 1 or more PCI female local bus slots (of corresponding or any size) mounted parallel to the same edge on the printed circuit board (PCB) and with the PCI male local bus wired to the corresponding pins on the PCI female local bus slots/s using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed and without any other electronic, electromagnetic, CPU or memory devices.
2. Variation 2 : As in the above but with one or more PCI male local bus at more than one edge of the printed board.
3. Variation 3 : As in all the above but with one or more PCI female local bus slots mounted (parallel to another PCI female local bus slot) to and wired appropriately on both sides of the circuit board using the mirror image of the PCI female local bus slot/s on the opposite side of the PCB.
4. Variation 4 : As in all the above but with ISA, and/or AGP and/or shared PCI/ISA, and /or shared PCI/AGP and/or shared ISA/AGP male local bus and ISA, and/or AGP and/or shared PCI/ISA, and/or shared PCI/AGP and/or shared ISA/AGP female local bus slots instead of PCI male local bus and PCI female local bus slots.
5. Variation 5 : As in all the above but with any 8 bit, 16 bit, 24 bit, 32 bit, 64 bit, 128 bit, 256 bit, 512 bit or higher or any other male local bus in current standard size or smaller size or miniature size or any other size and corresponding female local bus slot in current standard size or smaller size or miniature size or any other size instead of PCI male local bus and PCI female local bus slot.
6. Variation 6 : As in all the above but with combination/s of PCI and or ISA and or AGP and or any 8 bit, 16bit, 24 bit, 32 bit, 64 bit, 128 bit, 256 bit, 512 bit, or higher and or any other male local bus and combination/s of PCI and or ISA and or AGP and or shared PCI/ISA, and/or shared PCI/AGP, and/or shared ISA/AGP and or any 8 bit, 16 bit, 24 bit, 32 bit, 64 bit, 128 bit, 256 bit, 512 bit or higher and or any other single or shared female local bus slots instead of PCI male local bus and PCI female local bus slot.
7. Variation 7 : As in any or all the above but with electrical, electronic , electromagnetic, CPU devices patented or otherwise. This variation makes it more than a parallel local bus card. This is a new type

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of main board/s in any size and or of any shape (rectangular, square, hexagonal shape or any shape) with both the male local bus and the female local bus slot/s There can be one or more male edge connector / local bus at one or more edge/s of the PCB. This new type of main board combined with Type II and or Type III local bus expansion card/s allow/s the modular architecture to be applied to a new type of computer

8. Variation 8 : A mirror image product of any or all of the above items..

NB: PCI, ISA and AGP refers to all the various possible types of expansion bus interface standards known and or being developed and or are not yet developed.

Description of Difference from known products :

1. There are no known printed circuit boards with the male local bus on one or more edges of the printed circuit board and with one or more corresponding female local bus slot mounted on the board for the purpose of reducing the minimal height of the computers by connecting the peripheral add-on cards parallel to the main board.
2. There are no known PCBs with the female local bus slots mounted on both sides of the PCB.
3. These products combine the two (the male local bus and the female local bus slots) together on the same board and also on both sides of the printed circuit board to produce a new range and type of printed circuit board and or parallel local bus card and a new type of main board and for a new use.

Description of Purpose and commercial use :

1. The use of the special parallel local bus card (Parallel Type I - Combined Male & Female) allow the usual PCBs with the female local bus slots to be connected parallel to the second or third PCB with the male local bus instead of the usual 90 degrees perpendicular position of the second PCB to the first PCB (called the main board), changing the direction and relation of the main board to the other printed circuit boards
2. This allows a more compact united form of the main board with the other printed circuit boards, making possible thinner casings to house the main board and the other printed circuit boards
3. Variation 7 allows two or more of this new type of main boards to be directly connected parallel (on two or more parallel planes) and or in series (on the same plane) with each other and or the peripheral add-on card/s with the use of the appropriate Parallel Type III (female) local bus card.(variation 4)
4. A new type of modular computer using combinations of Type I and or Type II and or Type III. This allows modules to be exchanged or replaced without affecting the rest of the computer which can have two or more CPU modules in addition to a different module for each type of add-on card.

Summary :

The above variations of the various types of bus interface cards (Parallel Type I - Combined Male & Female) using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed, allow the standard size peripheral add-on cards to be interfaced with the main board using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed, at a position parallel to the main board, reducing the minimal height of the computer and making it more compact. Where the physical size of the bus interface is varied whether it is smaller or in miniature or in any other size, the various bus interface card (Parallel Type I - Combined Male & Female) in its appropriate size will apply. A particular variation (no: 7 above) is a new type of main board with one or more male bus / edge connector at one or more edge/s of the PCB. This new type of main board can be directly connected parallel to each other or directly connected to the peripheral add-on card and or another main board (on the same plane, with both the main board/s and or the peripheral add-on card on the same plane) with the use of the appropriate Parallel Type III (female) local bus card. (variation 4). A new type of modular computer is made using combinations of the different variations of the Type I and or Type II and or Type III local bus expansion cards

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Title : Parallel Expansion Local Bus Card - Type I (Combined Male and Female)

Field : Computer

Claims :

Patent is to provide protection for the following :

1. The Concept of joining in parallel one printed circuit board with female local bus slots to another printed circuit board with male local bus at one or more edge/s of the printed circuit board to reduce the height of the computer using the expansion local bus card (Parallel Type I - Combined Male & Female) of the appropriate local bus interface architecture using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed
2. Patent rights to the new combined expansion local bus card in any appropriate size (Type I - Combined Male & Female) with both female bus slots and male bus / edge connector with one or more edge connector at one or more edge/s of the PCB using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed
3. The Concept of joining the new type of main board/s directly in parallel (on two or more parallel planes) and or in series (on the same plane) with each other and or the peripheral add-on card/s with the use of the appropriate Parallel Type III (female) local bus card (variation 4)
4. Patent rights to the new main board/s in any size or shape (rectangular, square, hexagonal shape or any shape) with the combined female local bus slot and the male local bus / edge connector with one or more edge connector at one or more edge/s of the PCB using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed
5. Patent rights to the concept and or production of modular computers using the various combinations of Type I, and or II and or III applied to the modular architecture for computers using several special boards each complete for the module and joined to each other on two to four edges with the add-on cards (sound card, ethernet card, display card and others) which require an external port to be placed on the outer margins of the completed modular computer (see Annex 4)
6. Where the physical size of the bus interface and or the new type of main board/s is varied whether it is smaller or in miniature or in any other size, the various bus interface card (Parallel Type I - Combined Male & Female) and or the new type of main board/s in its appropriate size will apply
7. The design, manufacture, utilisation and sale of the above items and the sale of other products using any of the above items in their product, except by the owner of the patent and/or his agent/s.
8. All of the above claims apply particularly to the personal computer, IBM and compatibles including workstations and servers, and also to other types of computers where applicable.

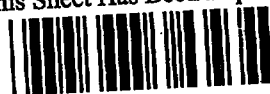
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Title : Parallel Expansion Local Bus Card - Type II (Male)

Field : Computer

Background :

Generally computers use various forms of interface like ISA, EISA, MCA, VL-Bus, PCI, AGP and other types of expansion bus to connect directly the main board to the peripheral add-on cards (like video display cards, sound cards, ethernet cards.) which are at 90 degrees position to the main boards. The main board have one or more central processing unit (CPU) as the brain centre and any additional CPU increases the performance of the computer, other than by increasing the RAM memory type and memory size (megabytes). The result is that the minimal size for the computers are based on the dimensions of the main board and the height of the peripheral add-on cards, generally 3.5 inches.

Current computer main boards operate individually and independently in separate casings unless they are indirectly connected externally via a network using network cards To join two or more main boards will allow the computer/network to be faster and increase its capability.

The proposed expansion local bus card (Type II - Male) is to allow a more compact stacked form of two or more main boards which are directly connected, with greater enhanced performance

ISA refers to Industry Standard Architecture.

EISA refers to Extended Industry Standard Architecture

MCA refers to Micro Channel Architecture.

PCI refers to Peripheral Component Interconnect

AGP refers to Accelerated Graphics Port

RAM refers to Random Access Memory

VL-Bus refers to Video Electronics Standards Association (VESA) Local Bus architecture

Description with variations :

1. Variation 1 : A printed circuit board (PCB) of varying sizes and any shape and with two 64 bit PCI male local bus (in any size) wired back to back (in alignment with each other) using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed, and without any other electronic, electromagnetic, CPU or memory devices
2. Variation 2 : As in variation 1 above but with one or more PCI male local bus on one or more edge/s of the printed circuit board wired back to back. This combined with variations of Type I and or Type III local bus expansion card allows the modular architecture to be applied to a new type of computer
3. Variation 3 : As in the above variations 1 & 2 but with a flexible cable joining the two PCI male local bus back to back and in alignment to each other.
4. Variation 4 : As in all the above but with PCI, ISA, AGP, shared PCI/ISA, shared PCI/AGP, shared ISA/AGP or any 8 bit, 16 bit, 24 bit, 32 bit, 64 bit, 128 bit, 256 bit, 512 bit or higher or any other male local bus in combination or singly in current standard size or smaller size or miniature size or any other size instead of PCI male local bus.
5. Variation 5 : As in any or all the above but with electrical, electronic, electromagnetic, memory devices and or central processing units patented or otherwise mounted on the printed circuit board. This is a new type of main board/s and or add-on peripheral card/s in any size and or shape (rectangular, square, hexagonal shape or any shape) with one or more male local bus / edge connector at one or more edges of the printed circuit board.
6. Variation 6 : A mirror image product of any or all of the above items..

NB: PCI, ISA and AGP refers to all the various possible types of expansion bus interface standards known and or are being developed and or are not yet developed.

Description : Difference from known products :

1. There are no known PCBs which have two male local bus on opposite edges of the PCB or one or more edge connector on more than one edge of the printed circuit board and forming part of the PCB which allows connection to two female local bus slots.

2. This product is a new type of expansion local bus card. This is also a new type of add-on peripheral card with one or more edge connector at more than one edge of the PCB.
3. Variation 5 is also a new type of main board/s in any size and or shape (rectangular, square, hexagonal shape or any shape) with one or more male local bus / edge connector at one or more edge/s of the PCB and as part of the printed circuit board. This new type of main boards can be directly connected in parallel (on two or more parallel planes) and or in series (on the same plane) with each other and or the peripheral add-on card/s with the use of the appropriate Parallel Type III (female) local bus card.(variation 4)

Description : Purpose and commercial use :

1. The use of this special parallel male local bus card allows two or more main boards to be directly connected in parallel to another main board .
2. This allows a more compact stacked form of two or more main boards directly connected, with greater enhanced performance. Current main boards operate individually and independently in separate casings unless they are indirectly connected externally via a network using network cards

Summary :

1. The above variations of the various types of bus interface cards (Parallel Type II - Male) using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed allow a more compact stacked form of two or more main boards directly connected, with greater enhanced performance. Where the physical size of the bus interface is varied whether it is smaller or in miniature or in any other size, the various bus interface card (Parallel Type II - Male) in its appropriate size will apply. A special variation is a new type of add-on peripheral card with one or more edge connector at more than one edge of the printed circuit board. Another particular variation (no: 5 above) is a new type of main board/s in any size and or shape (rectangular, square, hexagonal shape or any shape) with one or more male bus/edge connector at one or more edge/s of the PCB. This new type of main board/s can be directly connected in parallel and or in series (on the same plane) with each other and or the peripheral add-on card/s with the use of the appropriate Parallel Type III Female (variation 4) local bus card. This combined with Type II and or Type III local bus expansion card allows the modular architecture to be applied to a new type of computer

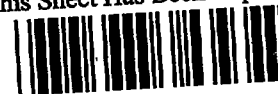
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Title : Parallel Expansion Local Bus Card - Type II (Male)

Field : Computer

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Claims :

Patent is to provide protection for the following :

1. The Concept of joining in parallel two printed circuit boards with female local bus slot/s using the expansion local bus card (Parallel Type II - Male) of the appropriate local bus interface architecture using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed
2. Patent rights to the new type of expansion local bus card in any size (Type II - Male) and its variations using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed
3. The Concept of joining the new type of main board/s, of any size or shape (rectangular, square, hexagonal shape or any shape) and with one or more male local bus/edge connector at one or more edge/s of the PCB as part of the printed circuit board, directly in parallel (on two or more parallel planes) and or in series (on the same plane) with each other and or the peripheral add-on card/s with the use of the appropriate Parallel Type III Female (variation 4) local bus card.
4. Patent rights to the new type of main board/s in any size or shape (rectangular, square, hexagonal shape or any shape) and with one or more male local bus/edge connector at one or more edge/s of the PCB as part of the printed circuit board using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed
5. Patent rights to the new type of add-on peripheral cards of any size or shape (rectangular, square, hexagonal shape or any shape) with one or more male local bus at more than one edge of the printed circuit board and as part of the printed circuit board (with or without any female bus slot on the main board/s) using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed
6. Patent rights to the concept and or production of modular computers using the various combinations of Type I, and or II and or III applied to the modular architecture for computers using several special boards each complete for the module and joined to each other on two to four edges with the add-on cards (sound card, ethernet card, display card and others) which require an external port to be placed on the outer margins of the completed modular computer (see Annex 4)
7. Where the physical size of the bus interface and or the new type of main board/s is varied whether it is smaller or in miniature or in any other size, the various bus interface card (Parallel Type II - Male) and or the new type of main board/s in its appropriate size will apply
8. The design, manufacture, utilisation and sale of the above items and the sale of other products using any of the above items in their product, except by the owner of the patent and/or his agent/s
9. All of the above claims apply particularly to the personal computer, IBM and compatibles including workstations and servers, and also to other types of computers where applicable.

Submitted by : Mr Chen Walter Roland



* C L H S *

Submitted by : Mr Chen Walter Roland

**Annex 3****Title : Parallel Expansion Local Bus Card - Type III (Female)****Field : Computer****Background :**

Generally computers use various forms of interface like ISA, EISA, MCA, VL-Bus, PCI, AGP and other types of expansion bus to connect directly the main board to the peripheral add-on cards (like video display cards, sound cards, ethernet cards.) which are at 90 degrees position to the main boards. The main board have one or more central processing unit (CPU) as the brain centre and any additional CPU increases the performance of the computer, other than by increasing the RAM memory type and memory size (megabytes). The result is that the minimal size for the computers are based on the dimensions of the main board and the height of the peripheral add-on cards, generally 3.5 inches. Current main boards do not have the male local bus interface at one or more edges of the printed circuit board. They have instead the female local bus interface slots on the main board itself.

Current computer main boards operate individually and independently in separate casings unless they are indirectly connected externally via a network using network cards To join two or more main boards will allow the computer/network to be faster and increase its capability.

The proposed expansion local bus card (Type III - Female) is to allow a more compact stacked form of the new type of two or more main boards (with the male local bus interface at one or more edges of the printed circuit board with one or more Central Processing Units) which are directly connected, with greater enhanced performance and capability and to position the peripheral add-on cards parallel to the main board, thereby reducing the minimal height for the computer while using standard size components.

ISA refers to Industry Standard Architecture.

EISA refers to Extended Industry Standard Architecture

MCA refers to Micro Channel Architecture.

PCI refers to Peripheral Component Interconnect

AGP refers to Accelerated Graphics Port

RAM refers to Random Access Memory

VL-Bus refers to Video Electronics Standards Association (VESA) Local Bus architecture

Description with variations :

1. Variation 1 : A printed circuit board (PCB) of varying sizes with two or more 64 bit PCI female local bus slots (in any size), mounted (parallel to another each other) on one side and wired together (for two or more PCI female local bus slots in any size) on corresponding pins without any other electronic, electromagnetic, CPU or memory devices using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed
2. Variation 2 : As in variation 1 above but with one or more PCI female local bus slots mounted on both sides of the printed circuit board using the mirror image of the PCI female local bus slot/s mounted on the opposite side and wired together on corresponding pins.
3. Variation 3 : As in all the above but with flexible cables linking the two or more PCI female local bus slots wired together on corresponding pins.
4. Variation 4 : As in variation 2 above but with a PCI female local bus slot joined directly back to back to a mirror image of the PCI female local bus slot as a single united pair or in multiple united pairs. This combined with variations of Type I and or Type II local bus expansion card allows the modular architecture to be applied to a new type of computer
5. Variation 5 : As in all the above but with PCI, ISA, AGP, shared PCI/ISA, shared ISA/AGP, shared PCI/AGP or any 8 bit, 16 bit, 24 bit, 32 bit, 64 bit, 128 bit, 256 bit, 512 bit or higher or any other single female local bus slots or in any multiple combination/s in current standard size or smaller size or miniature size or any other size instead of the PCI female local bus slot.
6. Variation 6 : As in any or all of the above but with electrical, electronic , electromagnetic, CPU or other memory devices, patented or otherwise, mounted on the printed circuit board. The mirror image refers to the position of one or more female bus slots on the printed circuit board.
7. Variation 7 : A mirror image product of any or all of the above items..

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NB: PCI, ISA and AGP refers to all the various possible types of expansion bus interface standards known and being developed and or are not yet developed.

Description : Difference from known products :

1. There are no known printed circuit boards which are bare of all electrical, electronic, electromagnetic, CPU items except only for the female local bus slots..
2. There are no known female local bus slots joined back to back with a mirror image of another female local bus slot whether as a single pair or as multiple pairs.

Description of Purpose and commercial use :

1. This is a new type of expansion female local bus card which allows for direct parallel connection of two or more printed circuit boards (main boards) with the corresponding male local bus. It directly connects two or more main boards stacked parallel to each other, whereas current main boards operate individually and independently in separate casings unless they are indirectly connected externally via a network using network cards
2. This allows a more compact stacked form of the new type of two or more main boards (with the male local bus interface at one or more edges of the printed circuit board) which are directly connected, with greater enhanced performance and capability and to position the peripheral add-on cards parallel to the main board, thereby reducing the minimal height for the computer while using standard size components.
3. The variation 4 is a special single pair or multiple paired female local bus slots which allow the new type of main board/s, of any shape (rectangular, square, hexagonal shape or any shape) and with the male local bus interface at one or more edges of the printed circuit board, directly connected in parallel (on two or more parallel planes) and or in series (on the same plane) to each other and or to the peripheral add-on cards thereby reducing the height for the computer.

Summary :

The above variations of the various types of bus interface cards (Parallel Type III - Female) using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed, allow a more compact stacked form of the new type of two or more main boards allow a more compact stacked form of the new type of two or more main boards (with the male local bus interface at one or more edges of the printed circuit board) which are directly connected, with greater enhanced performance and capability and to position the peripheral add-on cards parallel to the main board, thereby reducing the minimal height for the computer while using standard size components.

Variation 4 of the Parallel Type III - Female bus interface card allow the new type of main board (with the male local bus interface at one or more edges of the printed circuit board) directly connected. in parallel (on two or more parallel planes) and or in series (on the same plane) to each other and or to the peripheral add-on cards thereby reducing the height for the computer.

Where the physical size of the bus interface is varied whether it is smaller or in miniature or in any other size, the various bus interface card (Parallel Type III - Female) in its appropriate size will apply

This Sheet Has Been Replaced





Title : Parallel Expansion Local Bus Card - Type III (Female)

Field : Computer

Claims :

Patent is to provide protection for the following :

1. The Concept of joining in parallel two or more printed circuit main boards with male local bus and or to join the main board/s in the parallel position to any appropriate peripheral add-on cards using the expansion female local bus card (Parallel Type III - Female) of the appropriate local bus interface architecture using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed
2. The Concept of joining the new type of main board/s, of any size or shape (rectangular, square, hexagonal shape or any shape) and with the male local bus interface at one or more edges of the printed circuit board, directly in parallel (on two or more parallel planes) and or in series (on the same plane) to each other and or to the peripheral add-on cards with the use of the appropriate Parallel Type III Female (variation 4) local bus card thereby reducing the height for the computer using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed
3. Patent rights to the new parallel expansion local bus card in any size (Type III - Female) and its variations using any of the appropriate various possible types of expansion bus interface standards known and or being developed and or are not yet developed
4. Patent rights to the concept and or production of modular computers using the various combinations of Type I, and or II and or III applied to the modular architecture for computers using several special boards each complete for the module and joined to each other on two to four edges with the add-on cards (sound card, ethernet card, display card and others) which require an external port to be placed on the outer margins of the completed modular computer (see Annex 4)
5. Where the physical size of the bus interface and or the new type of main board/s is varied whether it is smaller or in miniature or in any other size, the various bus interface card (Parallel Type III - Female) and or the new type of main board/s in its appropriate size will apply
6. The design, manufacture, utilisation and sale of the above items and the sale of other products using any of the above items in their product, except by the owner of the patent and/or his agent/s.
7. All of the above claims apply particularly to the personal computer, IBM and compatibles including workstations and servers, and also to other types of computers where applicable.

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