Industrial Automation Products

**Bus Expansion System**

**EXPANSION UNIT BUS ADAPTER**

An expansion system is used to expand the number of available PCI bus slots of either CONTEC industrial computers or standard PCs. It is also useful in applications where the power consumption of add-on boards exceeds the power supply capacity of the host PC. An expansion system is used to join the expansion chassis and the host PC into one system.

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**Product Lineup**

We provide wide array of models to meet your desired bus specifications.

**Bus Extension Type Expansion Adapter & Chassis**

**Standard Bus extension**

This bus extension externally expands PCI bus and transmits signals directly between the expansion chassis and host PC. It is best suited for use in an environment where the measurement control is conducted in close proximity to the host PC.

* The expansion adapters to be inserted in the PC and expansion chassis are connected with a 1m-long connection cable.

**StarFabric-compliant Type Expansion Adapter & Chassis**

**StarFabric-compliant extension**

With this style extension, you can conduct StarFabric-compliant high-speed serial transfer (2.5Gbps). The expansion adapters to be inserted into the PC and expansion chassis are connected using Category 5e cable creating easy wiring and installation. The included cable can be extended up to 12m, making it an optimal choice where measure / control is conducted at a distance from the host PC. PCI bus compliant, it allows you to construct a system without changing existing boards or software. The power supply of the expansion chassis can be controlled in synchronization with the host PC power supply.

* Category 5e twisted-pair cable can be used. In high noise environments use of shielded type (STP) is recommended.

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**Caution:**

Please note that the following expansion boards cannot be used inside an expansion chassis.

- Video boards
- Additional PCI bus expansion boards
- Boards with the disclaimer "Cannot be used with PCI-to-PCI Bridge"
- Please note that even when a board is compatible with PCI bus specifications, it may not operate due to specification limitations.

* For further details, please check the manual or visit our web site.

An expansion adapter is an adapter that connects a host PC to an expansion chassis for the purpose of extending high-speed signal transmission. It is not possible to link one expansion chassis to another expansion chassis due to resultant signal degradation. When using more than one expansion chassis, you must allocate an open slot to each chassis for a parallel connection.
Bus Expansion System

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**Bus Extension Type Expansion Adapter & Chassis**

**Expansion Adapter**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAD1PC1BE</td>
<td>For Low Profile PCI Bus slot</td>
</tr>
<tr>
<td>EAD1PCI2BE</td>
<td>For PCI Bus slot</td>
</tr>
<tr>
<td>EAD1CB1BE</td>
<td>For CardBus slot</td>
</tr>
</tbody>
</table>

**PCI Bus Expansion Chassis**

<table>
<thead>
<tr>
<th>Name</th>
<th>Installation Type</th>
<th>Slots</th>
<th>Installable Board</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Desktop</td>
<td>Rack Mount</td>
<td>Wall Mount</td>
</tr>
<tr>
<td>EAD1PCI2BE-H2B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EAD1PCI2BE-H4B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EAD1PCI2BE-F2B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EAD1PCI2BE-F4B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EAD1PCI2BE-H4A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EAD1PCI2BE-F7A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EAD1PCI2BE-F13A</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**StarFabric-compliant Type Expansion Adapter & Chassis**

**Expansion Adapter**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAD1PC1SF</td>
<td>For Low Profile PCI Bus slot</td>
</tr>
<tr>
<td>EAD1CB1SF</td>
<td>For CardBus slot</td>
</tr>
</tbody>
</table>

**PCI Bus Expansion Chassis**

<table>
<thead>
<tr>
<th>Name</th>
<th>Installation Type</th>
<th>Slots</th>
<th>Installable Board</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Desktop</td>
<td>Rack Mount</td>
<td>Wall Mount</td>
</tr>
<tr>
<td>EAD1PC1SF-H2B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EAD1PC1SF-H4B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EAD1PC1SF-F2B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EAD1PC1SF-F4B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EAD1PC1SF-H4A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EAD1PC1SF-F7A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EAD1PC1SF-F13A</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Bus Expansion Adapter**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Backplane</th>
<th>Installable Unit of PCI Bus Expansion Adapter (FA-UNIT.**)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUF1PCI4</td>
<td>PCI</td>
<td>PCI (4 slots)</td>
<td>Included</td>
</tr>
<tr>
<td>BUF1PCI3</td>
<td>PCI</td>
<td>PCI (7 slots)</td>
<td>Included</td>
</tr>
<tr>
<td>BUF1PCI13</td>
<td>ISA</td>
<td>ISA (13 slots)</td>
<td>Included</td>
</tr>
</tbody>
</table>

**Bus Converter Adapter**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUF1PCI</td>
<td>PCI</td>
</tr>
<tr>
<td>BUF1CARD1PC</td>
<td>PCI Card</td>
</tr>
<tr>
<td>BUF1CARD1PC</td>
<td>ISA</td>
</tr>
</tbody>
</table>

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**Pictograms**

**Expansion adapter**
- The product is compatible with PCI standard and can be used on PC equipped with PCI bus expansion slot.
- The product supports CardBus that is a 32-bit bus compatible with PC card standard.

**Expansion chassis**
- Maximum number of boards that can be installed.
- Maximum board size that can be installed
- Expansion chassis is equipped with built-in power supply.
- Includes AC adapter. The expansion chassis has no built-in power source.
Bus Extension Type
Selecting Optimal Expansion Adapter and Expansion Chassis

Bus Extension is best suited for use in an environment where the control is conducted in close proximity to the PC unit. If the expansion unit needs to be further away (up to 12m - max), select from the StarFabric-compliant system - list on P.3.
CONTEC offers 19 different configurations based on the type of host PC, needed number and lengths of PCI slots.

### Expansion Adapter

- **Expansion adapter for CardBus slot (PC side)**
  - **EAD(CB)BE**

  A dedicated connection cable (1m) is included.

- **Expansion adapter for Low Profile PCI bus slot (host PC)**
  - **EAD(LPCI)BE**

  A dedicated connection cable (1m) and standard PCI bus bracket are included.

- **Expansion adapter for PCI bus slot (host PC)**
  - **EAD(PCI)BE**

  A dedicated connection cable (1m) is included.

### Expansion Chassis

- **Stylish compact black chassis**
  - **ECH(PCI)BE-H2B**
    - 2 Slots
    - Short Size
    - AC adapter
    - M-05

- **ECH(PCI)BE-H4B**
  - 4 Slots
  - Short Size
  - AC adapter
  - M-05

- **ECH(PCI)BE-F2B**
  - 2 Slots
  - Long Size
  - Short Size
  - AC adapter
  - M-05

- **ECH(PCI)BE-F4B**
  - 4 Slots
  - Long Size
  - Short Size
  - AC adapter
  - M-05

- **Solid steel industrial chassis**
  - **ECH(PCI)BE-H4A**
    - 4 Slots
    - Short Size
    - Power on board
    - M-06

- **ECH(PCI)BE-F7A**
  - 7 Slots
  - Long Size
  - Short Size
  - Power on board
  - M-06

- **ECH(PCI)BE-F13A**
  - 13 Slots
  - Long Size
  - Short Size
  - Power on board
  - M-06

**Note to customers using the CONTEC's conventional expansion units [FA-PAC(PCI) and NOTE-PAC(PCI) Series]**

When replacing conventional expansion units with expansion chassis and adapters, please refer to the following table so that you can purchase a complete unit with the same specifications as those of the conventional models.

<table>
<thead>
<tr>
<th>PCI bus expansion system</th>
<th>Expansion adapter</th>
<th>Expansion chassis</th>
</tr>
</thead>
<tbody>
<tr>
<td>FA-PAC(PCI)H4</td>
<td>EAD(PCI)BE</td>
<td>ECH(PCI)BE-H4A</td>
</tr>
<tr>
<td>FA-PAC(PCI)F7</td>
<td>EAD(PCI)BE</td>
<td>ECH(PCI)BE-F7A</td>
</tr>
<tr>
<td>FA-PAC(PCI)F13</td>
<td>EAD(PCI)BE</td>
<td>ECH(PCI)BE-F13A</td>
</tr>
<tr>
<td>CardBus to PCI bus expansion system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOTE-PAC(PCI)H2</td>
<td>EAD(CB)BE</td>
<td>ECH(PCI)BE-H2B</td>
</tr>
<tr>
<td>NOTE-PAC(PCI)H4</td>
<td>EAD(CB)BE</td>
<td>ECH(PCI)BE-H4A</td>
</tr>
</tbody>
</table>
Bus Extender
LPCI bus slot Expansion Adapter (Host PC)
EAD(LPCI)BE

- PCI bus (5V/32bit 33MHz) can be added using one Low Profile or Standard PCI slot of the host PC.
- Expansion chassis can be selected to match required number of PCI slots and add-on board size.
- The expansion chassis power supply can be turned on & off with the host PC power supply.
- Both Low Profile and Standard PCI slots are supported by using the included bracket.

Bus Extender
PCI bus slot Expansion Adapter (Host PC)
EAD(PCI)BE

- PCI bus (5V/32bit 33MHz) can be added using one PCI slot of the PC.
- Expansion chassis can be selected to match required number of PCI slots and add-on board size.
- The expansion chassis power supply can be turned on & off with the host PC power supply.

Bus Extender
CardBus slot expansion adapter (Host PC)
EAD(CB)BE

- PCI bus (5V/32bit 33MHz) can be added using one CardBus slot of a Note-PC.
- Expansion chassis can be selected to match required number of PCI slots and add-on board size.
- The expansion chassis power supply can be turned on & off with the host PC power supply.

- A dedicated device driver needs to be installed under Windows XP and Windows 2000.
- Windows NT 4 and Windows 95 are not supported.

<table>
<thead>
<tr>
<th>Model</th>
<th>EAD(LPCI)BE</th>
<th>EAD(PCI)BE *2</th>
<th>EAD(CB)BE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus type</td>
<td>PCI Local Bus Specification Rev2.3 (+5V / +3.3V)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Card slot</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions (mm)</td>
<td>121.69(L) x 63.41(H)</td>
<td>121.69(L) x 105.68(H)</td>
<td></td>
</tr>
<tr>
<td>Bus Operating Clock</td>
<td>33MHz (Max)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Consumption (Max.)</td>
<td>3.3VDC 200mA (Max.) (JP1 1-2 Short)</td>
<td>3.3VDC 200mA (Max.) (JP1 2-3 Short)</td>
<td>3.3VDC 200mA (Max.)</td>
</tr>
<tr>
<td>Operating Conditions</td>
<td>0<del>50°C, 10</del>90%RH (no condensation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attached cable</td>
<td>CB-CB68/96 (cable length: 1m) *1</td>
<td>CB-BF96 (cable length: 1m) *1</td>
<td>CB-CB68/96 (cable length: 1m) *1</td>
</tr>
</tbody>
</table>

Note:
1. Only the cable included with the unit can be used.
2. This product cannot be used with the [ECH]PCIE-F7A, F13A expansion chassis.
# Bus Expansion System

## Bus Extender
**PCI bus expansion chassis**

### (×2 Short size slots, AC Adapter)

**ECH(PCI)BE-H2B**

- 2× PCI expansion slots
- Length accommodates short-size PCI add-on boards (5V/32bit)
- Chassis power supply can be turned on & off with the host PC power supply
- Equipped with a built-in cooling fan
- The compact chassis design combines space-saving system configuration with portability
- Including an AC adapter

### (×2 Long size slots, AC Adapter)

**ECH(PCI)BE-F2B**

- 2× PCI expansion slots
- Length accommodates long-size PCI add-on boards (5V/32bit)
- Chassis power supply can be turned on & off with the host PC power supply
- Equipped with a built-in cooling fan
- The compact chassis design combines space-saving system configuration with portability
- Including an AC adapter

### (×4 Short size slots, AC Adapter)

**ECH(PCI)BE-H4B**

- 4× PCI expansion slots
- Length accommodates short-size PCI add-on boards (5V/32bit)
- Chassis power supply can be turned on & off with the host PC power supply
- Equipped with a built-in cooling fan
- The compact chassis design combines space-saving system configuration with portability
- Including an AC adapter

### (×4 Long size slots, AC Adapter)

**ECH(PCI)BE-F4B**

- 4× PCI expansion slots
- Length accommodates long-size PCI add-on boards (5V/32bit)
- Chassis power supply can be turned on & off with the host PC power supply
- Equipped with a built-in cooling fan
- The compact chassis design combines space-saving system configuration with portability
- Including an AC adapter

## Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>ECH(PCI)BE-H2B</th>
<th>ECH(PCI)BE-H4B</th>
<th>ECH(PCI)BE-F2B</th>
<th>ECH(PCI)BE-F4B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bus type</strong></td>
<td>PCI Local Bus Specification Rev2.3 (+5VDC)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Address Space</strong></td>
<td>Memory: 32-bit addressing, I/O: 32-bit addressing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Interrupt Level</strong></td>
<td>INTA-NINTD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bus Clock</strong></td>
<td>33MHz (Max.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>User slots</strong></td>
<td>2 (Short-size)</td>
<td>4 (Short-size)</td>
<td>2 (Long-size)</td>
<td>4 (Long-size)</td>
</tr>
<tr>
<td><strong>Installable Board (mm)</strong></td>
<td>176.5(L) × 107(H)</td>
<td>313.8(L) × 107(H)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Power supply capacity (Max.)</strong></td>
<td>Output current shall not exceed the following values.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AC input voltage</strong></td>
<td>100 to 240VAC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operating Conditions</strong></td>
<td>0<del>50°C, 20</del>80%RH (no condensation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dimensions (mm)</strong></td>
<td>71.0(W) × 222.0(D) × 144.0(H)</td>
<td>112.0(W) × 222.0(D) × 144.0(H)</td>
<td>71.0(W) × 360.0(D) × 144.0(H)</td>
<td>112.0(W) × 360.0(D) × 144.0(H)</td>
</tr>
<tr>
<td><strong>Weight of Chassis</strong></td>
<td>1.2kg</td>
<td>1.5kg</td>
<td>1.6kg</td>
<td>2.0kg</td>
</tr>
<tr>
<td><strong>Weight of AC Adapter</strong></td>
<td>0.9kg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**

- Dimensions (Unit:mm)

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**Global Portal:** [www.contec.com](http://www.contec.com)
### Bus Expansion System

#### Bus Extender

**PCI bus Expansion Chassis**

(×4 Short size slots, On board Power)

**ECH(PCI)BE-H4A**

- 4x PCI expansion slots
- Length accommodates short-size PCI add-on boards (5V/32bit)
- The chassis power supply can be turned on & off with the power

**Specifications**

- **Model**: ECH(PCI)BE-H4A
- **Bus type**: PCI Local Bus Specification Rev2.3 (+5V/DC)
- **Address Space**: Memory: 32-bit addressing, I/O: 32-bit addressing
- **Interrupt Level**: INTA/INTD
- **Bus Clock**: 3.3MHz (Max.)
- **User slots**: 4 (short-size) 7 (Long-size) 13 (Long-size)
- **Installable Board (mm)**: 176.8(L) × 107(H) 313.6(L) × 107(H) 415.2(L) × 107(H)
- **Power supply capacity (Max.)**: +5VDC: 11.3A, +3.3VDC: 6A, +12VDC: 3A, -12VDC: 0.7A
- **AC input voltage**: 115/230VAC (switch selectable)
- **Overal maximum power supply capacity**: 130W
- **Operating Conditions**: 0~50°C, 20~90%RH (no condensation)
- **Dimensions (mm)**: 210.0(W) × 235.0(D) × 138.0(H)
- **Weight**: 3.5kg

#### Bus Extender

**PCI bus Expansion Chassis**

(×7 Long size slots, On-board Power)

**ECH(PCI)BE-F7A**

- 7x PCI expansion slots
- Length accommodates long-size PCI add-on boards (5V/32bit)
- Chassis power supply can be turned on & off with the host PC power supply

**Specifications**

- **Model**: ECH(PCI)BE-F7A
- **Bus type**: PCI Local Bus Specification Rev2.3 (+5V/DC)
- **Address Space**: Memory: 32-bit addressing, I/O: 32-bit addressing
- **Interrupt Level**: INTA/INTD
- **Bus Clock**: 3.3MHz (Max.)
- **User slots**: 4 (short-size) 7 (Long-size) 13 (Long-size)
- **Installable Board (mm)**: 176.8(L) × 107(H) 313.6(L) × 107(H) 415.2(L) × 107(H)
- **Power supply capacity (Max.)**: +5VDC: 18A**, +3.3VDC: 15A**, +12VDC: 9A, -12VDC: 1A
- **AC input voltage**: 115/230VAC (switch selectable)
- **Overal maximum power supply capacity**: 130W
- **Operating Conditions**: 0~30°C: 230W, 30~40°C: 205W, 40~50°C: 175W
- **Dimensions (mm)**: 210.0(W) × 372.2(D) × 138.0(H)
- **Weight**: 5.0kg

**Note**: **1**: The sum of +5VDC×1.33VDC cannot exceed 90W. **2**: This product cannot be used with the [ECH(PCI)BE] expansion chassis.

### Dimensions

**Dimensions (Unit:mm)**

- **ECH(PCI)BE-H4A**
- **ECH(PCI)BE-F7A**
- **ECH(PCI)BE-F13A**

*The figures inside the bracket indicate the dimension with the bracket attached.
**StarFabric-compliant**
Selecting an Expansion Adapter and Expansion Chassis

A StarFabric-compliant system is best suited for measurement control when distance between host PC and chassis is required. When using an expansion chassis in close proximity to the host PC, select from the Bus Extension list on M-03.

CONTEC offers a total of 12 different combinations according to type of host PC, needed PCI slots and sizes on add-on boards.

### Expansion Adapter

- PC equipped with CardBus-compliant card slot

### Expansion Chassis

#### Stylish and compact black chassis
- **PCI expansion chassis** (includes AC adapter)
  - ECH(PCI)SF-H2B
    - 2 Slots
    - Short Size
    - AC adapter
  - M-09

#### Solid steel industrial chassis
- **PCI bus expansion chassis (On board power supply)**
  - ECH(PCI)SF-H4A
    - 4 Slots
    - Short Size
    - Power on board
  - M-10

- ECH(PCI)SF-F2B
  - 2 Slots
  - Long Size
  - Short Size
  - AC adapter
  - M-09

- ECH(PCI)SF-F4B
  - 4 Slots
  - Long Size
  - Short Size
  - AC adapter
  - M-09

- ECH(PCI)SF-F7A
  - 7 Slots
  - Long Size
  - Short Size
  - Power on board
  - M-10

- ECH(PCI)SF-F13A
  - 13 Slots
  - Long Size
  - Short Size
  - Power on board
  - M-10

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*2x (12m) Category 5e STP cables are included*

*Category 5e twisted-pair cable can be used.*

*In high noise environments, shielded cable (STP) is recommended.*

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Global Portal: www.contec.com
**StarFabric-compliant**

**LPCI bus slot Expansion Adapter (Host PC)**

**EAD(LPCI)SF**

- 12m PCI bus expansion and high-speed serial transfer (2.5Gbps) are supported
- PCI bus-compatible, eliminating any need to change PCI add-on boards or software
- Uses noise resistant Cat 5e STP cable - easy wiring and installation
- PCI bus (5V/32bit 33MHz) expansion uses one Low Profile PCI or standard PCI slot of the host PC
- Expansion chassis can be selected to match required number of PCI slots and add-on board size

**StarFabric-compliant**

**CardBus slot Expansion Adapter (Host PC)**

**EAD(CB)SF**

- 12m PCI bus expansion and high-speed serial transfer (2.5Gbps) are supported
- Uses noise resistant Cat 5e STP cable - easy wiring and installation
- PCI expansion (5V/32bit 33MHz) using CardBus slot of the note PC
- Expansion chassis can be selected to match required number of PCI slots and add-on board size
- The expansion chassis power supply can be turned on & off with the host PC power supply

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**Note:**

- A dedicated device driver needs to be installed under Windows XP and Windows 2000.

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**Model** | **EAD(LPCI)SF** | **EAD(CB)SF**
---|---|---
**Bus / Size (mm)** | PCI Local Bus Specification Rev2.2 (+5V / +3.3V) / 121.6(H) x 63.4(W) | PC Card Standard / CardBus-compliant / TYPE II (119.0 x 54.0 x 19.0)
**Power Consumption (Max.)** | 3.3VDC 450mA (Max.)  
<JP1 1-2 Short>  
5VDC 350mA (Max.)  
<JP1 2-3 Short> | 3.3VDC 450mA (Max.)
**Operating Conditions** | 0-50°C, 10-90%RH (no condensation) | 0-50°C, 20-90%RH (no condensation)
**Attached cable ** | 2 x Category 5e STP cables (12m) | **Note:**

*1: Category 5e twisted-pair cable can be used. In noisy environments shielded cable (STP) is recommended.

*2: This product cannot be used with the expansion chassis [ECH(PC)SF-F7A, F13A].
## Bus Expansion System

### StarFabric-compliant
PCI bus Expansion Chassis
(*x2 Short size slots, AC Adapter*)

**ECH(PCI)SF-H2B**

- 2x PCI expansion slots
- Length accommodates short-size PCI add-on boards (5V/32bit)
- Chassis power supply can be turned on & off with the host PC power supply
- Equipped with a built-in cooling fan
- The compact chassis design combines space-saving system configuration with portability
- Including an AC adapter

### StarFabric-compliant
PCI bus Expansion Chassis
(*x2 Long size slots, AC Adapter*)

**ECH(PCI)SF-F2B**

- 2x PCI expansion slots
- Length accommodates long-size PCI add-on boards (5V/32bit)
- Chassis power supply can be turned on & off with the host PC power supply
- Equipped with a built-in cooling fan
- The compact chassis design combines space-saving system configuration with portability
- Including an AC adapter

### StarFabric-compliant
PCI bus Expansion Chassis
(*x4 Short size slots, AC Adapter*)

**ECH(PCI)SF-H4B**

- 4x PCI expansion slots
- Length accommodates short-size PCI add-on boards (5V/32bit)
- Chassis power supply can be turned on & off with the host PC power supply
- Equipped with a built-in cooling fan
- The compact chassis design combines space-saving system configuration with portability
- Including an AC adapter

### StarFabric-compliant
PCI bus Expansion Chassis
(*x4 Long size slots, AC Adapter*)

**ECH(PCI)SF-F4B**

- 4x PCI expansion slots
- Length accommodates long-size PCI add-on boards (5V/32bit)
- Chassis power supply can be turned on & off with the host PC power supply
- Equipped with a built-in cooling fan
- The compact chassis design combines space-saving system configuration with portability
- Including an AC adapter

<table>
<thead>
<tr>
<th>Model</th>
<th>ECH(PCI)SF-H2B</th>
<th>ECH(PCI)SF-H4B</th>
<th>ECH(PCI)SF-F2B</th>
<th>ECH(PCI)SF-F4B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address Space</td>
<td>INTA-INTD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interrupt Level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bus Clock</td>
<td>33MHz (Max.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User slots</td>
<td>2 (Short-size)</td>
<td>4 (Short-size)</td>
<td>2 (Long-size)</td>
<td>4 (Long-size)</td>
</tr>
<tr>
<td>Installable Board (mm)</td>
<td>176.5(L) x 107(H)</td>
<td>313.8(L) x 107(H)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power supply capacity (Max.)</td>
<td>The output current shall not exceed the following values.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC input voltage</td>
<td>100 to 240VAC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall maximum power supply capacity</td>
<td>60W</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Conditions</td>
<td>0<del>50℃, 20</del>80%RH (no condensation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions (mm)</td>
<td>71.0(W) x 222.0(D) x 144.0(H)</td>
<td>112.0(W) x 222.0(D) x 144.0(H)</td>
<td>71.0(W) x 360.0(D) x 144.0(H)</td>
<td>112.0(W) x 360.0(D) x 144.0(H)</td>
</tr>
<tr>
<td>Weight of Chassis</td>
<td>1.2kg</td>
<td>1.5kg</td>
<td>1.6kg</td>
<td>2.0kg</td>
</tr>
<tr>
<td>Weight of AC Adapter</td>
<td>0.9kg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**

### Dimensions

![ECH(PCI)SF-H2B](image1.png)

![ECH(PCI)SF-F2B](image2.png)

![ECH(PCI)SF-H4B](image3.png)

![ECH(PCI)SF-F4B](image4.png)

Global Portal: www.contec.com
### StarFabric-compliant PCI bus Expansion Chassis

**Model:**
- **ECH(PCI)SF-H4A**
- **ECH(PCI)SF-F7A**
- **ECH(PCI)SF-F13A**

**Features:**
- 4× PCI expansion slots
- Length accommodates short-size PCI
- Chassis power supply can be turned on & off with the power

**Specifications:**
- **ECH(PCI)SF-H4A**
  - **Bus type:** PCI Local Bus Specification Rev2.2 (+5VDC)
  - **Address Space:** Memory: 32-bit addressing, I/O: 32-bit addressing
  - **Interrupt Level:** INTA/INTD
  - **User slots:** 4 (short-size)
  - **Installable Board (mm):** 176.5(L) x 107(H)
  - **Power supply capacity (Max.):** +5VDC: 11.3A, +3.3VDC: 6A, +12VDC: 3A, -12VDC: 0.7A
  - **AC input voltage:** 115/230V/AC (switch selectable)
  - **Overall maximum power supply capacity:** 130W (0-30°C: 230W, 30-40°C: 205W, 40-50°C: 175W)
  - **Dimensions (mm):** 210.0(W) x 235.0(D) x 138.0(H)
  - **Weight:** 3.5kg

**Note:**
- *1: The sum of +5VDC=3.3VDC cannot exceed 90W. *2: This product cannot be used with the ECH(CR)86 expansion chassis.

### Dimensions

**Unit:mm**

**ECH(PCI)SF-H4A**

**ECH(PCI)SF-F7A**

**ECH(PCI)SF-F13A**

*The figures inside the bracket indicate the dimension with the bracket attached.*
# Bus Expansion System

## PCI to PCI Bus Expansion System (4 Slots)
### BUF(PCI)4

- **External backplane expansion slots function as regular PCI slots**
- **Using ATX power supply, Chassis power supply can be turned on & off with the host PC power supply.**
  * It cannot be used in PC-9600 series.

## PCI to PCI Bus Expansion System (7 Slots)
### BUF(PCI)

- **External backplane expansion slots function as regular PCI slots**
- **Using ATX power supply, Chassis power supply can be turned on & off with the host PC power supply.**
  * It cannot be used in PC-9600 series.

## PCI to PCI Bus Expansion System (13 Slots)
### BUF(PCI)13

- **External backplane expansion slots function as regular PCI slots**
- **Using ATX power supply, Chassis power supply can be turned on & off with the host PC power supply.**
  * It cannot be used in PC-9600 series.

## PCI to ISA Bus Conversion System
### BUF-PCI(PC)

- **Standard ISA slots can be connected from a PCI slot of host PC.**
- **Included driver software for Windows XP/2000/NT/Me/98/95.**
- **I/O access wait and refresh signal for the expansion unit.**

### Model Comparison Table

<table>
<thead>
<tr>
<th>Model</th>
<th>BUF(PCI)4</th>
<th>BUF(PCI)</th>
<th>BUF(PCI)13</th>
<th>BUF-PCI(PC) *2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bus type</strong></td>
<td>32-bit PCI bus Rev.2.1 (+5V type)</td>
<td>BUF(PCI)</td>
<td>BUF(PCI)13</td>
<td>BUF-PCI(PC)</td>
</tr>
<tr>
<td><strong>Address space</strong></td>
<td>I/O: 32-bit addressing, Memory: 32-bit addressing</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>User slots</strong></td>
<td>4</td>
<td>7</td>
<td>13</td>
<td>-</td>
</tr>
<tr>
<td><strong>Interrupt Level</strong></td>
<td>INTA~INTD</td>
<td>-</td>
<td>-</td>
<td>One interrupt signal within expansion chassis</td>
</tr>
<tr>
<td><strong>DMA</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Not supported</td>
</tr>
<tr>
<td><strong>Accessible I/O space</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Max.248 port (PCI BIOS assigns I/O space to BUF-PC(PCI))</td>
</tr>
<tr>
<td><strong>Accessible Memory</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Not supported</td>
</tr>
<tr>
<td><strong>Bus Clock</strong></td>
<td>33MHz (Max.)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Power Consumption</strong></td>
<td>BUS-PC(PCI) (PC side): +5VDC 700mA (Max.) / 3.3VDC 300mA (typ.)</td>
<td>BUS-PC(PCI) (PC side): +5VDC 700mA (Max.) / 3.3VDC 300mA (typ.)</td>
<td>BUS-PC(PCI) (PC side): +5VDC 700mA (Max.) / 3.3VDC 300mA (typ.)</td>
<td>BUS-PC(PCI) (PC side): +5VDC 700mA (Max.) / 3.3VDC 300mA (typ.)</td>
</tr>
<tr>
<td><strong>Operating Conditions</strong></td>
<td>0<del>50°C, 30</del>90%RH (no condensation)</td>
<td>0<del>50°C, 30</del>90%RH (no condensation)</td>
<td>0<del>50°C, 30</del>90%RH (no condensation)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Dimensions (mm)</strong></td>
<td>BUS-PC(PCI) (PC side): 122.0(L) × 107.0(H) × 18.5(D)</td>
<td>BUS-PC(PCI) (PC side): 122.0(L) × 107.0(H) × 18.5(D)</td>
<td>BUS-PC(PCI) (PC side): 122.0(L) × 107.0(H) × 18.5(D)</td>
<td>BUS-PC(PCI) (PC side): 122.0(L) × 107.0(H) × 18.5(D)</td>
</tr>
<tr>
<td><strong>Attached cable</strong></td>
<td>9-pin shielded cable, 1m*1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Notes:

*1 Only the Attached cable can be used.
*2 This product provides I/O access to ISA bus board. It is subject to software and hardware restrictions. Please contact General Information for details.
# Bus Expansion System

## PCMCIA to ISA Bus Conversion System
**BUF-CARD(PC)P**
- Standard ISA slots can be connected from a PC Card (PCMCIA) slot of host PC
- Supported OS: Windows XP/2000/98/95/3.1, MS-DOS

## ISA to ISA Bus Expansion System
**BUF(PC)E**
- Standard ISA slots can be connected from a ISA slot of host PC.

## ISA to PCMCIA Expansion Board
**PC-CARD(PC)H**
- Compatible with PC card Type I, Type II, and Type III based on PCMCIA 2.1 / JEIDA 4.2 or later
- Maximum 2pcs. can be mounted simultaneously on the same system.

<table>
<thead>
<tr>
<th>Model</th>
<th>BUF-CARD(PC)P</th>
<th>BUF(PC)E</th>
<th>BUF-CARD(PC)H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus type</td>
<td>PCMCIA to ISA Bus expansion</td>
<td>ISA to ISA Bus Expansion</td>
<td>-</td>
</tr>
<tr>
<td>Card slot</td>
<td>JEIDA Ver. 4.1 / PCMCIA Rev. 2.0 (Type II)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Card type</td>
<td>-</td>
<td>PC Card: JEIDA 4.2 / PCMCIA 2.0 or later TYPE I, II, III (Power consumption 1.2A Max.)</td>
<td>-</td>
</tr>
<tr>
<td>I/O Address</td>
<td>-</td>
<td>2 ports (X3E0h, X3E1h)</td>
<td>-</td>
</tr>
<tr>
<td>DMA</td>
<td>Not supported</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bus Clock</td>
<td>-</td>
<td>8MHz</td>
<td>-</td>
</tr>
<tr>
<td>Data Bus width</td>
<td>8-bit (16-bit not available)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Accessible I/O space</td>
<td>I/O: 32 consecutive ports can be selected as follows: 220-22F, 240-27F, 260-29F, 280-2BF, 2C0-2DF, 2E0-2FF, 300-31F, 320-32F, 340-35F, 360-37F, 380-38F, 3A0-39F, 3A2-3DF, 3A3-3E0F</td>
<td>9000h - FFFFH (unrelated to expansion bus adapters)</td>
<td>00000h - 0FFFFH (DP switch selectable) 00000h - 00FFFFH (DP switch selectable)</td>
</tr>
<tr>
<td>Accessible Memory</td>
<td>Not supported</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Interrupt Level</td>
<td>One of IRQ 3-7, 9-12, 14 or 15 (jumper selectable)</td>
<td>IRQ 3-7, 9-12, 14, 15 (rotary SW selectable)</td>
<td>-</td>
</tr>
<tr>
<td>Power Consumption (Max.)</td>
<td>BUS-PC/PCM (PC side): +5VDC 100mA BUS-PC/PCM (Extension side): +5VDC 500mA</td>
<td>BUS-PC/PCM (PC side): +5VDC 300mA BUS-PC/PCM (Extension side): +5VDC 500mA</td>
<td>+5VDC 150mA (without PC Card)</td>
</tr>
<tr>
<td>Operating Conditions</td>
<td>0-50°C, 30-90%RH (no condensation)</td>
<td>0-50°C, 30-90%RH (no condensation)</td>
<td>0-50°C, 0-90%RH (no condensation)</td>
</tr>
<tr>
<td>Dimensions (mm)</td>
<td>BUS-PC/PCM (PC side): 54.0(L) × 85.6(W) × 5.0(D) BUS-PC/PCM (Extension side): 160.0(L) × 122.0(H) × 18.5(D)</td>
<td>Both PC &amp; Extension side: 160.0(L) × 122.0(H) × 22.0(D)</td>
<td>-</td>
</tr>
<tr>
<td>Applicable Models</td>
<td>AT-compliant PC equipped with a card slot compatible with a JEIDA 4.1 / PCMCIA 2.0 or later Type II card (should be compatible with Card Service Release 2.0 or later)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Attached cable</td>
<td>32-pin shielded cable, 1m²</td>
<td>96-pin shielded cable, 1m²</td>
<td>-</td>
</tr>
<tr>
<td>Bus / Size (mm)</td>
<td>-</td>
<td>ISA / 160(L) × 107(H)</td>
<td>-</td>
</tr>
</tbody>
</table>

**Note:**
- *1: There might be boards that cannot be used in some conditions. Please contact General Information for details.
- *2: Only the Attached cable can be used.