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# **PRIMEQUEST**

## **580A/540A/580/540/480/440**

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### **INSTALLATION PLANNING MANUAL**



## **FOR SAFE OPERATION**

This manual contains important information regarding the use and handling of this product. Read this manual thoroughly. Use the product according to the instructions and information available in this manual. Keep this manual handy for further reference.

Fujitsu makes every effort to prevent users and bystanders from being injured or from suffering damage to their property. Use the product according to this manual.

## **ABOUT THIS PRODUCT**

This product server is designed and manufactured for use in standard applications such as office work, personal device, household appliance, and general industrial applications. This product is not intended for use in nuclear-reactor control systems, aeronautical and space systems, air traffic control systems, mass transportation control systems, medical devices for life support, missile launch control systems or other specialized uses in which extremely high levels of reliability are required, the required levels of safety cannot be guaranteed, or a failure or operational error could be life-threatening or could cause physical injury (referred to hereafter as “high-risk” use). You shall not use this product without securing the sufficient safety required for the high-risk use. If you wish to use this product for high-risk use, please consult with sales representatives in charge before such use.

## **RADIO FREQUENCY INTERFERENCE STATEMENT**

### **The following notice is for EU users only.**

**WARNING:** This is a product which meets Class A of EN55022. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

### **The following notice is for USA users only.**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### **Laser standards**

This equipment includes Class 1 laser products and complies with FDA Radiation Performance Standards, 21 CFR 1040.10 and 1040.11, and the International Laser Safety Standards IEC60825-1: 2001.

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## Revision History

(1/3)

Edition	Date	Revised section (Added/ Deleted/ Altered)	Details
01	2005-07-11	—	—
02	2005-09-15	Entire manual (Altered)  <a href="#">Section 2.2.1 (1)</a> (Altered/Added)  <a href="#">Section 2.2.1 (2)</a> (Added)	<ul style="list-style-type: none"> <li>• Technical brush-up</li> <li>• Modification of the manual title</li> <li>• Addition of PRIMEQUEST series</li> <li>• Modification of the concept of units operational grouping</li> <li>• Addition of description for concentration of small equipment</li> <li>• Addition of conditions for using mobile phones</li> </ul>
03	2006-02-20	<a href="#">Section 1.2</a> (Altered)  <a href="#">Section 2.1</a> (Altered)  <a href="#">Section 2.2.2</a> (Altered)  <a href="#">Section 2.2.4</a> (Added)  <a href="#">Section 2.3.3</a> (Altered)	<ul style="list-style-type: none"> <li>• Modification of the external view of the PCI_Box</li> <li>• Addition of GSWB-XG to <a href="#">Figure 2.1</a></li> <li>• Addition of GSWB-XG to <a href="#">Figure 2.3</a></li> <li>• Addition of singlemode Fibre Channel Cable to <a href="#">Table 2.2</a></li> <li>• Addition of figures (units in the PRIMEQUEST 480/440 main unit, and external interface ports in the PCI_Box)</li> <li>• Modification of the ACS numbers in the input power system diagrams</li> </ul>

Note: In this table, a revised section is indicated by its section number in the current edition. An asterisk (\*) indicates a section in the previous edition.

Edition	Date	Revised section (Added/ Deleted/ Altered)	Details
04	2006-04-17	<a href="#">Section 1.3</a> (Altered)  <a href="#">Section 2.2.2</a> (Altered)  <a href="#">Section 2.2.3</a> (Altered)  <a href="#">Section 2.3</a> (Altered)	<ul style="list-style-type: none"> <li>• Modification of model names and addition of remarks for model names</li> <li>• Modification of the connector type of Gigabit Ethernet card (optical) in <a href="#">Figure 2.3</a></li> <li>• Addition of the model names of Fibre Channel cable with an adapter</li> <li>• Modification of model names and addition of remarks for model names</li> </ul>
05	2006-08-11	Entire manual (Added/Altered)  <a href="#">Section 1.3</a> (Altered)  <a href="#">Section 2.2.4</a> (Altered)  <a href="#">Section 2.4</a> (Altered)	<ul style="list-style-type: none"> <li>• Addition of the information about PRIMEQUEST 580/540</li> <li>• Correction of erroneous descriptions</li> <li>• Modification of table formats and values for installation specifications</li> <li>• Separation of entries for external interface and input cable connection port, and modification of explanatory text and figure titles</li> <li>• Modification of specifications for AC cables</li> </ul>

Note: In this table, a revised section is indicated by its section number in the current edition. An asterisk (\*) indicates a section in the previous edition.



Edition	Date	Revised section (Added/ Deleted/ Altered)	Details
06	2007-03-05	Entire manual  Section 2.1 (Altered)  Section 2.2.2 (Altered)  Section 2.4 (Altered)	<ul style="list-style-type: none"> <li>• Correction of erroneous descriptions</li> <li>• Addition of GTHB to Figure 2.1</li> <li>• Addition of GTHB to Figure 2.3</li> <li>• Modification of plug type for Japan</li> </ul>
07	2007-08-31	Section 2.1 (Altered)  Section 2.2.1 (Altered)  Section 2.2.2 (Altered)	<ul style="list-style-type: none"> <li>• Addition of PEXU to Figure 2.1</li> <li>• Addition of PEXU to Figure 2.2</li> <li>• Addition of PEXU to Figure 2.3</li> </ul>
08	2008-03-10	Entire manual	<ul style="list-style-type: none"> <li>• Addition of information of PRIMEQUEST 580A/540A</li> </ul>
09	2008-04-10	Section 2.2.1 (correction)	<ul style="list-style-type: none"> <li>• Correction of the order codes of UPS cables</li> </ul>

Note: In this table, a revised section is indicated by its section number in the current edition. An asterisk (\*) indicates a section in the previous edition.



# Preface

This manual describes requirements and concepts for installation and facility planning for the PRIMEQUEST 580A, 540A, 580, 540, 480, and 440. Installation and facility planning should be performed together with your assigned Fujitsu representatives according to the instructions provided in this manual.

This manual is intended for persons introducing and planning the installation of a PRIMEQUEST server, or those who manage server operations. The reader of this manual is expected to have some knowledge of or experience with server installation planning.

## Structure and Contents of this Manual

This manual is organized as described below:

### CHAPTER 1 Installation Reference

This chapter provides equipment configurations, external views, installation specifications, and outline drawings of PRIMEQUEST units.

### CHAPTER 2 Connection Reference

This chapter provides cable connection diagrams and lists of required cables.

### CHAPTER 3 Precautions Pertaining to Delivery and Installation

This chapter describes precautions regarding delivery and installation of the equipment.

## Acronyms and Abbreviations, Index

### Acronyms & Abbreviations

This section defines acronyms and abbreviations used in this manual.

### Index

The index provides page references for keywords to allow the reader to quickly find necessary information.

## Other Reference Manuals

The manuals listed below are related to this manual.

Before installing the equipment, first read the *PRIMEQUEST 500A/500/400 Installation Manual* (C122-E001EN) and see the related manual.

*SPARC Enterprise/PRIMEQUEST Installation Planning Manual* (C120-H007EN)

*PRIMEQUEST 580A/540A/580/540/480/440 System Design Guide* (C122-B001EN)

## Environmental Requirements for Using This Product

This product is a general-purpose computer intended for use in a computer room.

## Conventions for Alert Messages

This manual uses the following conventions to show the alert messages. An alert message consists of an alert signal and alert statements.

<b>IMPORTANT</b>	This indicates information that could help the user to use the product more effectively.
------------------	--

### Alert messages in the text

In the text, the alert messages are indented to distinguish them from regular text. A wider space precedes and follows the message to show where the message begins and ends.

(Example)

#### **IMPORTANT**

- ▶ The template is created on a scale of 1:50. When printing the template from Acrobat® Reader® or Adobe® Reader® software, be sure to uncheck the checkbox of Fit to page on the Print dialog box.

## Reader Feedback

- In this manual, it is assumed that two BMMs (optional products) can be connected to a single IO Unit; this is reflected both in the explanations and in the figures included in this manual. At present, however, the PRIMEQUEST 480/440 series supports only connection to one BMM (BMM#0) per IO Unit.
- If you find any errors or unclear statements in this manual, please fill in the "Reader's Comment Form" sheet at the back of this manual and forward it to the address indicated at the bottom of the sheet.
- This manual is subject to revision without prior notice.
- The PDF version of this manual is best viewed in Adobe® Reader® with a magnification of 100% and Single Page for the page layout.

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# CHAPTER 1 Installation Reference

This chapter provides the information required for installing the PRIMEQUEST 580A/540A/580/540/480/440 server.

## 1.1 Equipment Configuration

[Table 1.1](#) lists the units that comprise the PRIMEQUEST server and their specifications. [Figure 1.1](#) to [Figure 1.4](#) show a sample system configuration.

Table 1.1 Units and their specifications

Unit	Specifications	Remarks
PRIMEQUEST 580A/580/480 main unit	Unit that can contain up to eight system boards (maximum of 32 CPUs) and up to eight IO Units	Standard equipment
PRIMEQUEST 540A/540/440 main unit	Unit that can contain up to four system boards (maximum of 16 CPUs) and up to four IO Units	Standard equipment
Extended Power Cabinet	Power supply cabinet that is connected to the PRIMEQUEST 580A/540A/580/540/480/440 main unit for dual power feed configuration	
Extended I/O Cabinet	Cabinet that contains PCI_Boxes and that is connected to the PRIMEQUEST 580A/580/480 or PRIMEQUEST 540A/540/440 main unit	

Unit	Specifications	Remarks
PCI_Box	<p>Device used to expand the number of PCI or PCI Express slots.</p> <p>Up to eight units can be connected to the PRIMEQUEST 580A/580/480 main unit.</p> <p>Up to four units can be connected to the PRIMEQUEST 540A/540/440 main unit.</p> <p>Four PCI or PCI Express units can be added with each addition of a PCI_Box.</p> <p>(*1)</p> <p>(PCI units and PCI Express units can be mounted together.)</p> <p>Each PCI unit has three PCI slots, and each PCI Express unit has two PCI Express slots.</p>	

- \*1 PCI Express units can be connected to only the PRIMEQUEST 580A/540A/580/540 main unit. Up to 16 units can be connected to the PRIMEQUEST 580A/580 main unit, and up to 8 units can be connected to the PRIMEQUEST 540A/540 main unit.

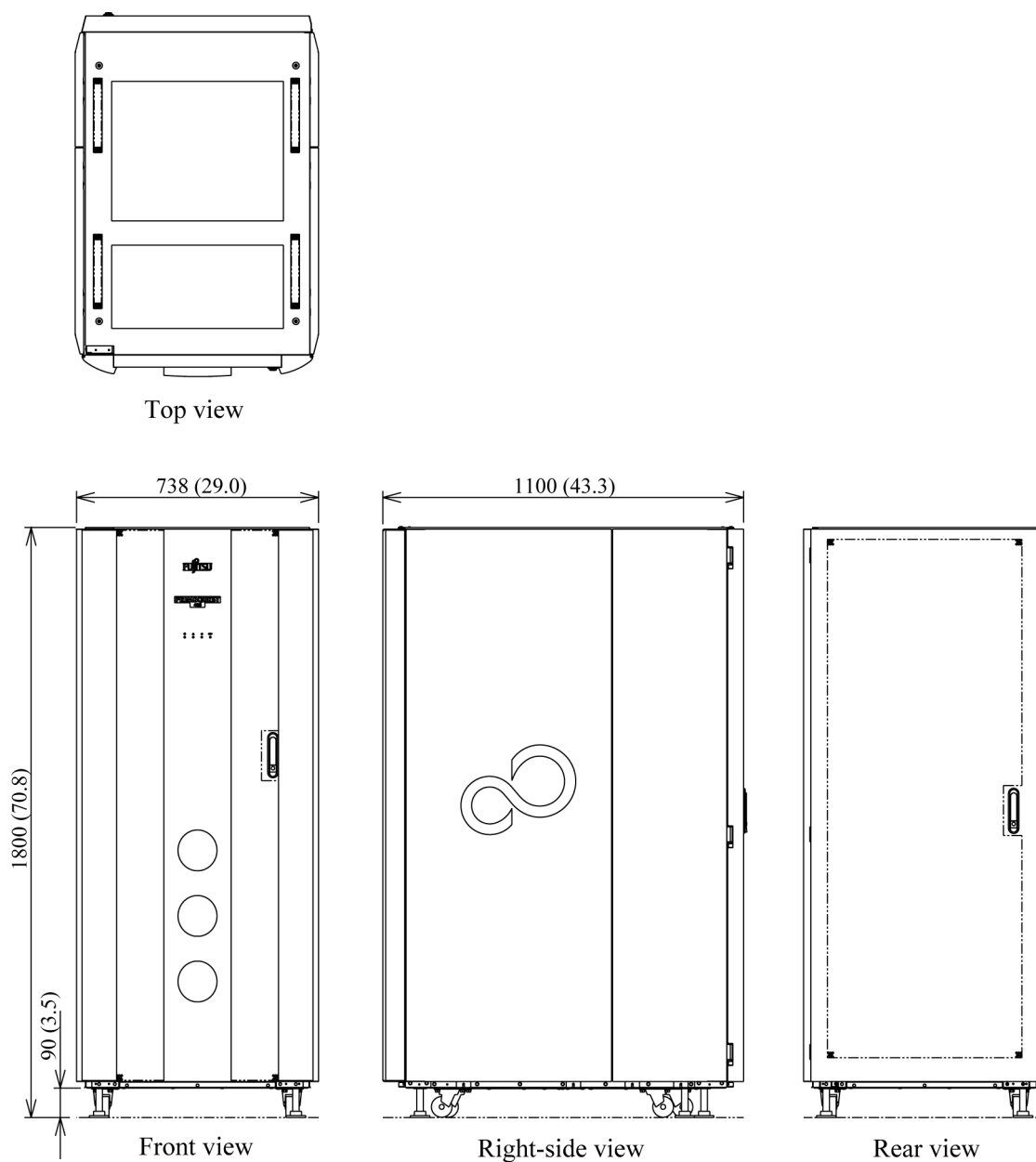
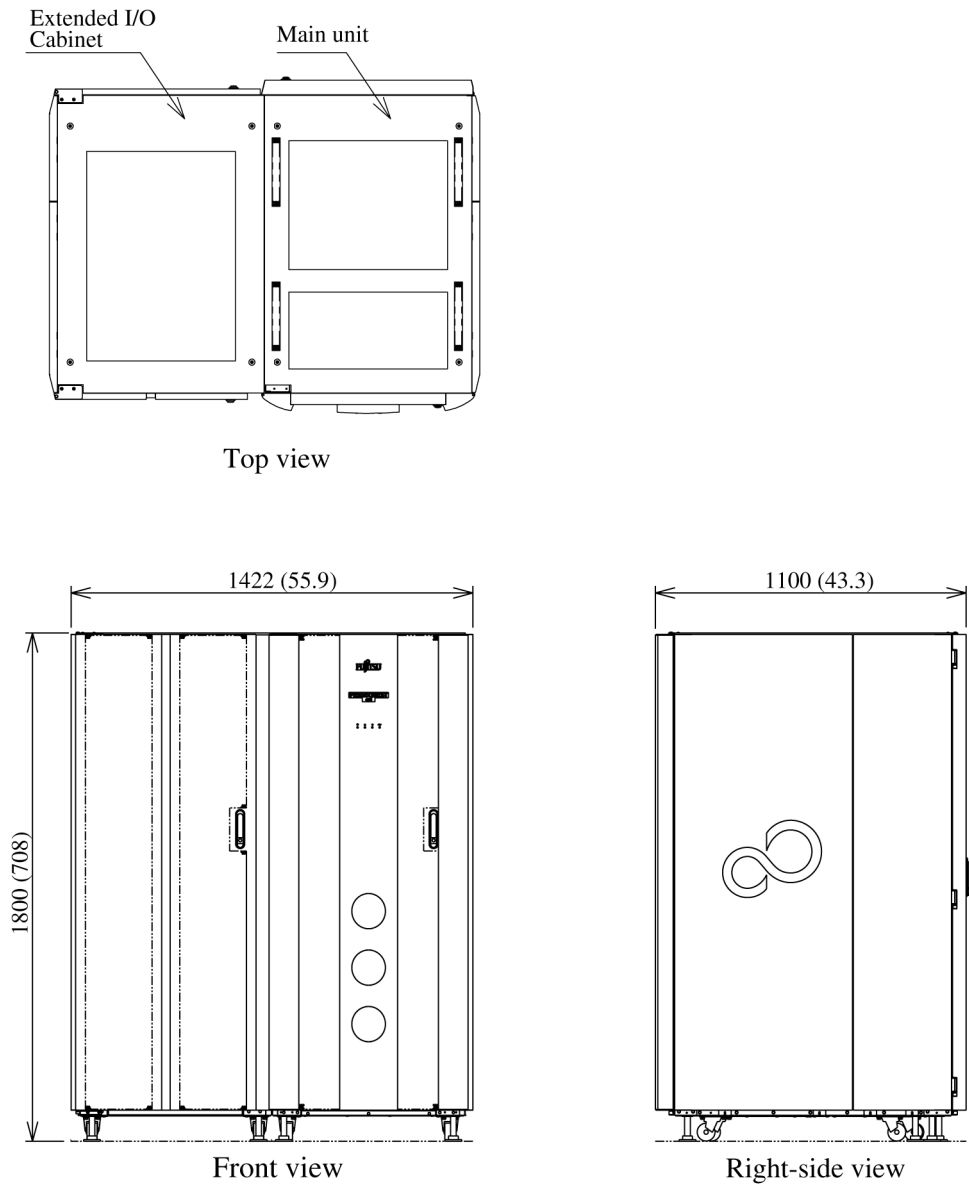


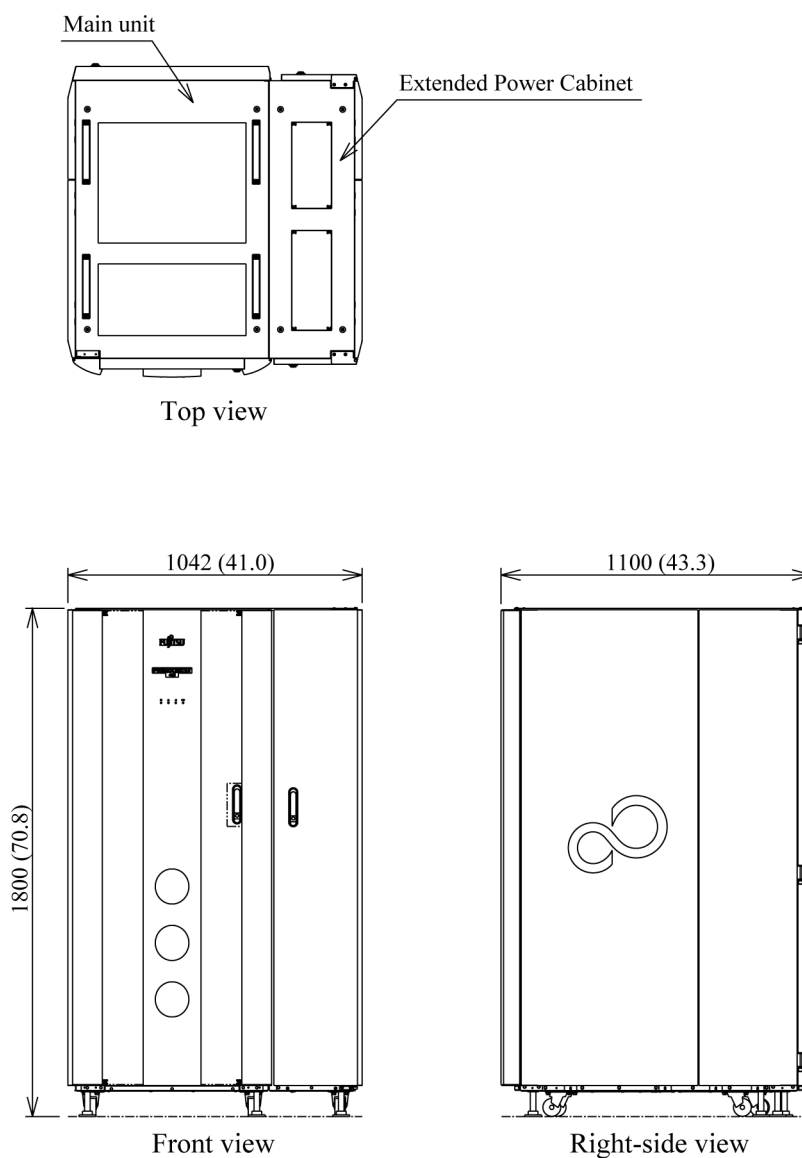
Figure 1.1 Configuration of the PRIMEQUEST 580A/540A/580/540/480/440 main unit



Unit: mm (in.)

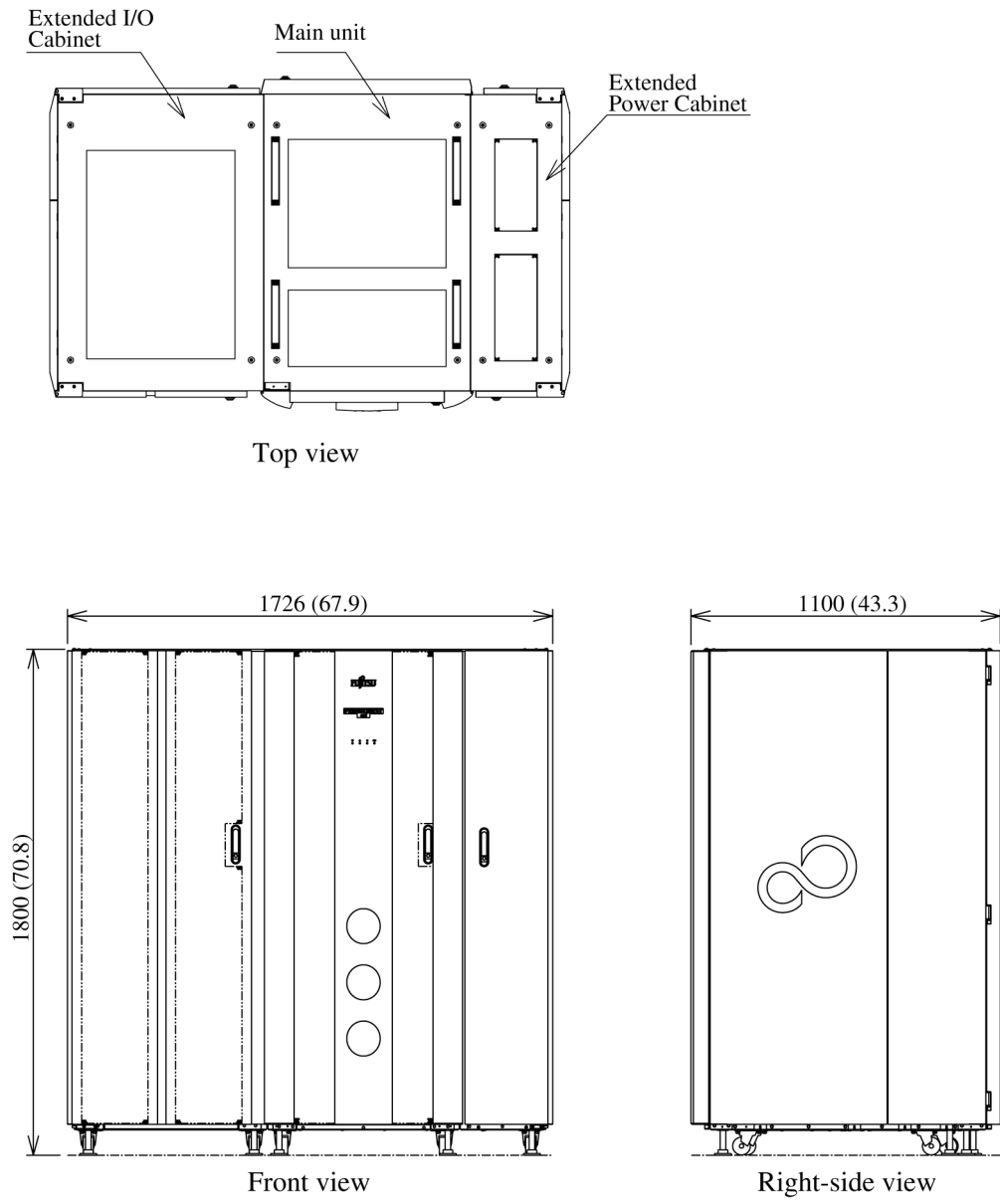
Figure 1.2 Configuration of the PRIMEQUEST 580A/540A/580/540/480/440 main unit and the Extended I/O Cabinet





Unit: mm (in.)

Figure 1.3 Configuration of the PRIMEQUEST 580A/580/480 main unit and the Extended Power Cabinet



Unit: mm (in.)

Figure 1.4 Configuration of the PRIMEQUEST 580A/580/480 main unit, the Extended I/O Cabinet, and the Extended Power Cabinet

## 1.2 Views of the Units

The following figures show different views of the units:

- External view of the PRIMEQUEST 580A/540A/580/540/480/440 main unit (Figure 1.5)
- External view of the Extended Power Cabinet (Figure 1.6)
- External view of the Extended I/O Cabinet (Figure 1.7)
- External view of the PCI\_Box (Figure 1.8)

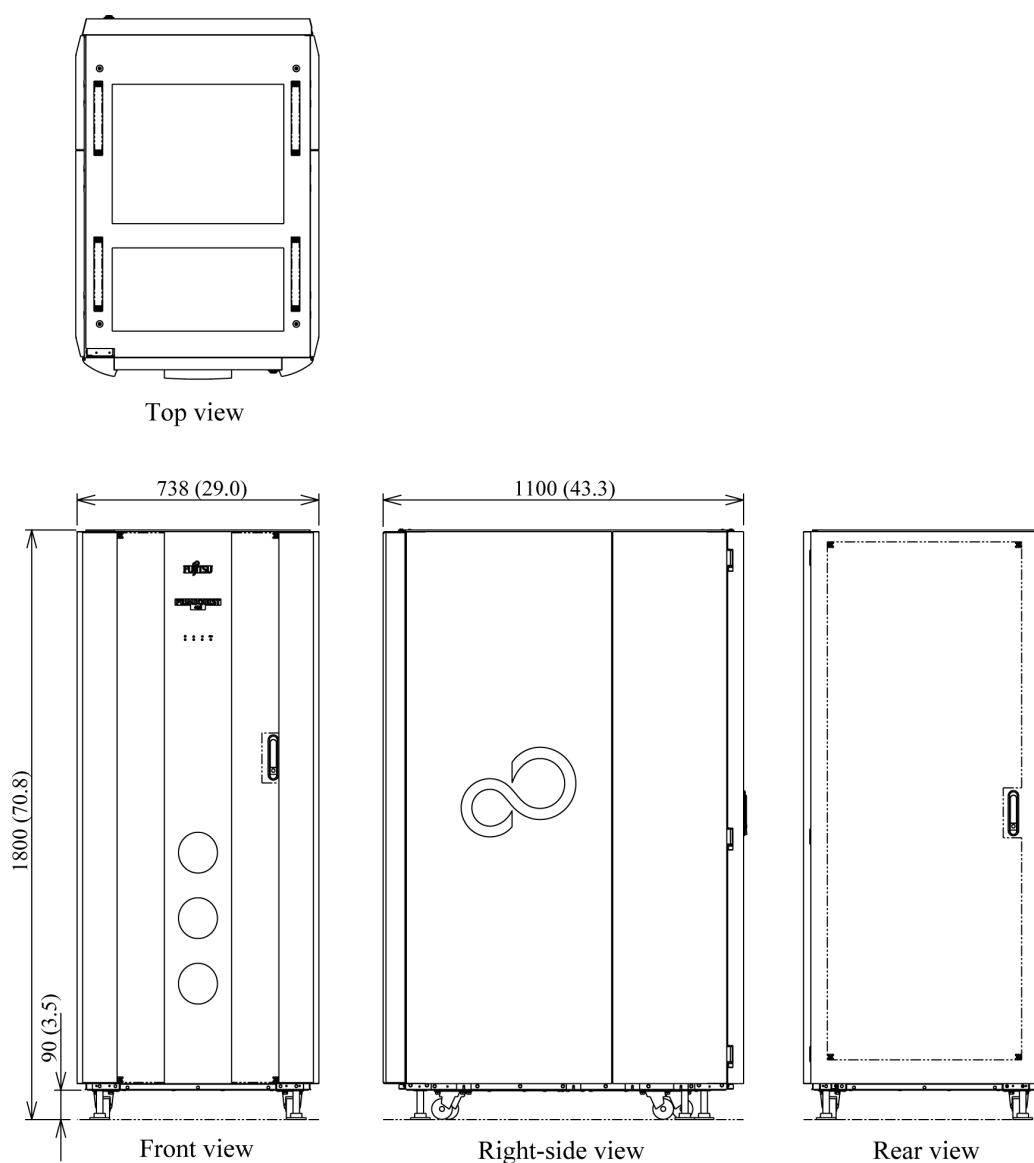


Figure 1.5 External view of the PRIMEQUEST 580A/540A/580/540/480/440 main unit

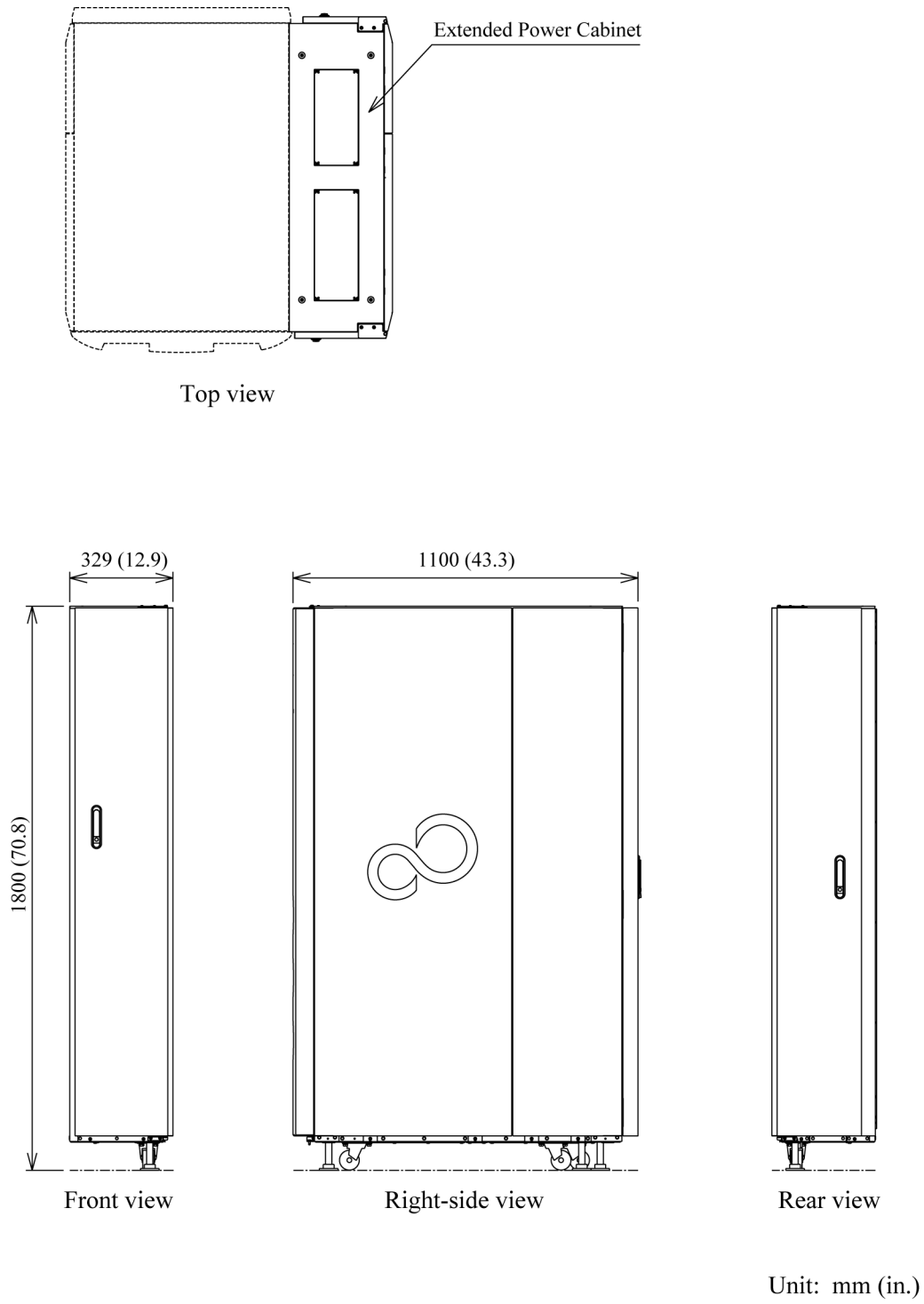
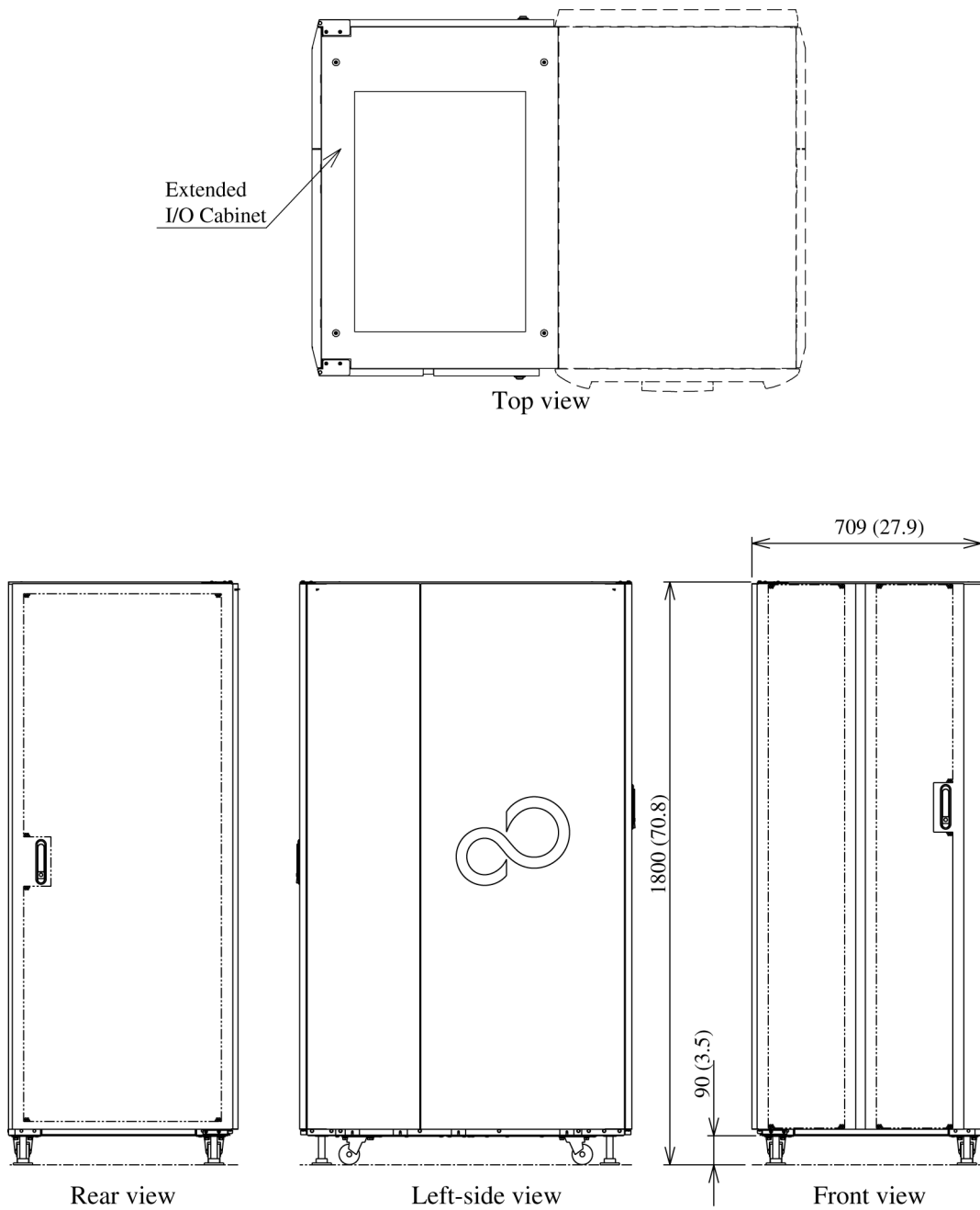


Figure 1.6 External view of the Extended Power Cabinet



Unit: mm (in.)

Figure 1.7 External view of the Extended I/O Cabinet

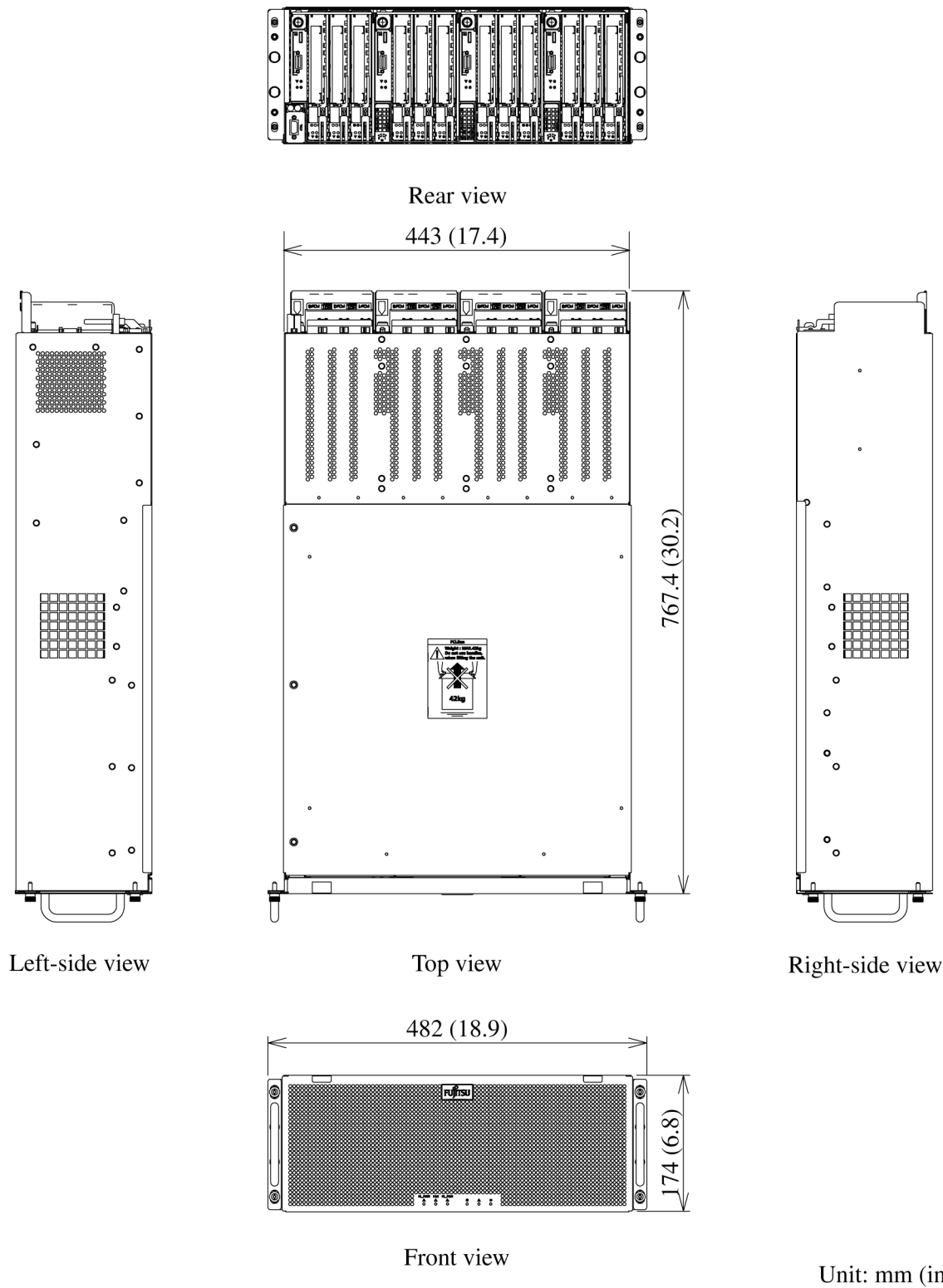


Figure 1.8 External view of the PCI\_Box

## 1.3 Installation Specifications

The following tables list the installation specifications for the units:

- [PRIMEQUEST 580A main unit installation specifications \(Model name: MC5C0P3a1x\) \(Table 1.2\)](#)
- [PRIMEQUEST 540A main unit installation specifications \(Model name: MC4C0P3a1x\) \(Table 1.3\)](#)
- [PRIMEQUEST 580 main unit installation specifications \(Model name: MC5B0P2a1x\) \(Table 1.4\)](#)
- [PRIMEQUEST 540 main unit installation specifications \(Model name: MC4B0P2a1x\) \(Table 1.5\)](#)
- [PRIMEQUEST 480 main unit installation specifications \(Model name: MC5A0P1a1x\) \(Table 1.6\)](#)
- [PRIMEQUEST 440 main unit installation specifications \(Model name: MC4A0P1a1x\) \(Table 1.7\)](#)
- [Extended Power Cabinet installation specifications \(Model name: MC-57DPa1x, MC-77UGDax\) \(Table 1.8\)](#)
- [Extended I/O Cabinet installation specifications \(Model name: MC-77RKa1x, MC-87RKa1x\) \(Table 1.9\)](#)
- [PCI\\_Box installation specifications \(Model name: MC-07PBa1x\) \(Table 1.10\)](#)

Remarks: In model names, a is any digit from 1 to 9 or any letter from A to Z, while x is any letter from A to Z or blank.

Table 1.2 PRIMEQUEST 580A main unit installation specifications  
(Model name: MC5C0P3a1x)

Item			Value	
Dimensions [mm (in.)]	Width		738 (29.06)	
	Depth (*1)		1100 (43.31)	
	Height		1800 (70.87)	
Weight [kg (lb)] (*2)			730 (1608)	
Air conditioning	Maximum heat dissipation [kJ/Hr (BTU/h)] (*3)		39200 (37161)	
	Exhaust air flow [m <sup>3</sup> /min (ft <sup>3</sup> /min)]	With fans operating at low speed	49.1 (1733.9)	
		With fans operating at high speed	62.2 (2196.6)	
	Temperature and humidity (*4)	Operating	Temperature [°C (°F)]	(*5)
			Humidity [%RH]	20 to 80
			Maximum wet bulb temperature [°C (°F)]	26 (78.8)
		Stand-by	Temperature [°C (°F)]	0 to 40 (32 to 104)
			Humidity [%RH]	20 to 80
			Maximum wet bulb temperature [°C (°F)]	26 (78.8)
		Not operating (*6)	Temperature [°C (°F)]	0 to 50 (32 to 122)
			Humidity [%RH]	8 to 80
			Maximum wet bulb temperature [°C (°F)]	27 (80.6)
	Noise [dB (A)] (*7)		66	
	Sound power level [B (A)] (*7)		8.5	
	Allowable vibration [m/s <sup>2</sup> ]	Operating (including standby)	2.5 (Synthetic seismic vibration)	
		Not operating (*6)	4.0 (Synthetic seismic vibration)	
	Allowable dust [mg/m <sup>3</sup> ]		0.15	



Item				Value
Power supply	Input voltage tolerance and No. of phases			200 to 240 VAC ± 10 % 1φ
	Frequency and tolerance			50/60 Hz +2/-4 Hz
	Maximum power consumption/ apparent power (*8)	Operating	Five SBs or five IO Units or more	10,900 W/ 11,000 VA
			Four SBs or less and four IO Units or less	6,490 W/ 6,630 VA
		Not operating	Five SBs or five IO Units or more	300 VA
			Four SBs or less and four IO Units or less	300 VA
	Power factor			0.9 or more
	Inrush current [A] [Inrush duration] (*9)			100 or less
	Leakage current [mA] (*9)			3.5 or less
CB/breaker capacity [A]			20	

\*1: This value does not include any projection.

\*2: Value for the case with the maximum number of optional units allowed installed.

The weight of the unit based on the equipment configuration can be calculated from the following formula:

$$\text{Unit weight} = 492 + (12 \times A) + (15 \times B) + (1 \times C) + (10 \times D)$$

When 32-GB memory is mounted, the formula is as follows:

$$\text{Unit weight} = 492 + (13 \times A) + (15 \times B) + (1 \times C) + (10 \times D)$$

- A = Number of SBs mounted: From a minimum of one to a maximum of eight
- B = Number of IOUs mounted: From a minimum of one to a maximum of eight
- C = Number of GSWBs or GTHBs mounted: From a minimum of zero to a maximum of two
- D = Number of Additional Power Supply Units mounted: From a minimum of zero to a maximum of one

\*3: When up to 2 TB-memory is mounted, the maximum heat dissipation is 44,600 KJ/h.

- \*4: There must be no condensation.
- \*5: The temperature requirement depends on the installation altitude.
  - 5 to 35 °C (41 to 95.0 °F)  
[if installed at an altitude of 0 to 1500 m (0 to 4921.2 ft)]
  - 5 to 33 °C (41 to 91.4 °F)  
[if installed at an altitude of 1500 to 2000 m (4921.2 to 6561.6 ft)]
  - 5 to 32 °C (41 to 89.6 °F)  
[if installed at an altitude of 2000 to 2500 m (6561.6 to 8202 ft)]
  - 5 to 30 °C (41 to 86 °F)  
[if installed at an altitude of 2500 to 3000 m (8202 to 9842.4 ft)]
- \*6: "Not operating" means the time when the equipment is stored.
- \*7: The noise and sound power level vary on the ambient temperature.
- \*8: When up to 2 TB-memory is mounted, the maximum power consumption/  
apparent power is 12,400 W/12,500 VA.
- \*9: These values are for each power cable.

Table 1.3 PRIMEQUEST 540A main unit installation specifications  
(Model name: MC4C0P3a1x)

Item				Value	
Dimensions [mm (in.)]	Width		738 (29.06)		
	Depth (*1)		1100 (43.31)		
	Height		1800 (70.87)		
Weight [kg (lb)] (*2)			605 (1332)		
Air conditioning	Maximum heat dissipation [kJ/Hr (BTU/h)] (*3)			22680 (21496)	
	Exhaust air flow [m <sup>3</sup> /min (ft <sup>3</sup> /min)]		With fans operating at low speed	39.1 (1380.8)	
			With fans operating at high speed	49.7 (1755.1)	
	Temperature and humidity (*4)	Operating	Temperature [°C (°F)]	(*5)	
			Humidity [%RH]	20 to 80	
			Maximum wet bulb temperature [°C (°F)]	26 (78.8)	
		Stand-by	Temperature [°C (°F)]	0 to 40 (32 to 104)	
			Humidity [%RH]	20 to 80	
			Maximum wet bulb temperature [°C (°F)]	26 (78.8)	
		Not operating (*6)	Temperature [°C (°F)]	0 to 50 (32 to 122)	
			Humidity [%RH]	8 to 80	
			Maximum wet bulb temperature [°C (°F)]	27 (80.6)	
	Noise [dB (A)] (*7)			66	
	Sound power level [B (A)] (*7)			8.5	
	Allowable vibration [m/s <sup>2</sup> ]	Operating (including standby)		2.5 (Synthetic seismic vibration)	
		Not operating (*6)		4.0 (Synthetic seismic vibration)	
	Allowable dust [mg/m <sup>3</sup> ]			0.15	
Power supply	Input voltage tolerance and No. of phases			200 to 240 VAC ± 10 % 1φ	
	Frequency and tolerance			50/60 Hz +2/-4 Hz	
	Maximum power consumption/apparent power (*8)		Operating	6,300 W/6,400 VA	
			Not operating	300 VA	
	Power factor			0.9 or more	
	Inrush current [A] [Inrush duration] (*9)			100 or less	
	Leakage current [mA] (*9)			3.5 or less	
CB/breaker capacity [A]			20		

- \*1: This value does not include any projection.
- \*2: Value for the case with the maximum number of optional units allowed installed.  
The weight of the unit based on the equipment configuration can be calculated from the following formula:
- $$\text{Unit weight} = 464 + (12 \times E) + (15 \times F) + (1 \times G) + (26 \times H)$$
- When 32-GB memory is mounted, the formula is as follows:
- $$\text{Unit weight} = 464 + (13 \times E) + (15 \times F) + (1 \times G) + (10 \times H)$$
- E = Number of SBs mounted: From a minimum of one to a maximum of four
  - F = Number of IOUs mounted: From a minimum of one to a maximum of four
  - G = Number of GSWBs or GTHBs mounted: From a minimum of zero to a maximum of two
  - H = Number of Dual Power Feed Options mounted: From a minimum of zero to a maximum of one
- \*3: When up to 2 TB-memory is mounted, the maximum heat dissipation is 24,900 KJ/h.
- \*4: There must be no condensation.
- \*5: The temperature requirement depends on the installation altitude.
- 5 to 35 °C (41 to 95.0 °F)  
[if installed at an altitude of 0 to 1500 m (0 to 4921.2 ft)]
  - 5 to 33 °C (41 to 91.4 °F)  
[if installed at an altitude of 1500 to 2000 m (4921.2 to 6561.6 ft)]
  - 5 to 32 °C (41 to 89.6 °F)  
[if installed at an altitude of 2000 to 2500 m (6561.6 to 8202 ft)]
  - 5 to 30 °C (41 to 86 °F)  
[if installed at an altitude of 2500 to 3000 m (8202 to 9842.4 ft)]
- \*6: "Not operating" means the time when the equipment is stored.
- \*7: The noise and sound power level vary on the ambient temperature.
- \*8: When up to 2 TB-memory is mounted, the maximum power consumption/ apparent power is 6,920 W/7,040 VA.
- \*9: These values are for each power cable.

Table 1.4 PRIMEQUEST 580 main unit installation specifications  
(Model name: MC5B0P2a1x)

Item			Value	
Dimensions [mm (in.)]	Width		738 (29.06)	
	Depth (*1)		1100 (43.31)	
	Height		1800 (70.87)	
Weight [kg (lb)] (*2)			730 (1608)	
Air conditioning	Maximum heat dissipation [kJ/Hr (BTU/h)] (*3)		39240 (37192)	
	Exhaust air flow [m <sup>3</sup> /min (ft <sup>3</sup> /min)]	With fans operating at low speed	49.1 (1733.9)	
		With fans operating at high speed	62.2 (2196.6)	
	Temperature and humidity (*4)	Operating	Temperature [°C (°F)]	(*5)
			Humidity [%RH]	20 to 80
			Maximum wet bulb temperature [°C (°F)]	26 (78.8)
		Stand-by	Temperature [°C (°F)]	0 to 40 (32 to 104)
			Humidity [%RH]	20 to 80
			Maximum wet bulb temperature [°C (°F)]	26 (78.8)
		Not operating (*6)	Temperature [°C (°F)]	0 to 50 (32 to 122)
			Humidity [%RH]	8 to 80
			Maximum wet bulb temperature [°C (°F)]	27 (80.6)
	Noise [dB (A)] (*7)		66	
	Sound power level [B (A)] (*7)		8.5	
	Allowable vibration [m/s <sup>2</sup> ]	Operating (including standby)	2.5 (Synthetic seismic vibration)	
		Not operating (*6)	4.0 (Synthetic seismic vibration)	
	Allowable dust [mg/m <sup>3</sup> ]		0.15	

Item				Value
Power supply	Input voltage tolerance and No. of phases			200 to 240 VAC ± 10 % 1φ
	Frequency and tolerance			50/60 Hz +2/-4 Hz
	Maximum power consumption/ apparent power (*8)	Operating	Five SBs or five IO Units or more	10,900 W/ 11,000 VA
			Four SBs or less and four IO Units or less	6,300 W/ 6,400 VA
		Not operating	Five SBs or five IO Units or more	300 VA
			Four SBs or less and four IO Units or less	300 VA
	Power factor			0.9 or more
	Inrush current [A] [Inrush duration] (*9)			100 or less
	Leakage current [mA] (*9)			3.5 or less
	CB/breaker capacity [A]			20

\*1: This value does not include any projection.

\*2: Value for the case with the maximum number of optional units allowed installed.

The weight of the unit based on the equipment configuration can be calculated from the following formula:

$$\text{Unit weight} = 492 + (12 \times A) + (15 \times B) + (1 \times C) + (10 \times D)$$

When 32-GB memory is mounted, the formula is as follows:

$$\text{Unit weight} = 492 + (13 \times A) + (15 \times B) + (1 \times C) + (10 \times D)$$

- A = Number of SBs mounted: From a minimum of one to a maximum of eight
- B = Number of IOUs mounted: From a minimum of one to a maximum of eight
- C = Number of GSWBs or GTHBs mounted: From a minimum of zero to a maximum of two
- D = Number of Additional Power Supply Units mounted: From a minimum of zero to a maximum of one

\*3: When up to 2 TB-memory is mounted, the maximum heat dissipation is 44,600 KJ/h.

- \*4: There must be no condensation.
- \*5: The temperature requirement depends on the installation altitude.
  - 5 to 35 °C (41 to 95.0 °F)  
[if installed at an altitude of 0 to 1500 m (0 to 4921.2 ft)]
  - 5 to 33 °C (41 to 91.4 °F)  
[if installed at an altitude of 1500 to 2000 m (4921.2 to 6561.6 ft)]
  - 5 to 32 °C (41 to 89.6 °F)  
[if installed at an altitude of 2000 to 2500 m (6561.6 to 8202 ft)]
  - 5 to 30 °C (41 to 86 °F)  
[if installed at an altitude of 2500 to 3000 m (8202 to 9842.4 ft)]
- \*6: "Not operating" means the time when the equipment is stored.
- \*7: The noise and sound power level vary on the ambient temperature.
- \*8: When up to 2 TB-memory is mounted, the maximum power consumption/  
apparent power is 12,400 W/12,500 VA.
- \*9: These values are for each power cable.

Table 1.5 PRIMEQUEST 540 main unit installation specifications  
(Model name: MC4B0P2a1x)

Item			Value	
Dimensions [mm (in.)]	Width		738 (29.06)	
	Depth (*1)		1100 (43.31)	
	Height		1800 (70.87)	
Weight [kg (lb)] (*2)			605 (1332)	
Air conditioning	Maximum heat dissipation [kJ/Hr (BTU/h)] (*3)		22680 (21496)	
	Exhaust air flow [m <sup>3</sup> /min (ft <sup>3</sup> /min)]	With fans operating at low speed	39.1 (1380.8)	
		With fans operating at high speed	49.7 (1755.1)	
	Temperature and humidity (*4)	Operating	Temperature [°C (°F)]	(*5)
			Humidity [%RH]	20 to 80
			Maximum wet bulb temperature [°C (°F)]	26 (78.8)
		Stand-by	Temperature [°C (°F)]	0 to 40 (32 to 104)
			Humidity [%RH]	20 to 80
			Maximum wet bulb temperature [°C (°F)]	26 (78.8)
		Not operating (*6)	Temperature [°C (°F)]	0 to 50 (32 to 122)
			Humidity [%RH]	8 to 80
			Maximum wet bulb temperature [°C (°F)]	27 (80.6)
	Noise [dB (A)] (*7)		66	
	Sound power level [B (A)] (*7)		8.5	
	Allowable vibration [m/s <sup>2</sup> ]	Operating (including standby)	2.5 (Synthetic seismic vibration)	
		Not operating (*6)	4.0 (Synthetic seismic vibration)	
	Allowable dust [mg/m <sup>3</sup> ]		0.15	
Power supply	Input voltage tolerance and No. of phases		200 to 240 VAC ± 10 % 1φ	
	Frequency and tolerance		50/60 Hz +2/-4 Hz	
	Maximum power consumption/apparent power (*8)	Operating	6,300 W/6,400 VA	
		Not operating	300 VA	
	Power factor		0.9 or more	
	Inrush current [A] [Inrush duration] (*9)		100 or less	
	Leakage current [mA] (*9)		3.5 or less	
	CB/breaker capacity [A]		20	



- \*1: This value does not include any projection.
- \*2: Value for the case with the maximum number of optional units allowed installed.

The weight of the unit based on the equipment configuration can be calculated from the following formula:

$$\text{Unit weight} = 464 + (12 \times E) + (15 \times F) + (1 \times G) + (26 \times H)$$

When 32-GB memory is mounted, the formula is as follows:

$$\text{Unit weight} = 464 + (13 \times E) + (15 \times F) + (1 \times G) + (10 \times H)$$

- E = Number of SBs mounted: From a minimum of one to a maximum of four
  - F = Number of IOUs mounted: From a minimum of one to a maximum of four
  - G = Number of GSWBs or GTHBs mounted: From a minimum of zero to a maximum of two
  - H = Number of Dual Power Feed Options mounted: From a minimum of zero to a maximum of one
- \*3: When up to 2 TB-memory is mounted, the maximum heat dissipation is 24,200 KJ/h.
- \*4: There must be no condensation.
- \*5: The temperature requirement depends on the installation altitude.
- 5 to 35 °C (41 to 95.0 °F)  
[if installed at an altitude of 0 to 1500 m (0 to 4921.2 ft)]
  - 5 to 33 °C (41 to 91.4 °F)  
[if installed at an altitude of 1500 to 2000 m (4921.2 to 6561.6 ft)]
  - 5 to 32 °C (41 to 89.6 °F)  
[if installed at an altitude of 2000 to 2500 m (6561.6 to 8202 ft)]
  - 5 to 30 °C (41 to 86 °F)  
[if installed at an altitude of 2500 to 3000 m (8202 to 9842.4 ft)]
- \*6: "Not operating" means the time when the equipment is stored.
- \*7: The noise and sound power level vary on the ambient temperature.
- \*8: When up to 2 TB-memory is mounted, the maximum power consumption/apparent power is 6,720 W/6,790 VA.
- \*9: These values are for each power cable.

Table 1.6 PRIMEQUEST 480 main unit installation specifications  
(Model name: MC5A0P1a1x)

Item			Value	
Dimensions [mm (in.)]	Width		738 (29.06)	
	Depth (*1)		1100 (43.31)	
	Height		1800 (70.87)	
Weight [kg (lb)] (*2)			720 (1584)	
Air conditioning	Maximum heat dissipation [kJ/Hr (BTU/h)]		Five SBs or five IO Units or more	36600 (34689)
			Four SBs or less and four IO Units or less	20500 (19430)
	Exhaust air flow [m <sup>3</sup> /min (ft <sup>3</sup> /min)]		With fans operating at low speed	49.1 (1733.9)
			With fans operating at high speed	62.2 (2196.6)
	Temperature and humidity (*3)	Operating	Temperature [°C (°F)]	(*4)
			Humidity [%RH]	20 to 80
			Maximum wet bulb temperature [°C (°F)]	26 (78.8)
		Stand-by	Temperature [°C (°F)]	0 to 40 (32 to 104)
			Humidity [%RH]	20 to 80
			Maximum wet bulb temperature [°C (°F)]	26 (78.8)
		Not operating (*5)	Temperature [°C (°F)]	0 to 50 (32 to 122)
			Humidity [%RH]	8 to 80
			Maximum wet bulb temperature [°C (°F)]	27 (80.6)
	Noise [dB (A)] (*6)			66
	Sound power level [B (A)] (*6)			8.5
	Allowable vibration [m/s <sup>2</sup> ]	Operating (including standby)		2.5 (Synthetic seismic vibration)
		Not operating (*5)		4.0 (Synthetic seismic vibration)
	Allowable dust [mg/m <sup>3</sup> ]			0.15
Power supply	Input voltage tolerance and No. of phases		200 to 240 VAC ± 10 % 1φ	
	Frequency and tolerance		50/60 Hz +2/-4 Hz	

Item				Value
Power supply	Maximum power consumption/ apparent power (*7)	Operating	Five SBs or five IO Units or more	10,600 W/ 10,700 VA
			Four SBs or less and four IO Units or less	5,890 W/ 6,000 VA
		Not operating	Five SBs or five IO Units or more	300 VA
			Four SBs or less and four IO Units or less	300 VA
	Power factor			0.9 or more
	Inrush current [A] [Inrush duration] (*8)			100 or less
	Leakage current [mA] (*8)			3.5 or less
	CB/breaker capacity [A]			20

\*1: This value does not include any projection.

\*2: Value for the case the maximum allowable number of optional units is mounted.

The weight of the unit based on the equipment configuration can be calculated from the following formula:

$$\text{Unit weight} = 492 + (12 \times A) + (15 \times B) + (1 \times C) + (10 \times D)$$

- A = Number of SBs mounted: From a minimum of one to a maximum of eight
- B = Number of IOUs mounted: From a minimum of one to a maximum of eight
- C = Number of GSWBs mounted: From a minimum of zero to a maximum of two
- D = Number of Additional Power Supply Units mounted: From a minimum of zero to a maximum of one

\*3: There must be no condensation.

- \*4: The temperature requirement depends on the installation altitude.
- 5 to 35 °C (41 to 95.0 °F)  
[if installed at an altitude of 0 to 1500 m (0 to 4921.2 ft)]
  - 5 to 33 °C (41 to 91.4 °F)  
[if installed at an altitude of 1500 to 2000 m (4921.2 to 6561.6 ft)]
  - 5 to 32 °C (41 to 89.6 °F)  
[if installed at an altitude of 2000 to 2500 m (6561.6 to 8202 ft)]
  - 5 to 30 °C (41 to 86 °F)  
[if installed at an altitude of 2500 to 3000 m (8202 to 9842.4 ft)]
- \*5: "Not operating" means the time when the equipment is stored.
- \*6: The noise and sound power level vary on the ambient temperature.
- \*7: The maximum power consumption and apparent power used when memory has been expanded to a maximum of 1 terabyte are 12,400 W and 12,500 VA, respectively.
- \*8: These values are for each power cable.

Table 1.7 PRIMEQUEST 440 main unit installation specifications  
(Model name: MC4A0P1a1x)

Item				Value
Dimensions [mm (in.)]	Width			738 (29.06)
	Depth (*1)			1100 (43.31)
	Height			1800 (70.87)
Weight [kg (lb)] (*2)				600 (1320)
Air conditioning	Maximum heat dissipation [kJ/Hr (BTU/h)]			20500 (19430)
	Exhaust air flow [m <sup>3</sup> /min (ft <sup>3</sup> /min)]		With fans operating at low speed	39.1 (1380.8)
			With fans operating at high speed	49.7 (1755.1)
	Temperature and humidity (*3)	Operating	Temperature [°C (°F)]	(*4)
			Humidity [%RH]	20 to 80
			Maximum wet bulb temperature [°C (°F)]	26 (78.8)
		Stand-by	Temperature [°C (°F)]	0 to 40 (32 to 104)
			Humidity [%RH]	20 to 80
			Maximum wet bulb temperature [°C (°F)]	26 (78.8)
		Not operating (*5)	Temperature [°C (°F)]	0 to 50 (32 to 122)
			Humidity [%RH]	8 to 80
			Maximum wet bulb temperature [°C (°F)]	27 (80.6)
	Noise [dB (A)] (*6)			66
	Sound power level [B (A)] (*6)			8.5
	Allowable vibration [m/s <sup>2</sup> ]	Operating (including standby)		2.5 (Synthetic seismic vibration)
		Not operating (*5)		4.0 (Synthetic seismic vibration)
	Allowable dust [mg/m <sup>3</sup> ]			0.15
Power supply	Input voltage tolerance and No. of phases			200 to 240 VAC ± 10 % 1φ
	Frequency and tolerance			50/60 Hz +2/-4 Hz
	Maximum power consumption/apparent power	Operating		5,890 W/6,000 VA
		Not operating		300 VA
	Power factor			0.9 or more
	Inrush current [A] [Inrush duration] (*7)			100 or less
	Leakage current [mA] (*7)			3.5 or less
	CB/breaker capacity [A]			20

- \*1: This value does not include any projection.
- \*2: Value for the case the maximum allowable number of optional units is mounted.  
The weight of the unit based on the equipment configuration can be calculated from the following formula:
- $$\text{Unit weight} = 464 + (12 \times E) + (15 \times F) + (1 \times G) + (26 \times H)$$
- E = Number of SBs mounted: From a minimum of one to a maximum of four
  - F = Number of IOUs mounted: From a minimum of one to a maximum of four
  - G = Number of GSWBs mounted: From a minimum of zero to a maximum of two
  - H = Number of Dual Power Feed Options mounted: From a minimum of zero to a maximum of one
- \*3: There must be no condensation.
- \*4: The temperature requirement depends on the installation altitude.
- 5 to 35 °C (41 to 95.0 °F)  
[if installed at an altitude of 0 to 1500 m (0 to 4921.2 ft)]
  - 5 to 33 °C (41 to 91.4 °F)  
[if installed at an altitude of 1500 to 2000 m (4921.2 to 6561.6 ft)]
  - 5 to 32 °C (41 to 89.6 °F)  
[if installed at an altitude of 2000 to 2500 m (6561.6 to 8202 ft)]
  - 5 to 30 °C (41 to 86 °F)  
[if installed at an altitude of 2500 to 3000 m (8202 to 9842.4 ft)]
- \*5: "Not operating" means the time when the equipment is stored.
- \*6: The noise and sound power level vary on the ambient temperature.
- \*7: These values are for each power cable.

Table 1.8 Extended Power Cabinet installation specifications  
(Model name: MC-57DPa1x, MC-77UGDax)

Item			Value	
Dimensions [mm (in.)]	Width		300 (11.81)	
	Depth (*1)		1100 (43.31)	
	Height		1800 (70.87)	
Weight [kg (lb)] (*2)			300 (660)	
Air conditioning	Maximum heat dissipation [kJ/Hr (BTU/h)]		Five SBs or five IO Units or more	5500 (5213)
			Four SBs or less and four IO Units or less	3200 (3033)
	Exhaust air flow [m <sup>3</sup> /min (ft <sup>3</sup> /min)]		With fans operating at low speed	3.8 (134.2)
			With fans operating at high speed	5.5 (194.2)
	Temperature and humidity (*3)	Operating	Temperature [°C (°F)]	(*4)
			Humidity [%RH]	20 to 80
			Maximum wet bulb temperature [°C (°F)]	26 (78.8)
		Stand-by	Temperature [°C (°F)]	0 to 40 (32 to 104)
			Humidity [%RH]	20 to 80
			Maximum wet bulb temperature [°C (°F)]	26 (78.8)
		Not operating (*5)	Temperature [°C (°F)]	0 to 50 (32 to 122)
			Humidity [%RH]	8 to 80
			Maximum wet bulb temperature [°C (°F)]	27 (80.6)
	Noise [dB (A)] (*6)			66 (included in the main unit)
	Sound power level [B (A)] (*6)			8.5 (included in the main unit)
	Allowable vibration [m/s <sup>2</sup> ]	Operating (including standby)		2.5 (Synthetic seismic vibration)
		Not operating (*5)		4.0 (Synthetic seismic vibration)
	Allowable dust [mg/m <sup>3</sup> ]			0.15

Item				Value
Power supply	Input voltage tolerance and No. of phases			200 to 240 VAC ± 10 % 1φ
	Frequency and tolerance			50/60 Hz +2/-4 Hz
	Maximum power consumption/ apparent power	Operating	Five SBs or five IO Units or more	10,900 W/11,000 VA (For PRIMEQUEST 580A/580)
				10,600 W/10,700 VA (For PRIMEQUEST 480)
			Four SBs or less and four IO Units or less	6,490 W/6,630 VA (For PRIMEQUEST 580A/580)
				5,890 W/6,000 VA (For PRIMEQUEST 480)
		Not operating	Five SBs or five IO Units or more	300 VA
				Four SBs or less and four IO Units or less
	Power factor			0.9 or more
	Inrush current [A] [Inrush duration] (*7)			100 or less
	Leakage current [mA] (*7)			3.5 or less
CB/breaker capacity [A]			20	

\*1: This value does not include any projection.

\*2: Value for the case the maximum allowable number of optional units is mounted.

The weight of the unit based on the equipment configuration can be calculated from the following formula:

$$\text{Unit weight} = 290 + (10 \times J)$$

● J = Number of Additional Power Supply Units mounted:

From a minimum of zero to a maximum of one

\*3: There must be no condensation.



- \*4: The temperature requirement depends on the installation altitude.
- 5 to 35 °C (41 to 95.0 °F)  
[if installed at an altitude of 0 to 1500 m (0 to 4921.2 ft)]
  - 5 to 33 °C (41 to 91.4 °F)  
[if installed at an altitude of 1500 to 2000 m (4921.2 to 6561.6 ft)]
  - 5 to 32 °C (41 to 89.6 °F)  
[if installed at an altitude of 2000 to 2500 m (6561.6 to 8202 ft)]
  - 5 to 30 °C (41 to 86 °F)  
[if installed at an altitude of 2500 to 3000 m (8202 to 9842.4 ft)]
- \*5: "Not operating" means the time when the equipment is stored.
- \*6: The noise and sound power level vary on the ambient temperature.
- \*7: These values are for each power cable.

Table 1.9 Extended I/O Cabinet installation specifications  
(Model name: MC-77RKa1x, MC-87RKa1x)

Item			Value	
Dimensions [mm (in.)]	Width		680 (29.77)	
	Depth (*1)		1100 (43.31)	
	Height		1800 (70.87)	
Weight [kg (lb)] (*2)			600 (1320)	
Air conditioning	Maximum heat dissipation [kJ/Hr (BTU/h)]		20500 (19430)	
	Exhaust air flow [m <sup>3</sup> /min (ft <sup>3</sup> /min)]	With fans operating at low speed	35.9 (1268.5)	
		With fans operating at high speed	46.7 (1649.9)	
	Temperature and humidity (*3)	Operating	Temperature [°C (°F)]	(*4)
			Humidity [%RH]	20 to 80
			Maximum wet bulb temperature [°C (°F)]	26 (78.7)
		Stand-by	Temperature [°C (°F)]	0 to 40 (32 to 104)
			Humidity [%RH]	20 to 80
			Maximum wet bulb temperature [°C (°F)]	26 (78.7)
		Not operating (*5)	Temperature [°C (°F)]	0 to 50 (32 to 122)
			Humidity [%RH]	8 to 80
			Maximum wet bulb temperature [°C (°F)]	27 (80.6)
	Noise [dB (A)] (*6)		66 (included in the main unit)	
	Sound power level [B (A)] (*6)		8.5 (included in the main unit)	
	Allowable vibration [m/s <sup>2</sup> ]	Operating (including standby)		2.5 (Synthetic seismic vibration)
		Not operating (*5)		4.0 (Synthetic seismic vibration)
	Allowable dust [mg/m <sup>3</sup> ]		0.15	

Item			Value
Power supply	Input voltage tolerance and No. of phases		200 to 240 VAC ± 10 % 1φ
	Frequency and tolerance		50/60 Hz +2/-4 Hz
	Maximum power consumption/apparent power	Operating	5,890 W/6,000 VA
		Not operating	200 VA
	Power factor		0.9 or more
	Inrush current [A] [Inrush duration] (*7)		100 or less
	Leakage current [mA] (*7)		4.4 or less
	CB/breaker capacity [A]		15

\*1: This value does not include any projection.

\*2: Value for the case the maximum allowable number of optional units is mounted.

The weight of the unit based on the equipment configuration can be calculated from the following formula:

$$\text{Unit weight} = 264 + (42 \times K)$$

● K= Number of PCI\_Boxes mounted:

From a minimum of one to a maximum of eight

\*3: There must be no condensation.

\*4: The temperature requirement depends on the installation altitude.

- 5 to 35 °C (41 to 95.0 °F)  
[if installed at an altitude of 0 to 1500 m (0 to 4921.2 ft)]
- 5 to 33 °C (41 to 91.4 °F)  
[if installed at an altitude of 1500 to 2000 m (4921.2 to 6561.6 ft)]
- 5 to 32 °C (41 to 89.6 °F)  
[if installed at an altitude of 2000 to 2500 m (6561.6 to 8202 ft)]
- 5 to 30 °C (41 to 86 °F)  
[if installed at an altitude of 2500 to 3000 m (8202 to 9842.4 ft)]

\*5: "Not operating" means the time when the equipment is stored.

\*6: The noise and sound power level vary on the ambient temperature.

\*7: These values are for each power cable.

Table 1.10 PCI\_Box installation specifications (Model name: MC-07PBa1x)

Item			Value	
Dimensions [mm (in.)]	Width		482 (18.98)	
	Depth (*1)		768 (30.24)	
	Height		174 (6.85)	
Weight [kg (lb)] (*2)			42 (92)	
Air conditioning	Maximum heat dissipation [kJ/Hr (BTU/h)]		2550 (2416.9)	
	Exhaust air flow [m <sup>3</sup> /min (ft <sup>3</sup> /min)]	With fans operating at low speed	4.49 (158.6)	
		With fans operating at high speed	5.85 (206.2)	
	Temperature and humidity (*3)	Operating	Temperature [°C (°F)]	(*4)
			Humidity [%RH]	20 to 80
			Maximum wet bulb temperature [°C (°F)]	29 (84.2)
		Stand-by	Temperature [°C (°F)]	0 to 40 (32 to 104)
			Humidity [%RH]	20 to 80
			Maximum wet bulb temperature [°C (°F)]	29 (84.2)
		Not operating (*5)	Temperature [°C (°F)]	0 to 50 (32 to 122)
			Humidity [%RH]	8 to 80
			Maximum wet bulb temperature [°C (°F)]	29 (84.2)
	Noise [dB (A)] (*6)		66 (included in the main unit)	
	Sound power level [B (A)] (*6)		8.5 (included in the main unit)	
	Allowable vibration [m/s <sup>2</sup> ]	Operating (including standby)	2.5 (Synthetic seismic vibration)	
		Not operating (*5)	4.0 (Synthetic seismic vibration)	
	Allowable dust [mg/m <sup>3</sup> ]		0.15	
Power supply	Input voltage tolerance and No. of phases		200 to 240 VAC ± 10 % 1φ	
	Frequency and tolerance		50/60 Hz +2/-4 Hz	
	Maximum power consumption/apparent power	Operating	736 W/750 VA	
		Not operating	20 VA	
	Power factor		0.9 or more	
	Inrush current [A] [Inrush duration] (*7)		30 or less	
	Leakage current [mA] (*7)		3.5 or less	

- \*1: This value does not include any projection.
- \*2: Value for the case the maximum allowable number of optional units is mounted.
- \*3: There must be no condensation.
- \*4: The temperature requirement depends on the installation altitude.
  - 5 to 35 °C (41 to 95.0 °F)  
[if installed at an altitude of 0 to 1500 m (0 to 4921.2 ft)]
  - 5 to 33 °C (41 to 91.4 °F)  
[if installed at an altitude of 1500 to 2000 m (4921.2 to 6561.6 ft)]
  - 5 to 32 °C (41 to 89.6 °F)  
[if installed at an altitude of 2000 to 2500 m (6561.6 to 8202 ft)]
  - 5 to 30 °C (41 to 86 °F)  
[if installed at an altitude of 2500 to 3000 m (8202 to 9842.4 ft)]
- \*5: "Not operating" means the time when the equipment is stored.
- \*6: The noise and sound power level vary on the ambient temperature.
- \*7: These values are for each power cable.

# 1.4 Equipment Floor Plan

The figures in this section show the floor plan for the equipment.

- PRIMEQUEST 580A/540A/580/540/480/440 floor plan (Figure 1.9)
- Extended Power Cabinet floor plan (Figure 1.10)
- Extended I/O Cabinet floor plan (Figure 1.11)

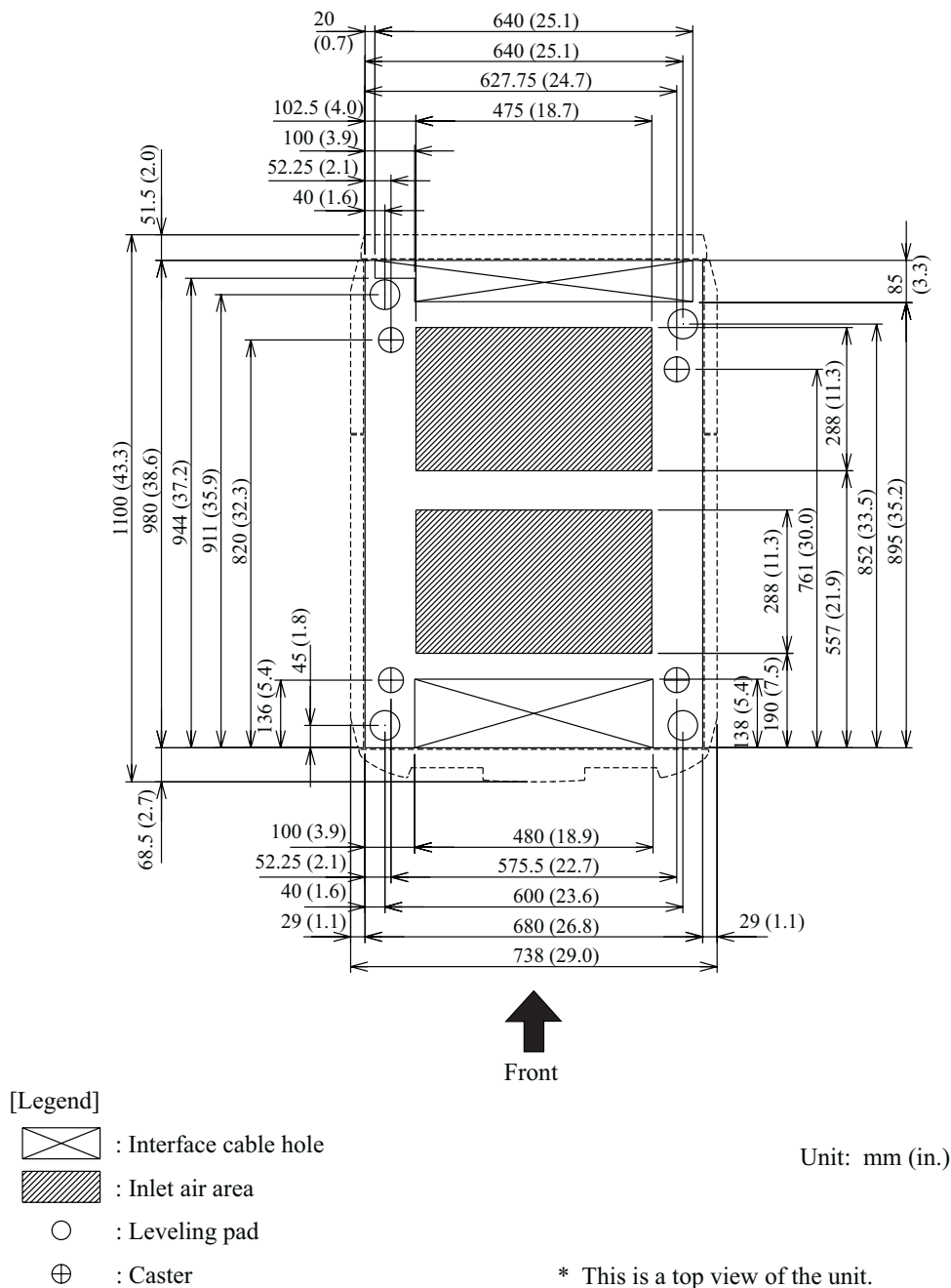
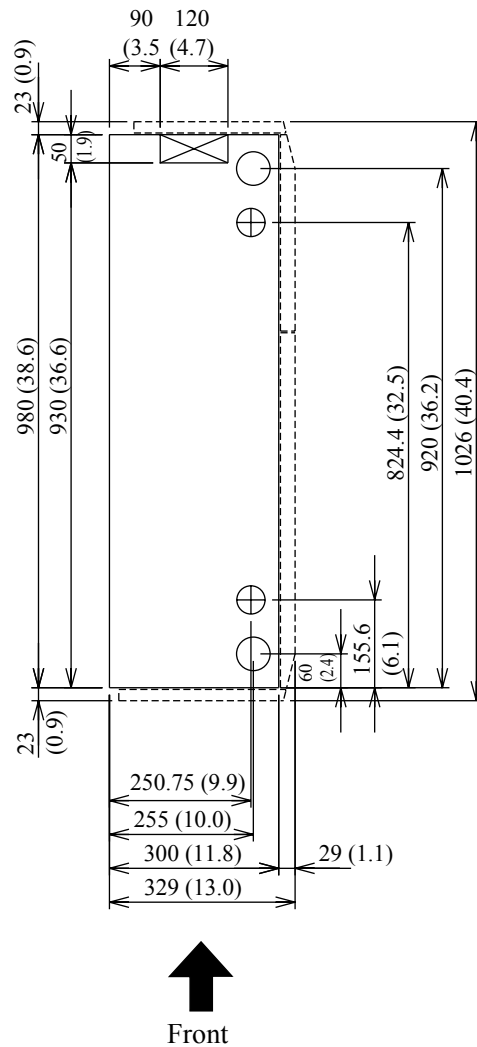



Figure 1.9 PRIMEQUEST 580A/540A/580/540/480/440 floor plan




Unit: mm (in.)

## [Legend]

 : Interface cable hole

 : Inlet air area

 : Leveling pad

 : Caster

\* This is a top view of the unit.

Figure 1.10 Extended Power Cabinet floor plan

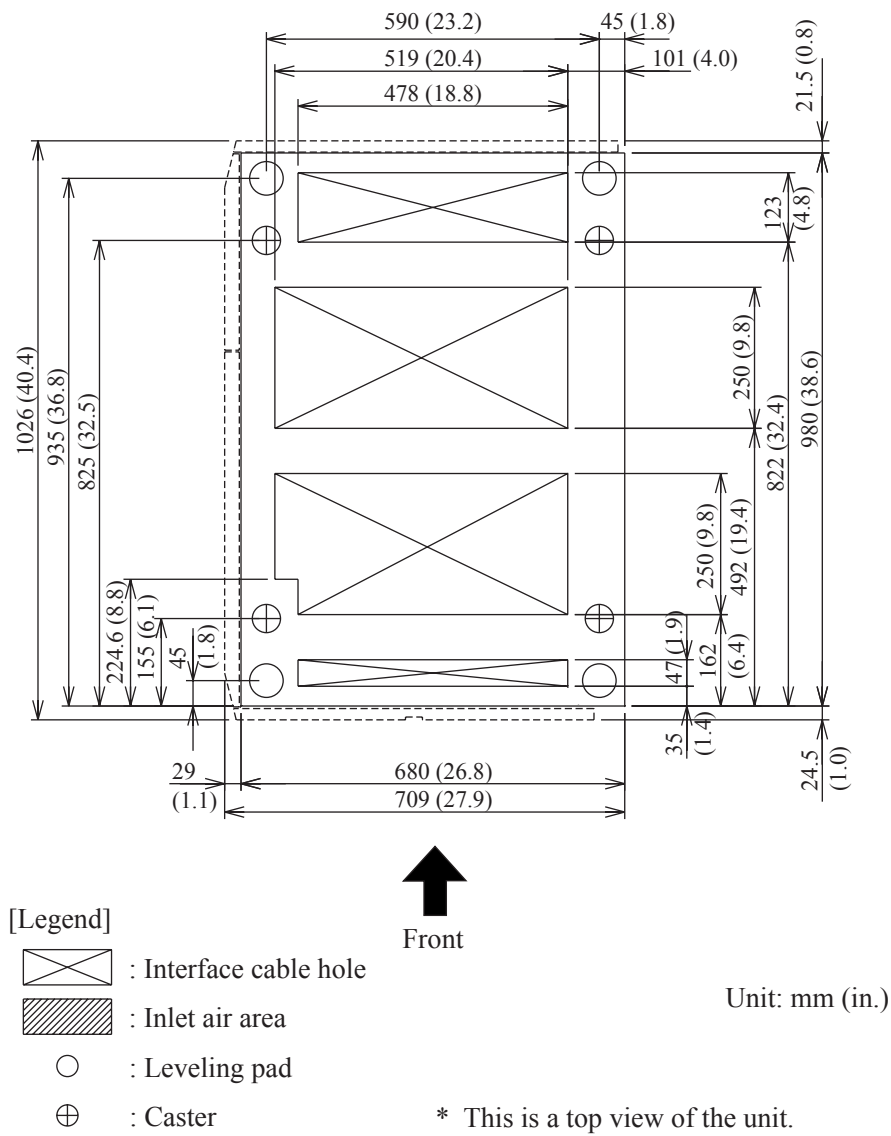


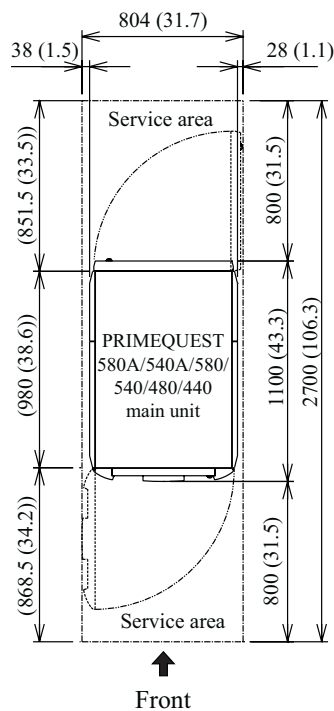
Figure 1.11 Extended I/O Cabinet floor plan



## 1.5 Equipment Installation Patterns and Service Area

This section explains the installation pattern for each piece of equipment and the service area required for each installation pattern.

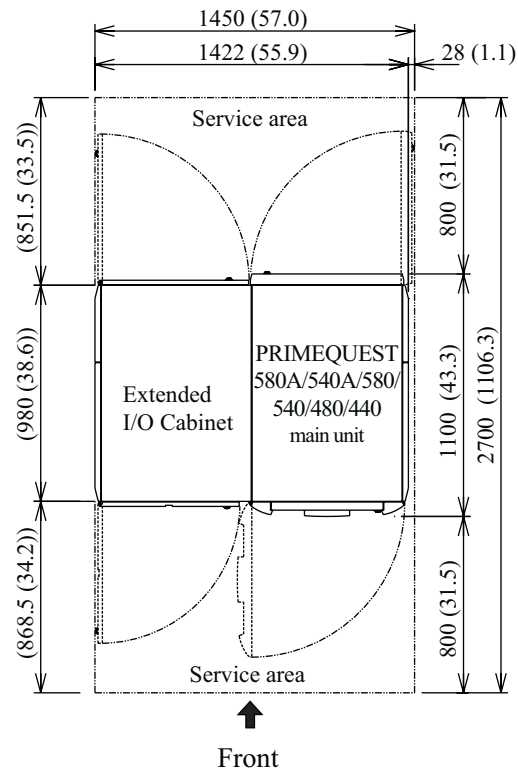
- Service area for the PRIMEQUEST 580A/540A/580/540/480/440 main unit (Figure 1.12)
- Service area for the PRIMEQUEST 580A/540A/580/540/480/440 main unit and the Extended I/O Cabinet (Figure 1.13)
- Service area for the PRIMEQUEST 580A/580/480 main unit and the Extended Power Cabinet (Figure 1.14)
- Service area for the PRIMEQUEST 580A/580/480 main unit, the Extended I/O Cabinet, and the Extended Power Cabinet (Figure 1.15)



Unit: mm (in.)  
 Installation area: 2.2 m<sup>2</sup>  
 (including service area)

\* This is a top view of the unit.

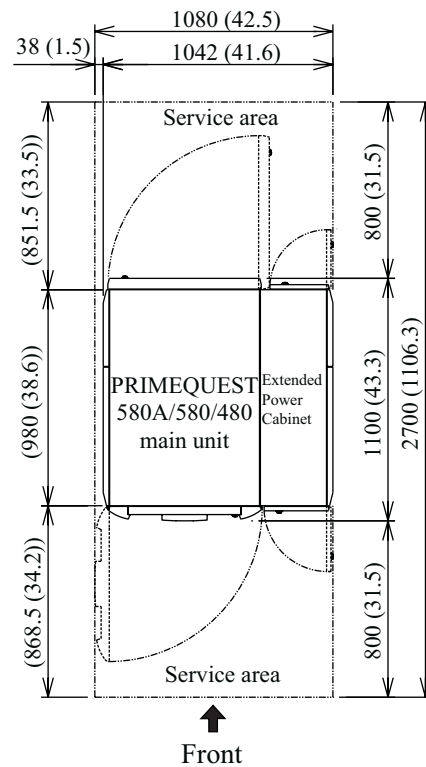
Figure 1.12 Service area for the PRIMEQUEST 580A/540A/580/540/480/440 main unit



Unit: mm (in.)  
Installation area: 3.9 m<sup>2</sup>  
(including service area)

\* This is a top view of the unit.

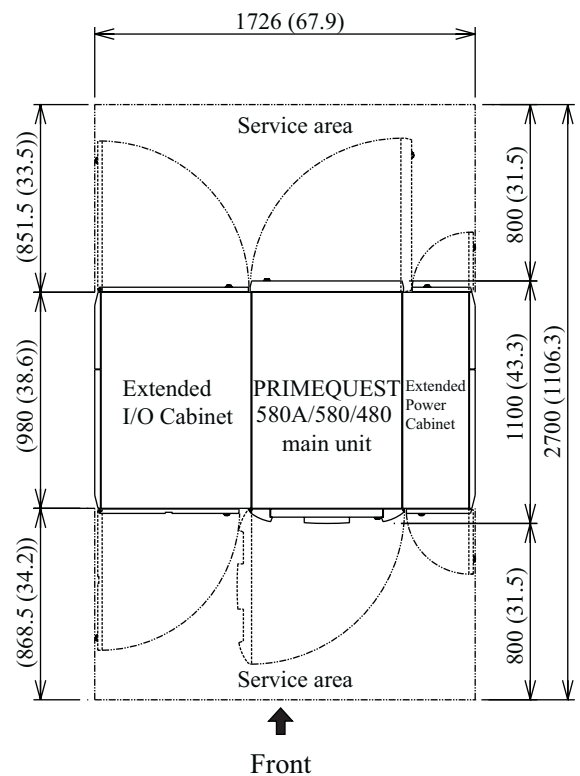
Figure 1.13 Service area for the PRIMEQUEST 580A/540A/580/540/480/440 main unit and the Extended I/O Cabinet



Unit: mm (in.)  
Installation area: 2.9 m<sup>2</sup>  
(including service area)

\* This is a top view of the unit.

Figure 1.14 Service area for the PRIMEQUEST 580A/580/480 main unit and the Extended Power Cabinet



Unit: mm (in.)  
Installation area: 4.7 m<sup>2</sup>  
(including service area)

\* This is a top view of the unit.

Figure 1.15 Service area for the PRIMEQUEST 580A/580/480 main unit, the Extended I/O Cabinet, and the Extended Power Cabinet

## 1.6 Floor Plan of Openings in Floor and Template

This section provides the floor plan for openings in the floor. Templates are provided in [Section 1.6.2, "Templates"](#) to allow you to plan your configuration before moving equipment.

- Floor plan for openings in the floor

The floor plan for openings in a free-access floor corresponds to the bottom of the unit. Because this plan shows the dimensions of the openings in units of 50 mm, the shapes and locations of cable and ventilation openings in the figure may not match exactly with the bottom of the unit.

There are the following two types of openings in the free-access floor:

- Interface cable opening
- Under-floor opening

- Template

The templates for floor connections use a scale of one to fifty (1:50). These templates can be used to create an equipment layout.

- Symbols used

Figure 1.16 shows the symbols used in the figures for floor plan openings and in the template.

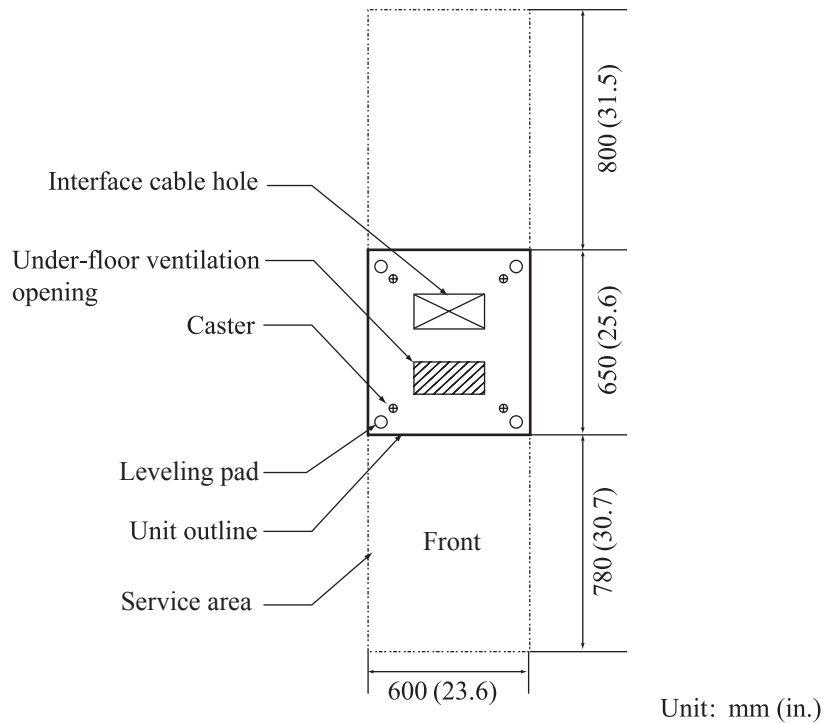
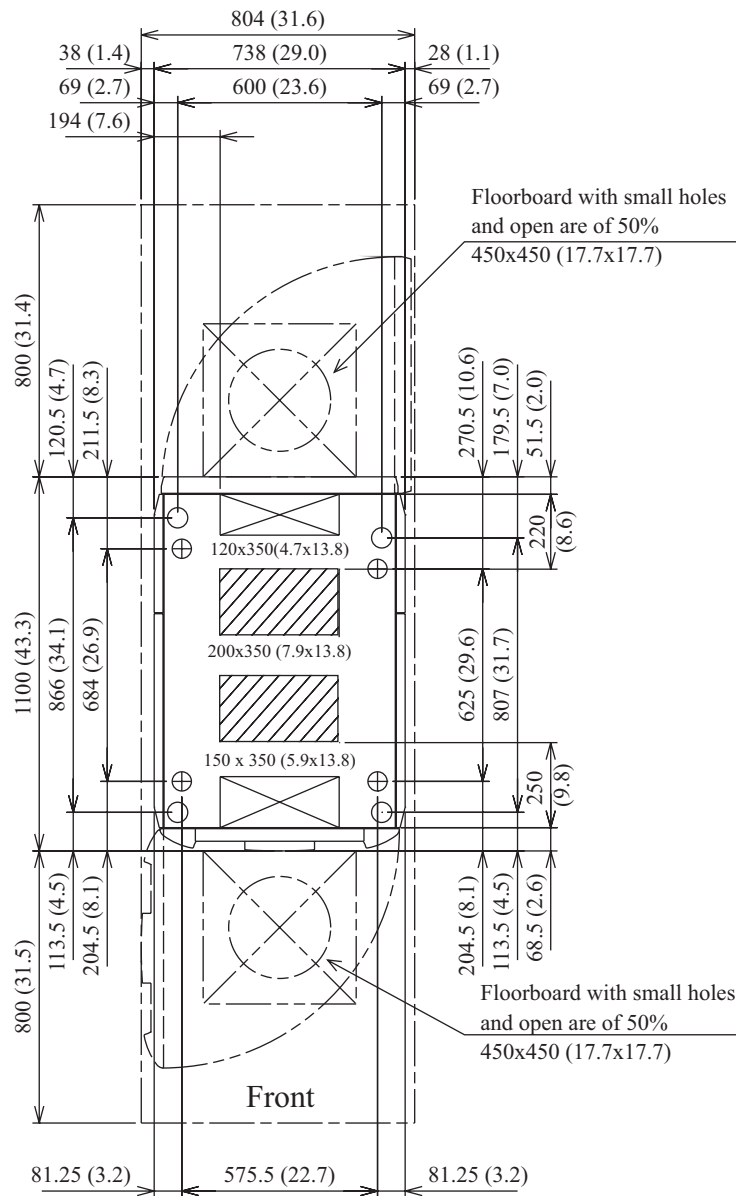


Figure 1.16 Symbols used in floor plans and templates

### 1.6.1 Floor plans for openings in the floor

This section describes the floor plans for openings to accommodate each unit.

- Floor openings for the PRIMEQUEST 580A/540A/580/540/480/440 main unit (Figure 1.17)
- Floor openings for the PRIMEQUEST 580A/540A/580/540/480/440 main unit and the Extended I/O Cabinet (Figure 1.18)
- Floor openings for the PRIMEQUEST 580A/580/480 main unit and the Extended Power Cabinet (Figure 1.19)
- Floor openings for the PRIMEQUEST 580A/580/480 main unit, the Extended I/O Cabinet, and the Extended Power Cabinet (Figure 1.20)



[Legend]

Unit: mm (in.)





-  : Interface cable hole
-  : Inlet air area
-  : Leveling pad
-  : Caster

Figure 1.17 Floor openings for the PRIMEQUEST 580A/540A/580/540/480/440 main unit



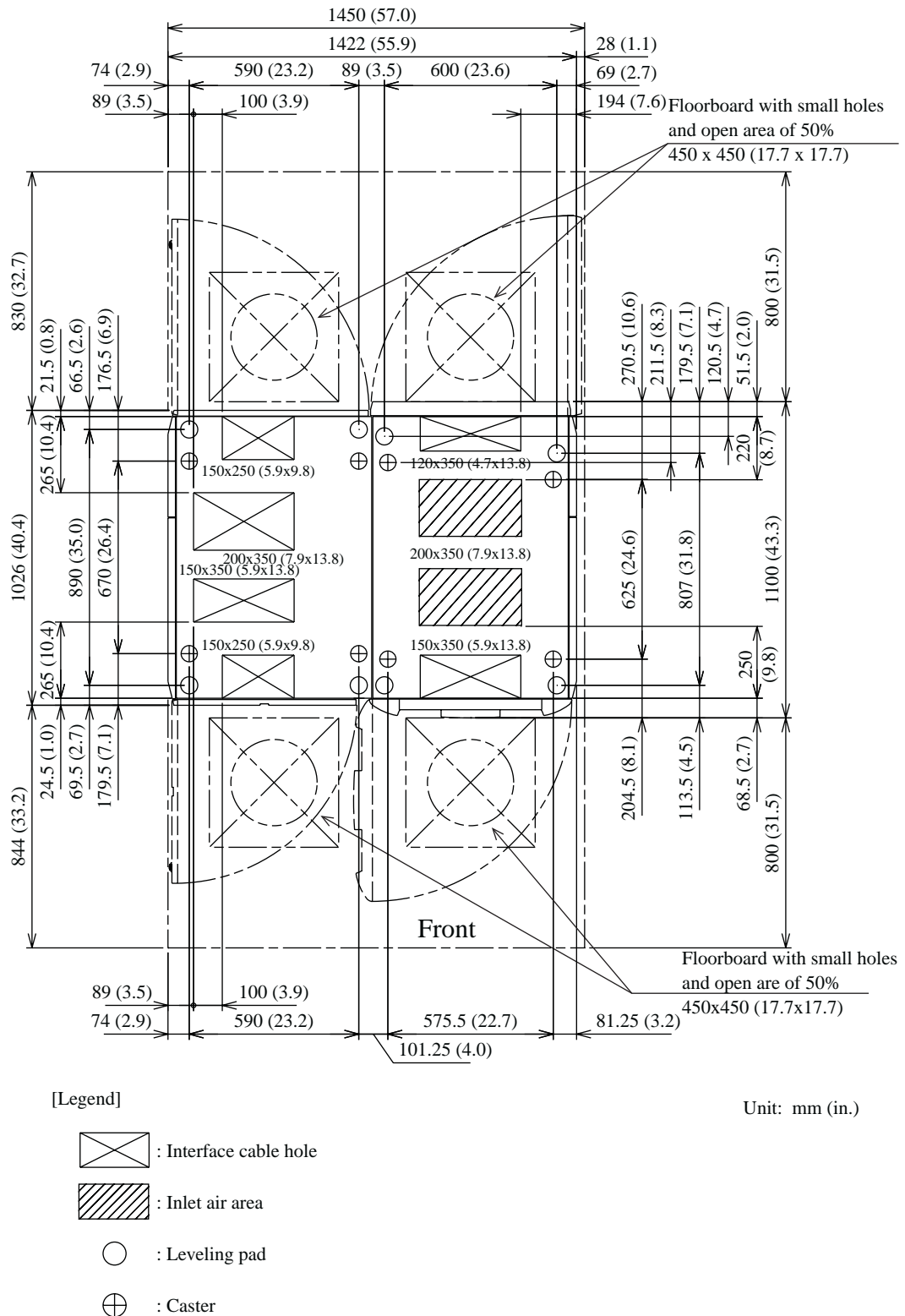


Figure 1.18 Floor openings for the PRIMEQUEST 580A/540A/580/540/480/440 main unit and the Extended I/O Cabinet

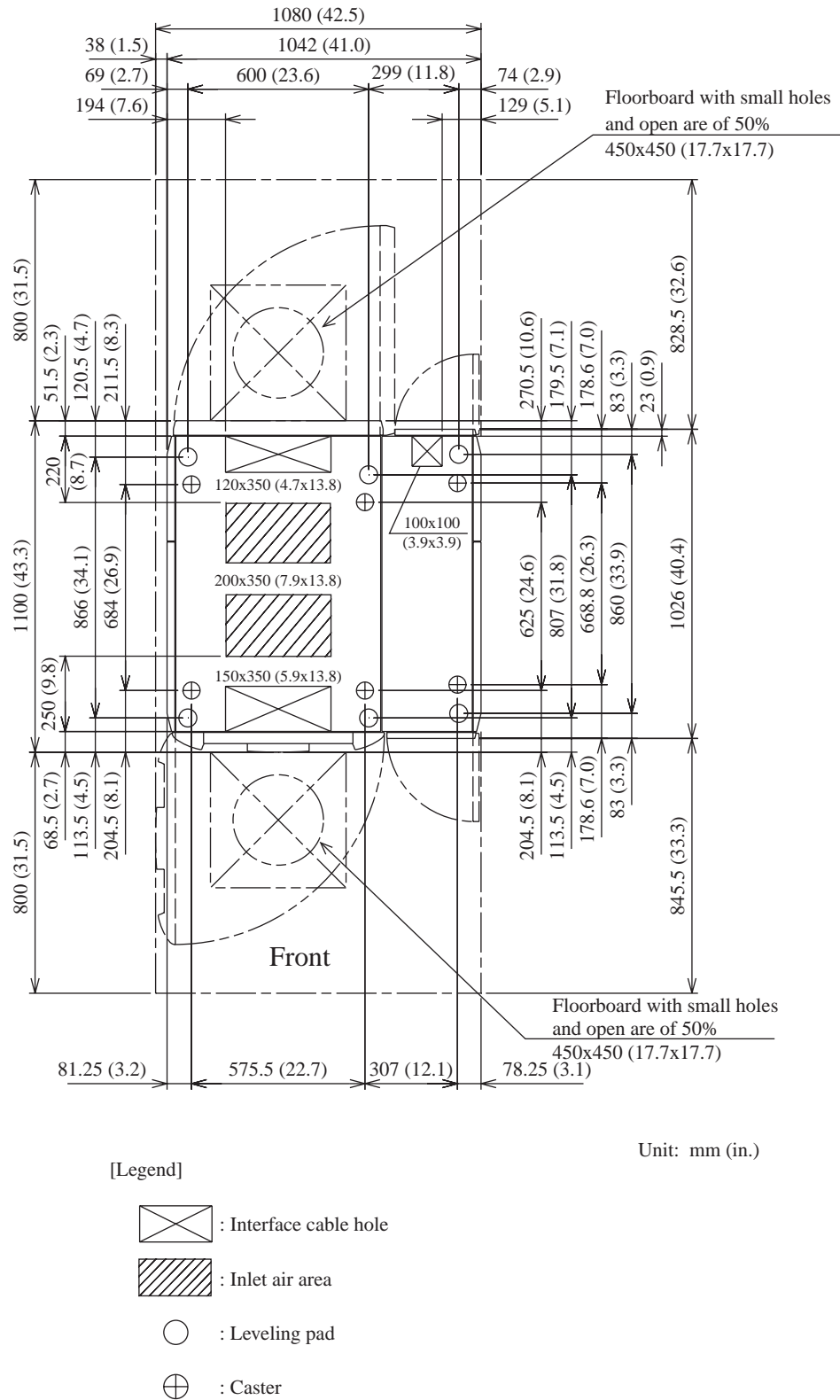
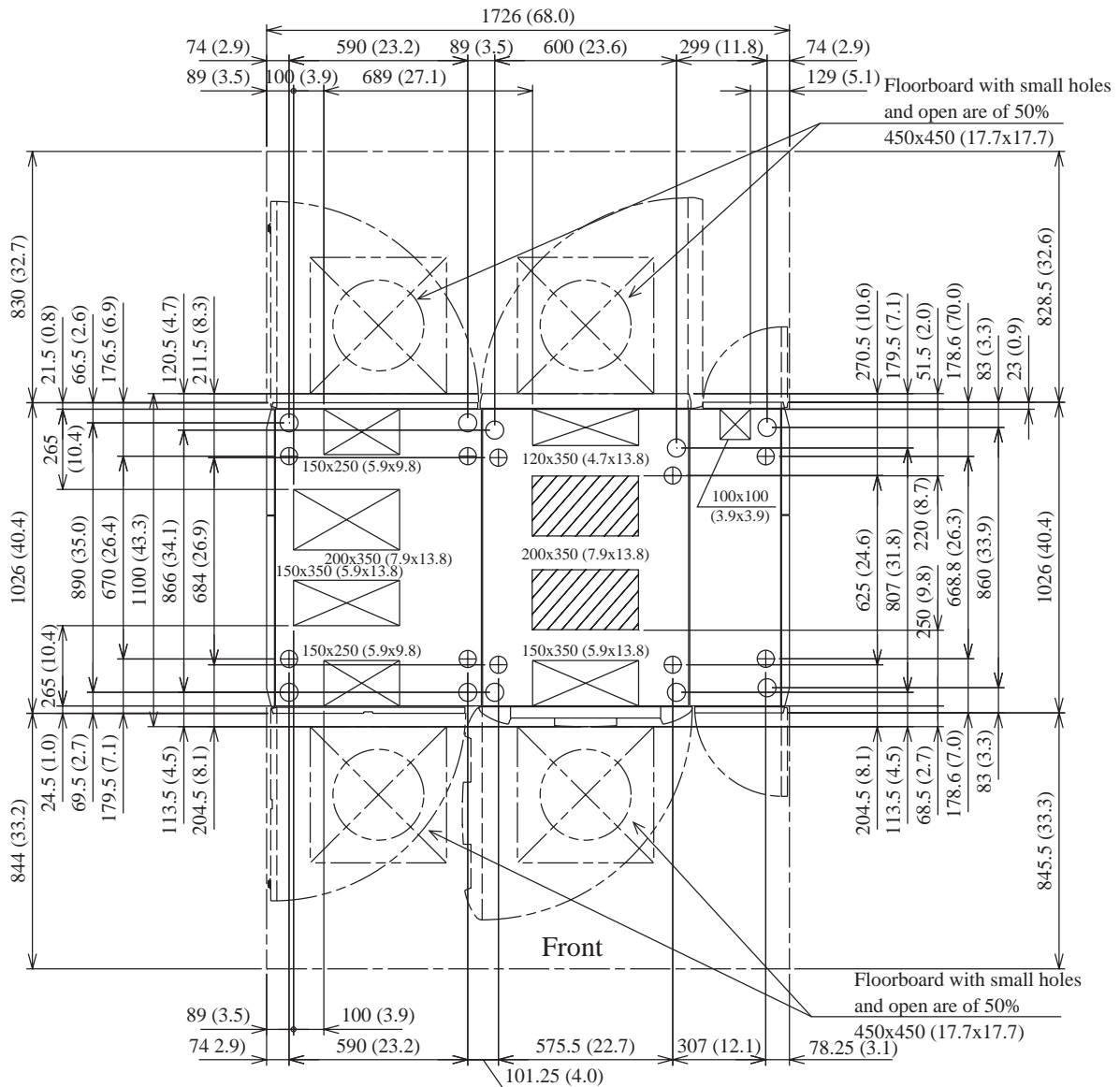


Figure 1.19 Floor openings for the PRIMEQUEST 580A/580/480 main unit and the Extended Power Cabinet



Unit: mm (in.)

[Legend]





-  : Interface cable hole
-  : Inlet air area
-  : Leveling pad
-  : Caster

Figure 1.20 Floor openings for the PRIMEQUEST 580A/580/480 main unit, the Extended I/O Cabinet, and the Extended Power Cabinet

## 1.6.2 Templates

This section describes the template for each cabinet.

### IMPORTANT

- ▶ The template is created on a scale of 1:50. When printing the template from Acrobat® Reader® or Adobe® Reader® software, be sure to uncheck the checkbox of Fit to page on the Print dialog box.
- Template for the PRIMEQUEST 580A/540A/580/540/480/440 main unit (Figure 1.21)
- Template for the PRIMEQUEST 580A/540A/580/540/480/440 main unit and the Extended I/O Cabinet (Figure 1.22)
- Template for the PRIMEQUEST 580A/580/480 and the Extended Power Cabinet (Figure 1.23)
- Template for the PRIMEQUEST 580A/580/480 main unit, the Extended I/O Cabinet, and the Extended Power Cabinet (Figure 1.24)

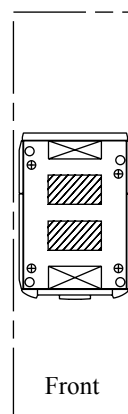


Figure 1.21 Template for the PRIMEQUEST 580A/540A/580/540/480/440 main unit

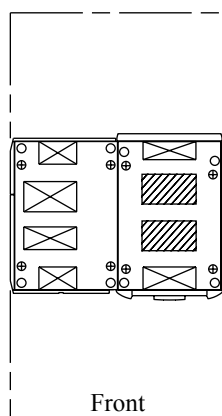


Figure 1.22 Template for the PRIMEQUEST 580A/540A/580/540/480/440 main unit and the Extended I/O Cabinet

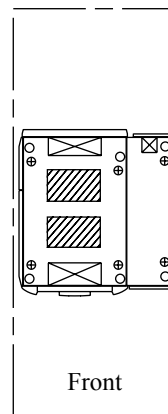


Figure 1.23 Template for the PRIMEQUEST 580A/580/480 and the Extended Power Cabinet

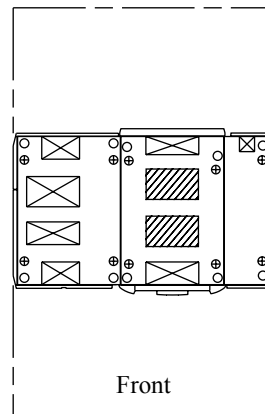


Figure 1.24 Template for the PRIMEQUEST 580A/580/480 main unit, the Extended I/O Cabinet, and the Extended Power Cabinet

## 1.7 Cooling Air and Exhaust Flows

This section explains the cooling air and exhaust flows of each cabinet.

- Cooling air and exhaust flows of the PRIMEQUEST 580A/540A/580/540/480/440 main unit (Figure 1.25)
- Cooling air and exhaust flows of the Extended Power Cabinet (Figure 1.26)
- Cooling air and exhaust flows of the Extended I/O Cabinet (Figure 1.27)
- Cooling air and exhaust flows of the PCI\_Box (Figure 1.28)

### IMPORTANT

- ▶ When planning the installation of the equipment, it is important to consider the flows of cooling air and exhaust. If the equipment is installed without giving proper consideration to these flows, a cabinet or rack may draw in the exhaust from another cabinet or rack and be adversely affected as a result. Particularly, a device that monitors the temperature of intake air may continue to output the alarm indicating abnormal intake temperature.

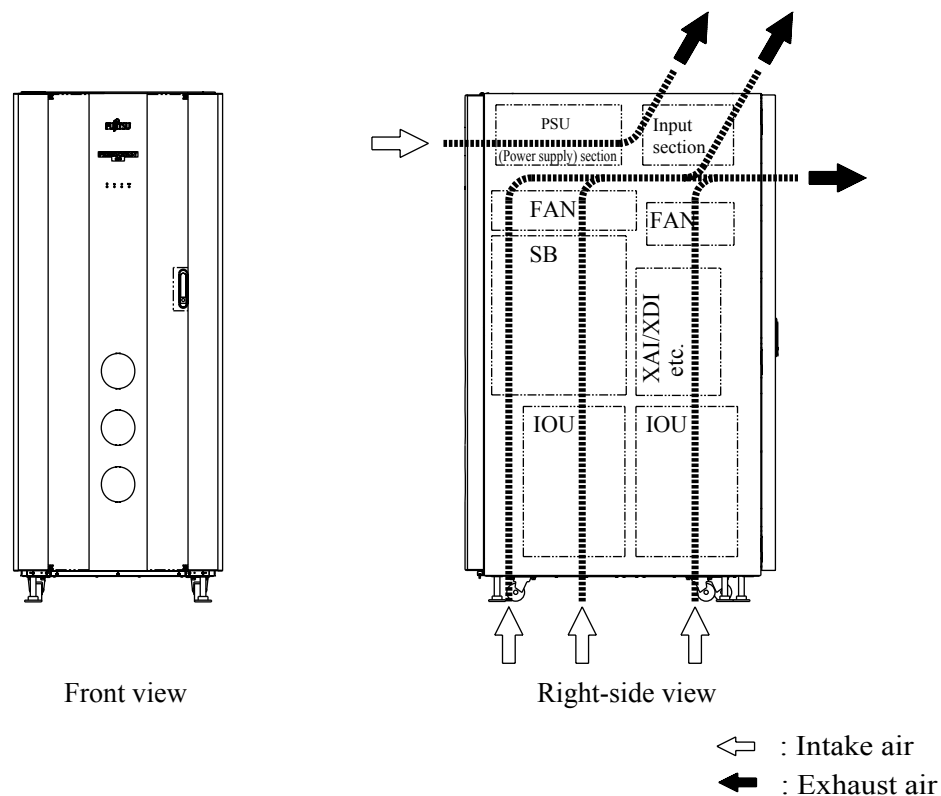


Figure 1.25 Cooling air and exhaust flows of the PRIMEQUEST 580A/540A/580/540/480/440 main unit

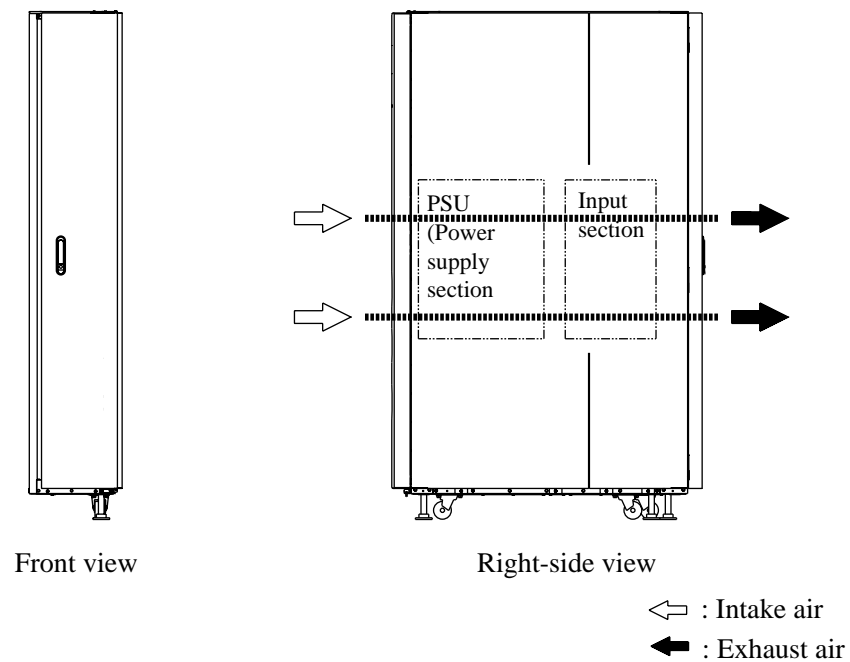
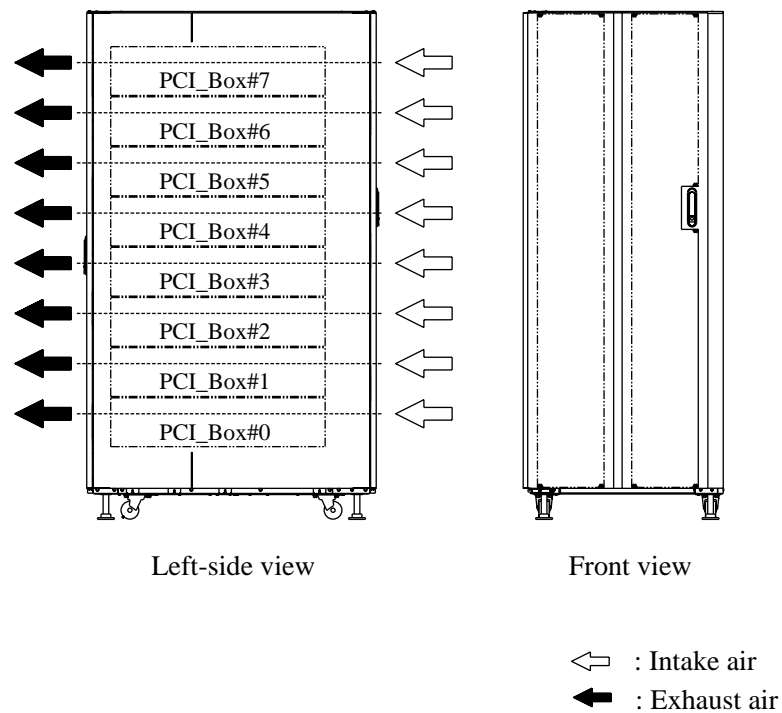


Figure 1.26 Cooling air and exhaust flows of the Extended Power Cabinet



Note: A blank panel is installed where a PCI\_Box is not mounted. If a PCI\_Box has not been added here, be sure to keep the blank panel installed to ensure normal cooling of the other PCI\_Boxes.

Figure 1.27 Cooling air and exhaust flows of the Extended I/O Cabinet

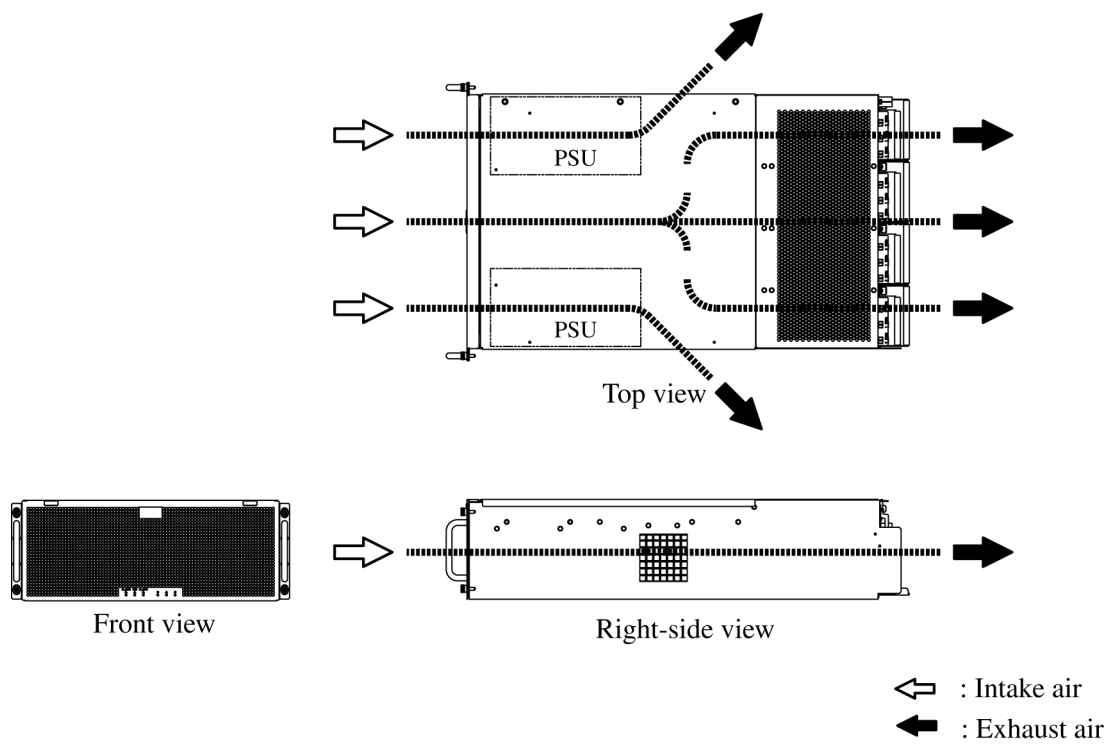


Figure 1.28 Cooling air and exhaust flows of the PCI\_Box



# CHAPTER 2 Connection Reference

This chapter provides cable connection diagrams and lists of the applicable cables.

## 2.1 Connection Overview

[Figure 2.1](#) shows an overview of equipment cable connections:

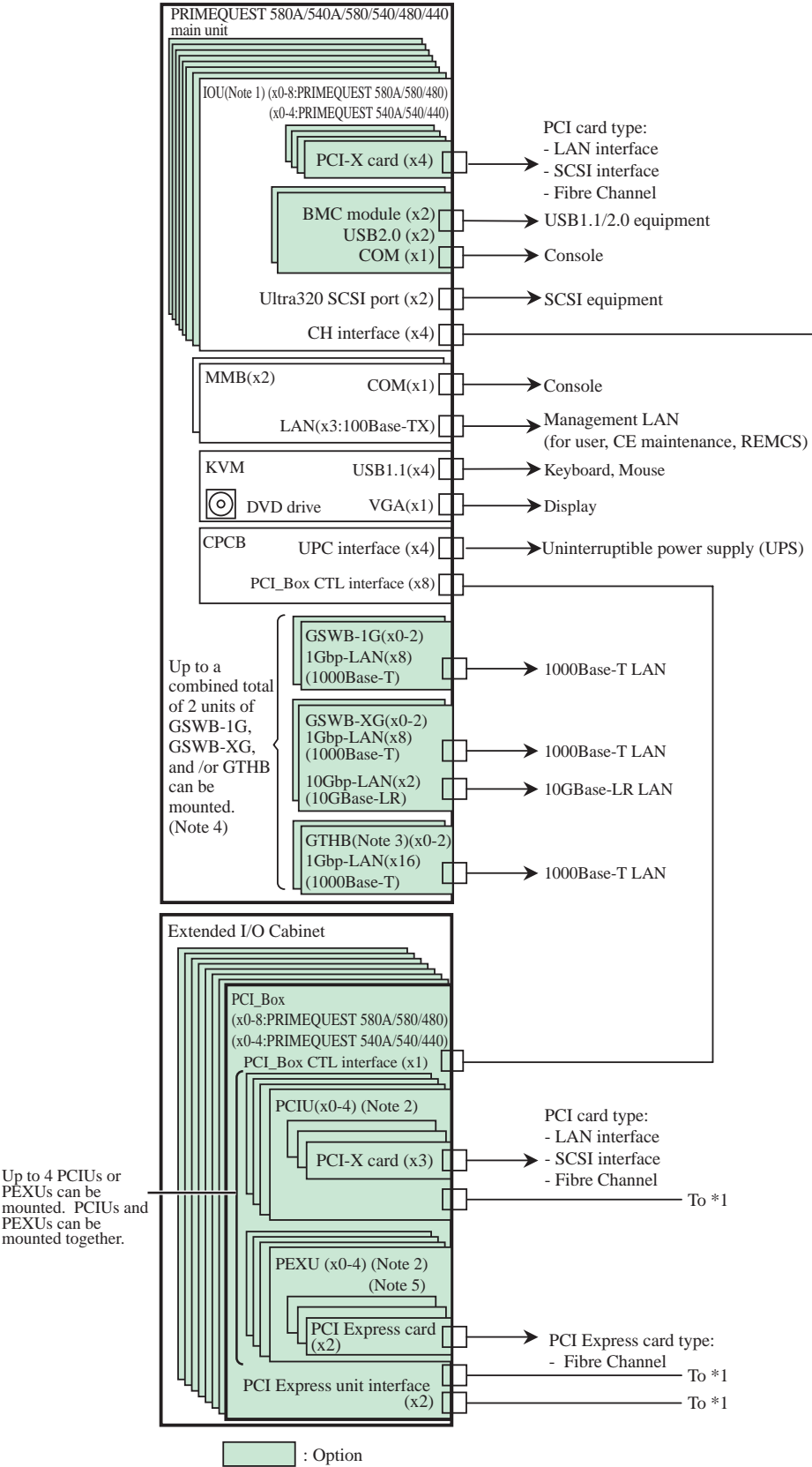


Figure 2.1 Equipment cable connections (1/2)

Note 1: The main unit does not include IO Units. At least one unit must be prepared.

Note 2: A PCI\_Box does not include PCIU and PEXU. At least one unit must be prepared.

Note 3: GTHB is supported only in the PRIMEQUEST 580A/540A/580/540.

Note 4: GSWB and GTHB cannot be mounted together.

Note 5: Up to 16 PEXUs can be connected to the PRIMEQUEST 580A/580 main unit. Up to eight PEXUs can be connected to the PRIMEQUEST 540A/540 main unit.

Up to two PEXUs can be connected to one IOU.

Note 6: PEXUs are connected by PCI unit cables (combination of CH#0/#1 and CH#2/#3 on the main unit side).

Figure 2.1 Equipment cable connections (2/2)

## 2.2 Signal Cable Connections

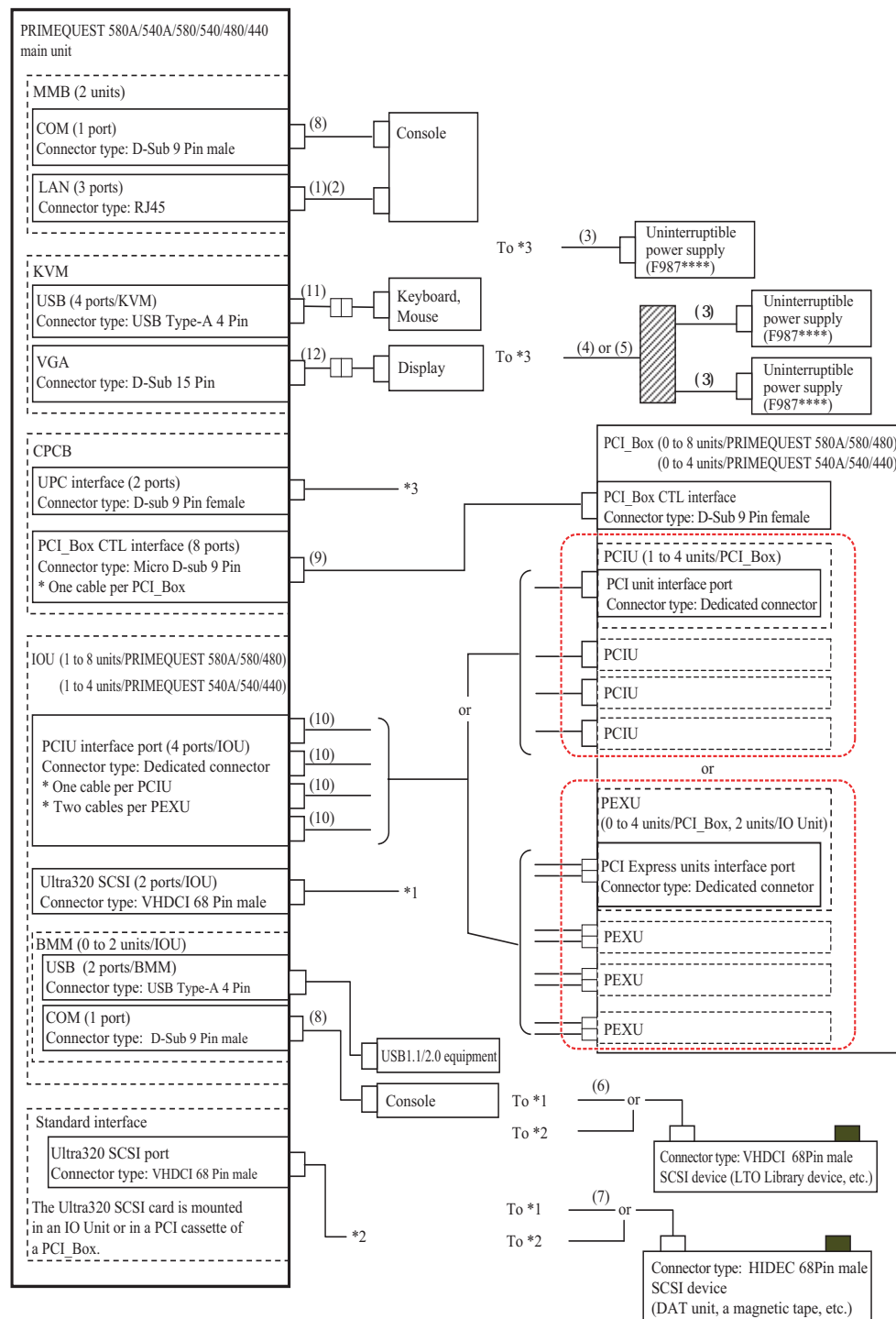
This section provides diagrams of signal-cable connections, lists of applicable cables, and notes on cabling.

- [Basic interfaces and peripherals \(Section 2.2.1\)](#)
- [LAN and other device connections \(Section 2.2.2\)](#)
- [Notes on cabling PRIMEQUEST 580A/540A/580/540/480/440 \(Section 2.2.3\)](#)
- [Details of cable connection ports \(Section 2.2.4\)](#)

### 2.2.1 Basic interfaces and peripherals

[Figure 2.2](#) shows the cable connections for the basic interfaces and peripheral units.  
[Figure 2.1](#) lists the applicable cables.

## (1) Cable connection diagram



Remarks: The number in parenthesis corresponds to the number of the cables in [Table 2.1](#).

Figure 2.2 PRIMEQUEST 580A/540A/580/540/480/440 interface cable connections (basic interfaces and peripherals)

## (2) Cable list

When determining the total length of the external interface cable to be connected to the PRIMEQUEST 580A/540A/580/540/480/440, allow for an extra length of cable for pulling out the units.

Table 2.1 Cable list (basic interface and peripherals)

NO.	Name	Order code	Japan	Outside Japan	Packaging	Length [m (ft.)]
(1)	Twisted pair cable (Category 5 UTP cable)	TPCBL-B005	Y	Y	Optional: Select 5, 10, 15, 30, 50, or 100 m.	5 (16)
		TPCBL-B010	Y	Y		10 (33)
		TPCBL-B015	Y	Y	This cable is required if 100Base-TX or 10Base-T is used. (category 5) RJ45 8 Pin - RJ45 8 Pin	15 (49)
		TPCBL-B030	Y	Y		30 (98)
		TPCBL-B050	Y	Y		50 (164)
		TPCBL-B100	Y	Y		100 (328)
(2)	Enhanced category 5 UTP cable	TPCBL-C005	Y	Y	Optional: Select 5, 10, 15, 30, 50, or 100 m.	5 (16)
		TPCBL-C010	Y	Y		10 (33)
		TPCBL-C015	Y	Y	This cable is required if 1000Base-T, 100Base-TX, or 10Base-T is used. (category 5e) RJ45 8 Pin - RJ45 8 Pin	15 (49)
		TPCBL-C030	Y	Y		30 (98)
		TPCBL-C050	Y	Y		50 (164)
		TPCBL-C100	Y	Y		100 (328)
(3)	UPS cable	DCBL-UPK05	Y	Y	This cable is required for connection to the UPS(F987xx).	5 (16)
		DCBL-UPK15	Y	Y		15 (49)
(4)	UPS interface branch connector	UPS-B	Y	Y	Branch connector box that is used to connect two UPS (F987xx) units to a single UPC interface. (Comes with a 2.2 m cable for connecting the device to the box.)	2.2 (7)
(5)	UPS interface six-branch connector	UPS-B1	Y	Y	Branch connector box that is used to connect six UPS (F987xx) units to a single UPC interface. (Comes with a 2.5 m cable for connecting the device to the box.)	2.5 (8)
(6)	SCSI cable	DCBL-SCP05	Y	Y	Optional: Select 5 or 10 m. VHDCI 68-pin, male to VHDCI 68-pin, male	5 (16)
		DCBL-SCP10	Y	Y		10 (33)

Y: Supported

NO.	Name	Order code	Japan	Outside Japan	Packaging	Length [m (ft.)]
(7)	SCSI cable	DCBL-SCN05	Y	Y	Optional: Select 5 or 10 m. VHDCI 68-pin, male to HIDEC 68-pin, male	5 (16)
		DCBL-SCN10	Y	Y		10 (33)
(8)	RS232C cable (Dsub 9 Pin-9 Pin, cross cable)	FMV-CBL501	Y	Y		1.5 (5)
(9)	PCI_Box CTL cable	(CA78005-0053)	Y	Y	One cable is supplied with the PCI_Box.	5 (16)
(10)	PCIU cable (5m)	MC-07CA11	Y	Y	Two cables are required for connecting the PEXUs.	5 (16)
(11)	USB extension cable	MC-07UE11	Y	Y	This cable is required for connecting the main unit to a keyboard/mouse.	3 (9)
(12)	VGA extension cable	MC-07VE11	Y	Y	This cable is required for connecting the main unit to a display.	3 (9)

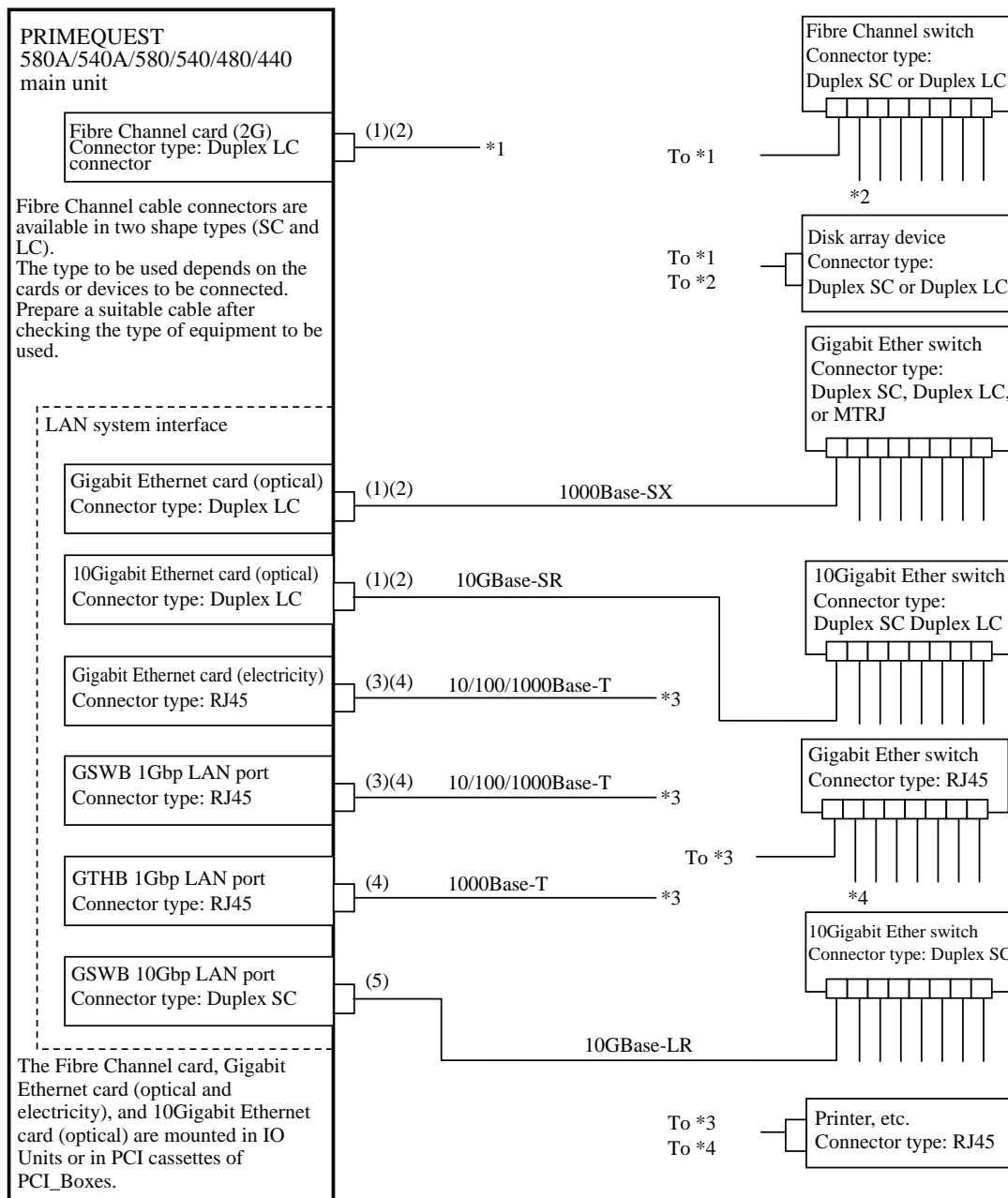
Y: Supported

### 2.2.2 LAN and other device connections

Figure 2.3 shows the cable connections for a LAN and other device connections.

Table 2.2 lists the applicable cables.

### (1) Cable connection diagram



Remarks: The number in parenthesis corresponds to the number of the cables in [Table 2.2](#).

Figure 2.3 PRIMEQUEST 580A/540A/580/540/480/440 cable connections  
(LAN and other device connections)



## (2) Cable list

When determining the total length of the external interface cable to be connected to the PRIMEQUEST 580A/540A/580/540/480/440, allow for an extra length of cable for pulling out the units.

Table 2.2 Cable list (LAN and other device connections)

No.	Name	Order code	Japan	Outside Japan	Packaging	Length [m (ft.)]
1	Multimode Fibre Channel Cable	CBL-MLLB02	Y	Y	Optional: Select 2, 5, or 15 m.	2 (7)
		CBL-MLLB05	Y	Y		5 (16)
		CBL-MLLB15	Y	Y	Dual LC connector - Dual LC connector cable Sheathless	15 (49)
		CBL-MLLC05	Y	Y	Optional: Select 5, 10, 20, 30, 40, or 50 m.	5 (16)
		CBL-MLLC10	Y	Y		10 (33)
		CBL-MLLC20	Y	Y	Dual LC connector - Dual LC connector cable Sheathed	20 (66)
		CBL-MLLC30	Y	Y		30 (98)
		CBL-MLLC40	Y	Y		40 (132)
		CBL-MLLC50	Y	Y		50 (164)
		CBL-MLLA1A (Note)	Y	Y	Optional: 100 m. Dual LC connector - Dual LC connector cable Sheathed	100 (328)
2	Multimode Fibre Channel Cable	CBL-MLSB02	Y	Y	Optional: Select 2, 5, or 15 m.	2 (7)
		CBL-MLSB05	Y	Y		5 (16)
		CBL-MLSB15	Y	Y	Dual LC connector - Dual SC connector cable Sheathless	15 (49)
		CBL-MLSC05	Y	Y	Optional: Select 5, 10, 20, 30, 40, or 50 m.	5 (16)
		CBL-MLSC10	Y	Y		10 (33)
		CBL-MLSC20	Y	Y	Dual LC connector - Dual SC connector cable Sheathed	20 (66)
		CBL-MLSC30	Y	Y		30 (98)
		CBL-MLSC40	Y	Y		40 (132)
		CBL-MLSC50	Y	Y		50 (164)
		CBL-MLSA1A (Note)	Y	Y	Optional: 100 m. Dual LC connector - Dual SC connector cable Sheathed	100 (328)

Y: Supported

Note: Cannot be connected to the 10Gigabit Ethernet card (optical).

No.	Name	Order code	Japan	Outside Japan	Packaging	Length [m (ft.)]
3	Twisted pair cable (category 5 UTP cable)	TPCBL-B005	Y	Y	Optional: Select 5, 10, 15, 30, 50, or 100 m.	5 (16)
		TPCBL-B010	Y	Y		10 (33)
		TPCBL-B015	Y	Y	This cable is required if 100Base-TX or 10Base-T is used. (Category 5) RJ45 8 Pin - RJ45 8 Pin	15 (49)
		TPCBL-B030	Y	Y		30 (98)
		TPCBL-B050	Y	Y		50 (164)
		TPCBL-B100	Y	Y		100 (328)
4	Enhanced category 5 UTP cable	TPCBL-C005	Y	Y	Optional: Select 5, 10, 15, 30, 50, or 100 m.	5 (16)
		TPCBL-C010	Y	Y		10 (33)
		TPCBL-C015	Y	Y	This cable is required if 1000Base-T, 100Base-TX, or 10Base-T is used. (Category 5e) RJ45 8 Pin-RJ45 8 Pin	15 (49)
		TPCBL-C030	Y	Y		30 (98)
		TPCBL-C050	Y	Y		50 (164)
		TPCBL-C100	Y	Y		100 (328)
5	Singlemode Fibre Channel Cable	L-A2AA005	Y	Y	Optional: Select 5, 10, 30, 50, 100, 200 m.	5 (16)
		L-A2AA010	Y	Y		10 (33)
		L-A2AA030	Y	Y	Dual SC connector - Dual SC connector cable Sheathed	30 (98)
		L-A2AA050	Y	Y		50 (164)
		L-A2AA100	Y	Y		100 (328)
		L-A2AA200	Y	Y		200 (656)

Y: Supported

### 2.2.3 Notes on cabling PRIMEQUEST 580A/540A/580/540/480/440

When determining the total length of the cable to be connected to the PRIMEQUEST 580A/540A/580/540/480/440, allow for an extra length of cable for pulling out the units.

**IMPORTANT**

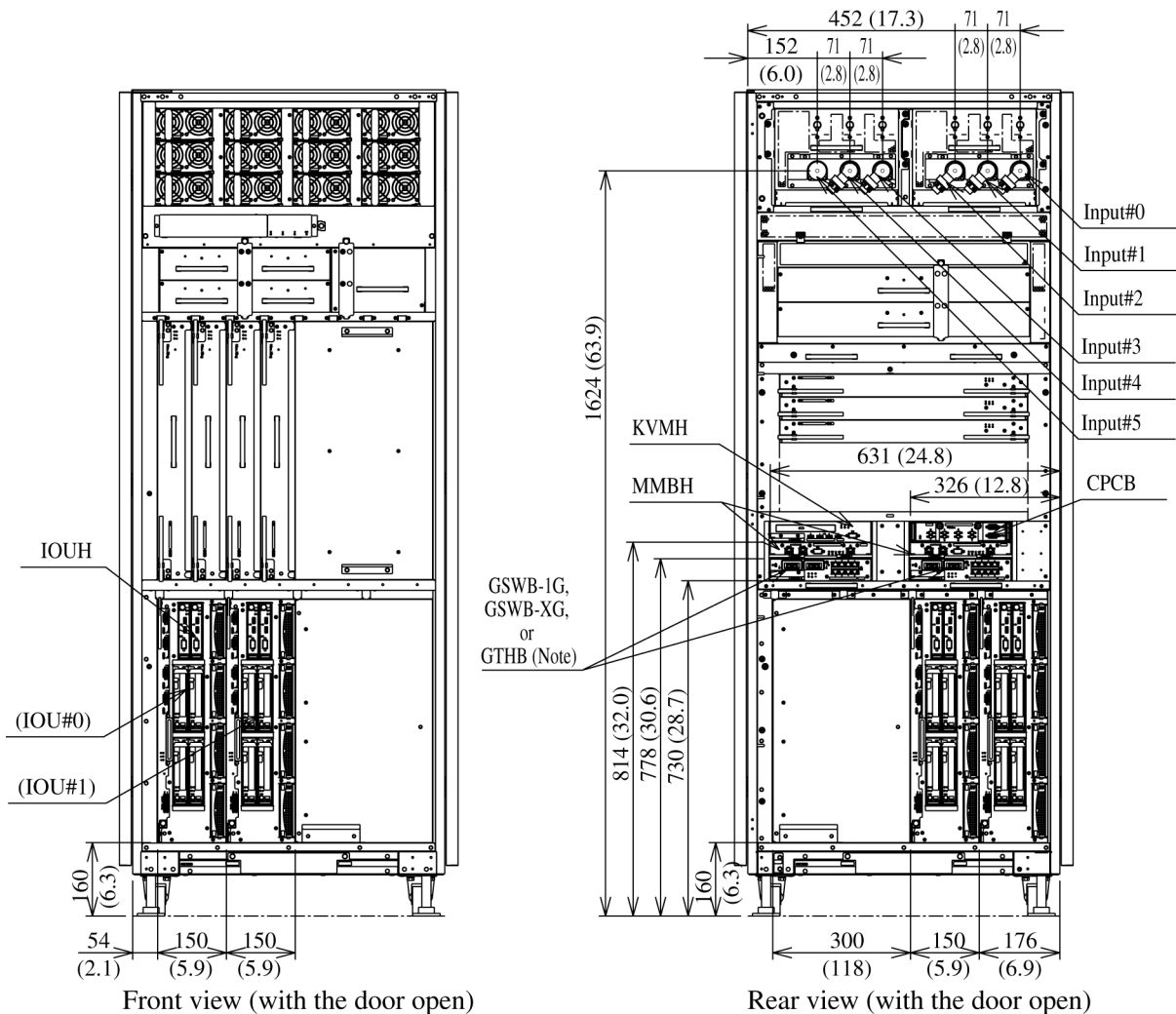
- ▶ Use a sheathless optical cable for the Fibre Channel cable. (If the sheath Fibre Channel cable has been laid, connect a sheathless optical Fibre Channel cable with an adapter (DCBL-FCE02 (SC-LC: 2m (6.6 ft.)), DCBL-FCE05 (SC-LC: 5m (16.4 ft.)), DCBL-FCG02 (LC-LC: 2m (6.6 ft.)), or DCBL-FCG05 (LC-LC: 5m (16.4 ft.))) to the sheath Fibre Channel cable.)
- ▶ Avoid laying the power cable close to metal cables such as RS232C or SCSI cables. If cables need to be crossed, avoid laying the sheathless optical cable under power cables or metal cables.

## 2.2.4 Details of cable connection ports

This section shows the locations of the external interface and ACS in each cabinet. Keep these locations of external interface and power input cable connection port shown below in mind when calculating the excess lengths of connection cables.

- External interface connection ports in the PRIMEQUEST 540A/540/440 main unit (Figure 2.4)
- External interface connection ports in the PRIMEQUEST 580A/580/480 main unit (Figure 2.5)
- Units in the PRIMEQUEST 580A/540A/580/540/480/440 main unit (Figure 2.6 to Figure 2.12)
- Input cable connection ports in the Extended Power Cabinet (Figure 2.13)
- Input cable connection ports in the Extended I/O Cabinet (connected to PRIMEQUEST 540A/540/440 unit) (Figure 2.14)
- Input cable connection ports in the Extended I/O Cabinet (connected to PRIMEQUEST 580A/580/480 unit) (Figure 2.15)
- External interface ports in the PCI\_Box (Figure 2.16)

(1) External interface connection ports in the PRIMEQUEST 540A/540/440 main unit



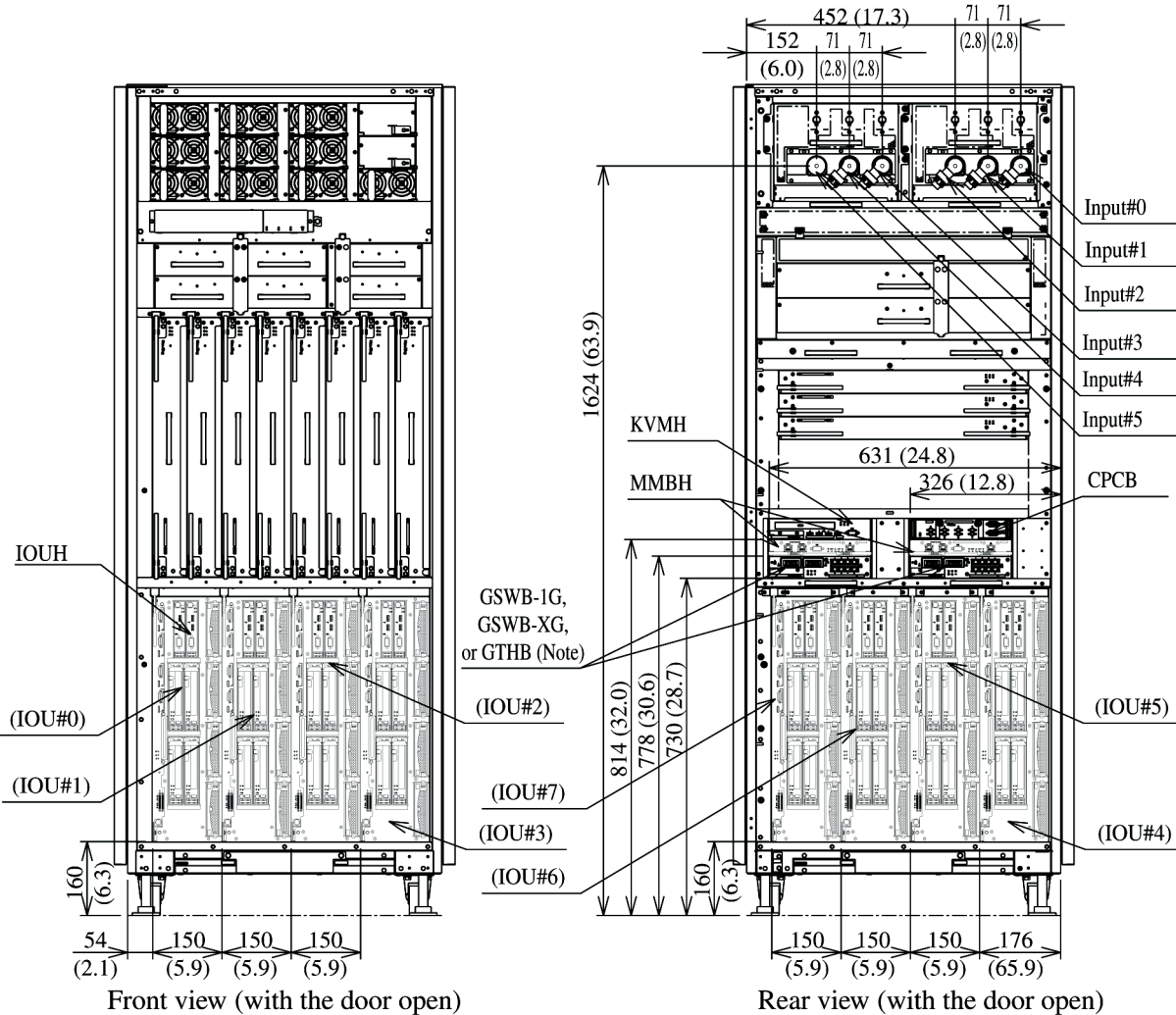
Unit: mm (in.)

Note: GTHB is supported only in the PRIMEQUEST 540A/540.

Remark: The above unit contains a Dual Power Feed Option.

Figure 2.4 External interface connection ports in the PRIMEQUEST 540A/540/440 main unit

(2) External interface connection ports in the PRIMEQUEST 580A/580/480 main unit



Unit: mm (in.)

Note: GTHB is supported only in the PRIMEQUEST 580A/580.

Remarks: The figure shows an example of the PRIMEQUEST system with an additional power supply option mounted.

Figure 2.5 External interface connection ports in the PRIMEQUEST 580A/580/480 main unit

### (3) Units in the PRIMEQUEST 580A/540A/580/540/480/440 main unit

#### KVMH

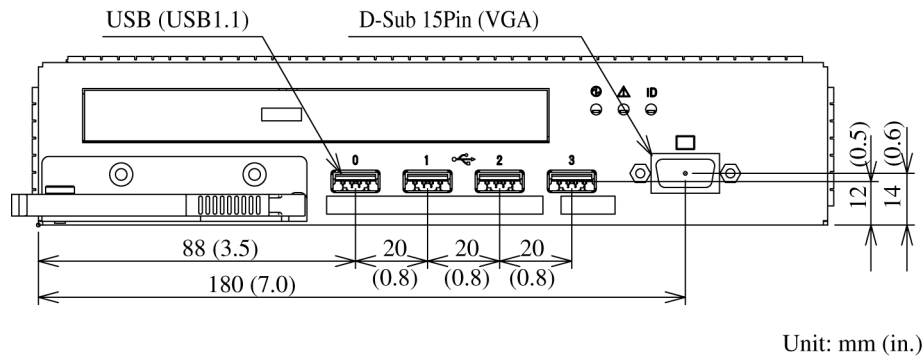


Figure 2.6 External interface ports in the KVMH

#### CPCB

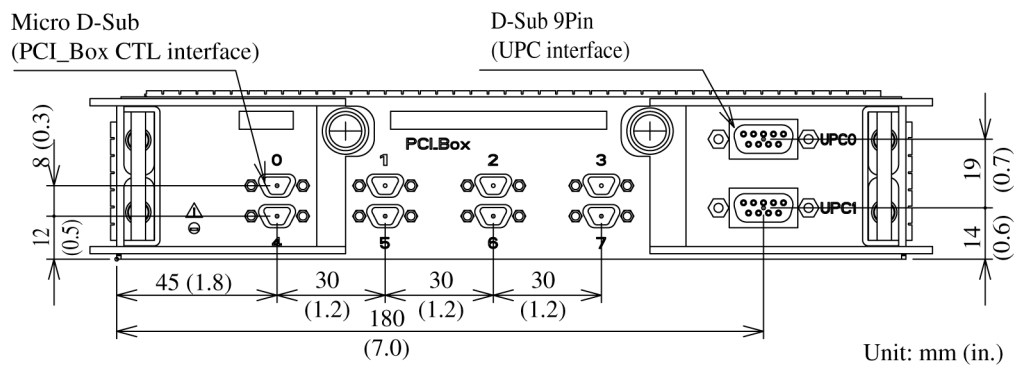


Figure 2.7 External interface ports in the CPCB

#### MMBH

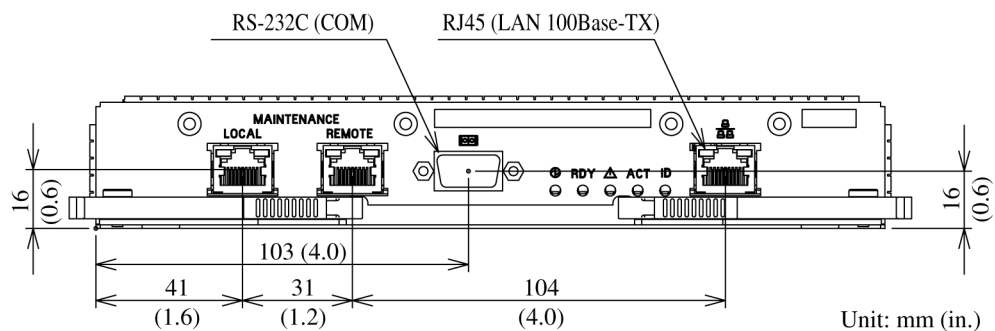
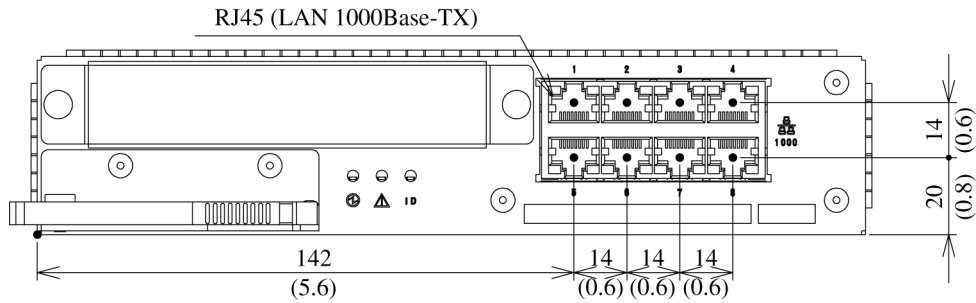


Figure 2.8 External interface ports in the MMBH

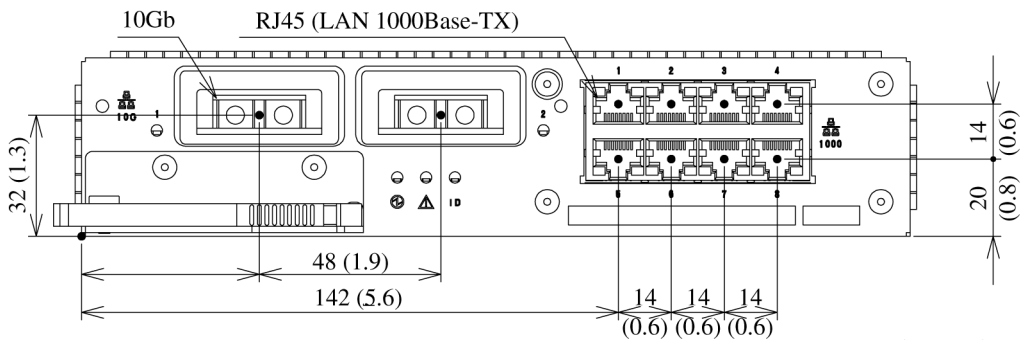
GSWB-1G



Unit: mm (in.)

Figure 2.9 External interface ports in the GSWB-1G

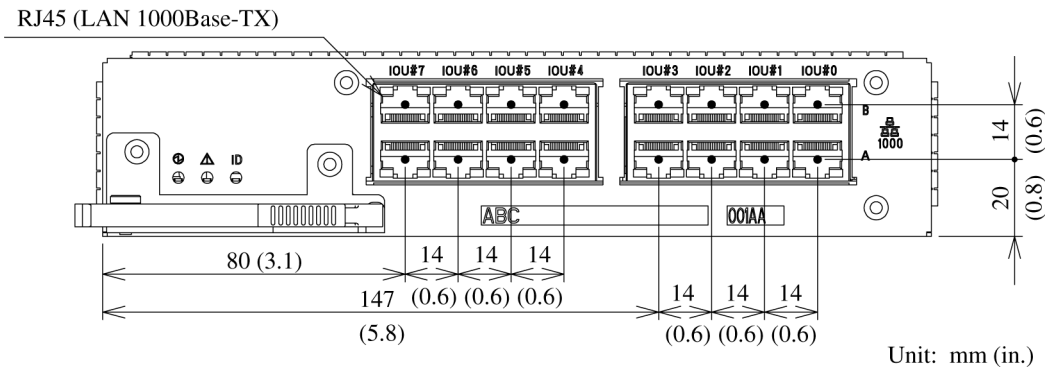
GSWB-XG



Unit: mm (in.)

Figure 2.10 External interface ports in the GSWB-XG

GTHB (PRIMEQUEST 580A/540A/580/540)



Unit: mm (in.)

Figure 2.11 External interface ports in the GTHB



## IOUH

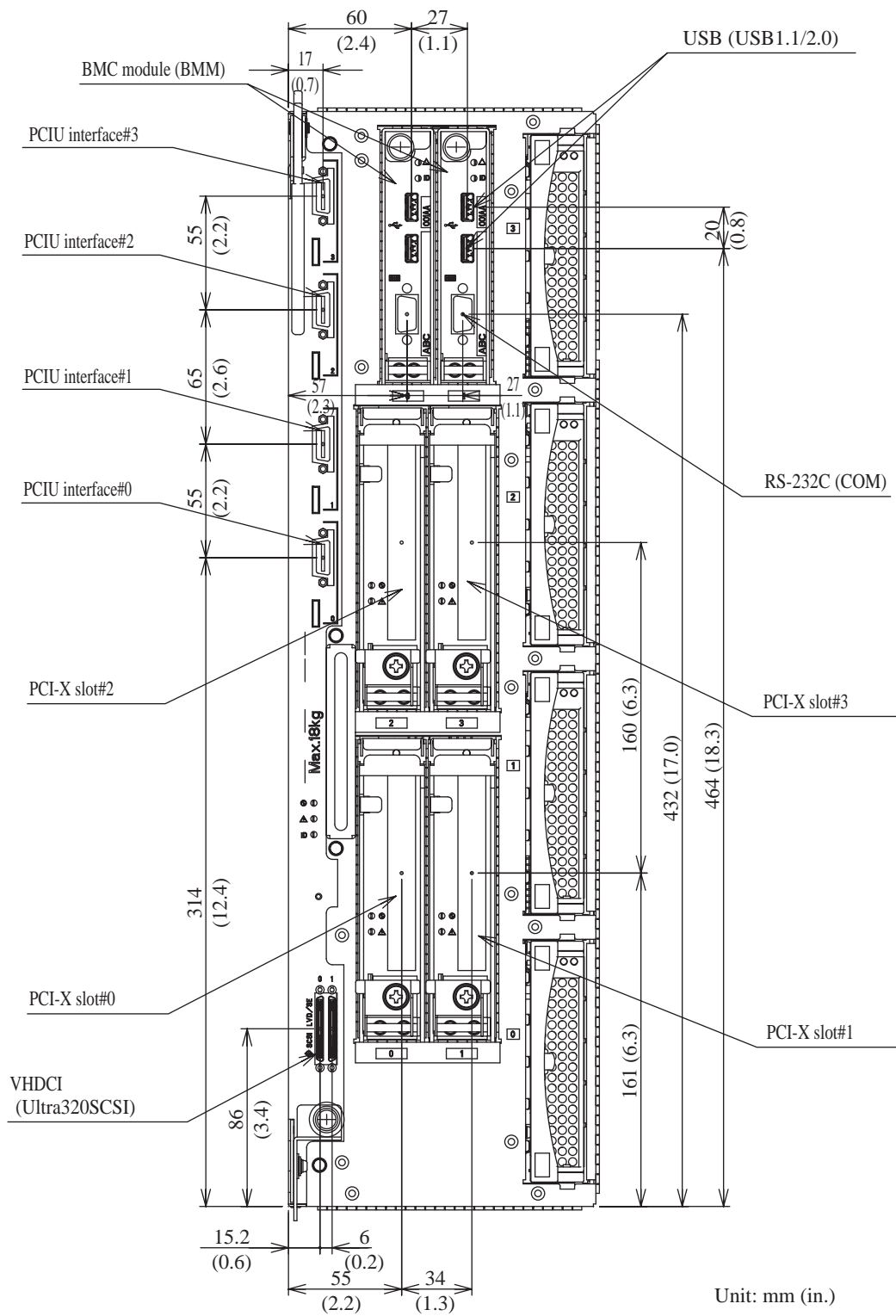
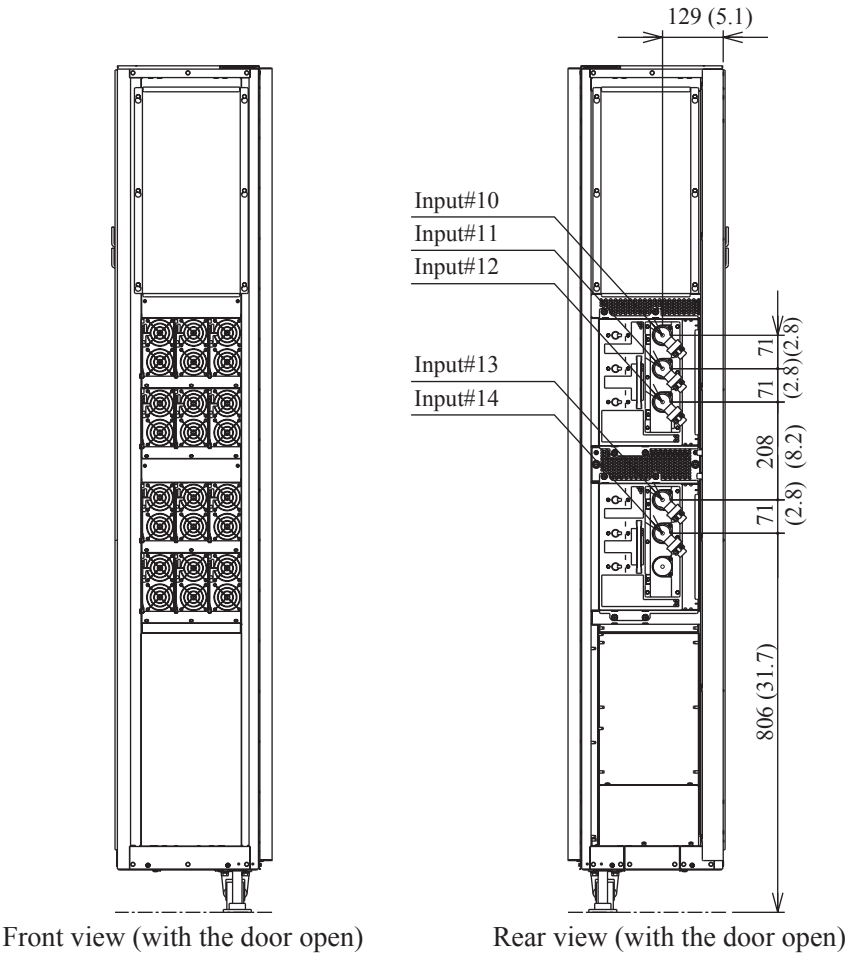


Figure 2.12 External interface ports in the IOUH

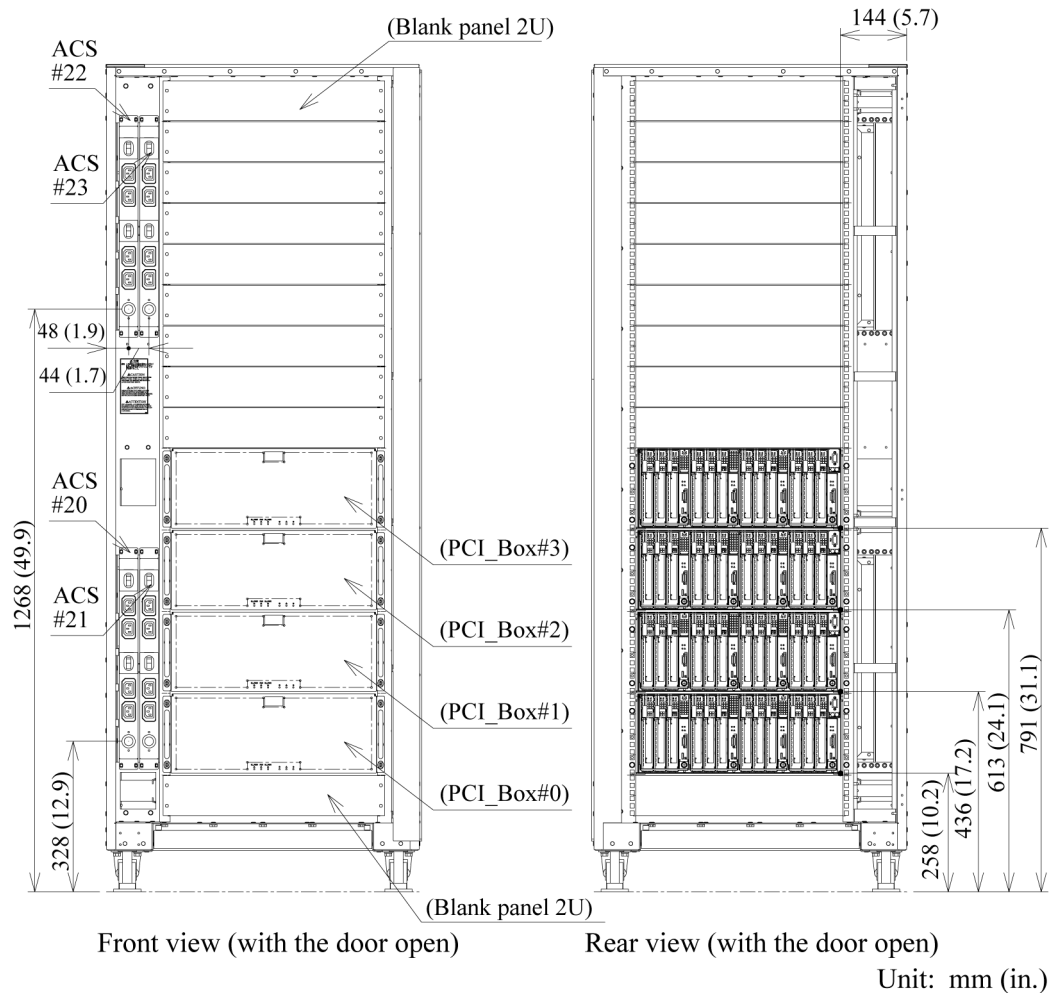
(4) Input cable connection ports in the Extended Power Cabinet



Unit: mm (in.)

Figure 2.13 Input cable connection ports in the Extended Power Cabinet

**(5) Input cable connection ports in the Extended I/O Cabinet  
(connected to PRIMEQUEST 540A/540/440 unit)**

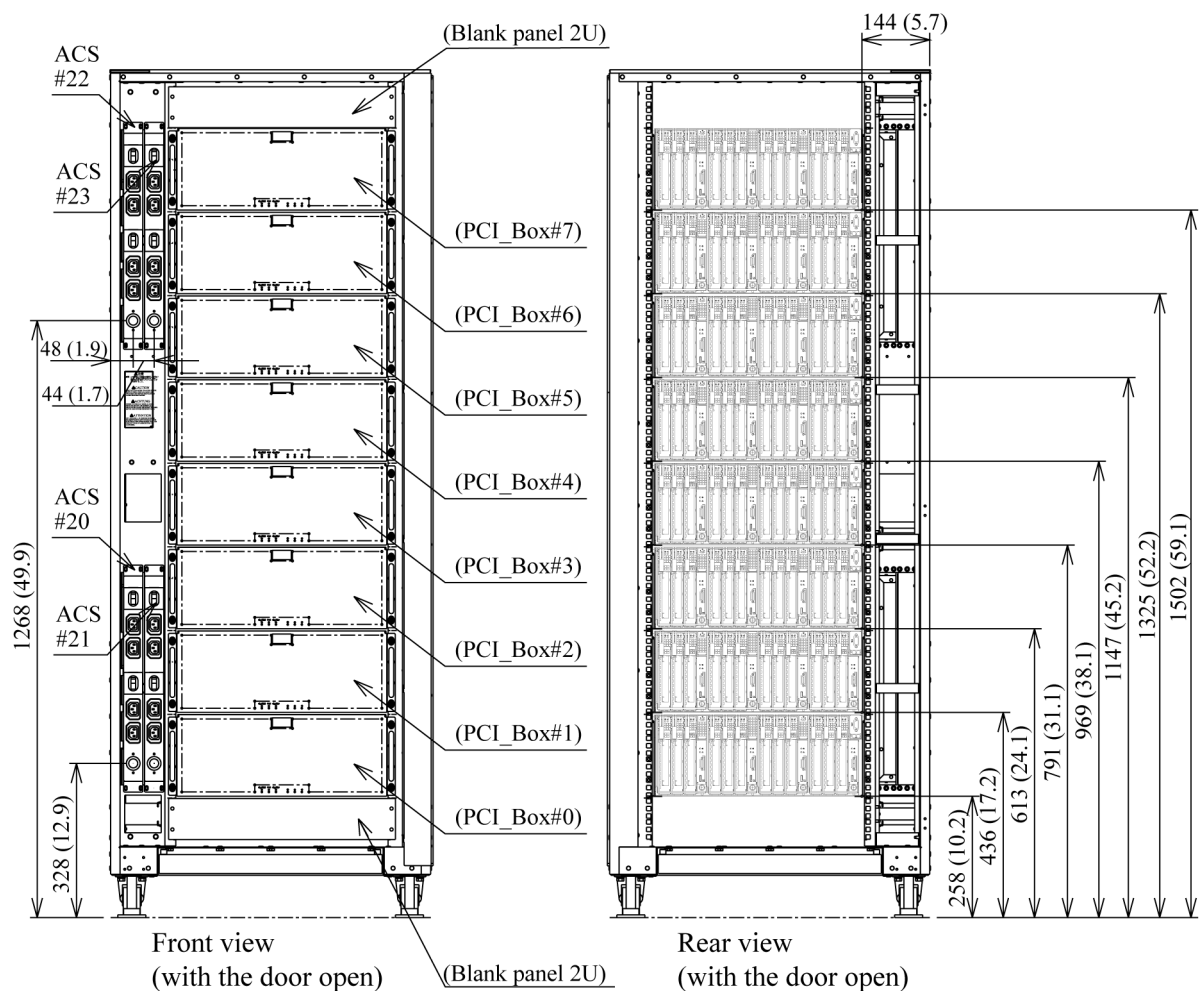


**Notes:**

1. The 2U space at the bottom of the cabinet is required for use as cable processing space. Keep this space open. Do not mount any PCI\_Box in it.
2. A blank panel is installed where a PCI\_Box is not mounted. If a PCI\_Box has not been added here, be sure to keep the blank panel installed to ensure normal cooling of the other PCI\_Boxes.

**Figure 2.14 Input cable connection ports in the Extended I/O Cabinet  
(connected to PRIMEQUEST 540A/540/440 unit)**

## (6) Input cable connection ports in the Extended I/O Cabinet (connected to PRIMEQUEST 580A/580/480 unit)



Unit: mm (in.)

### Notes:

1. The 2U space at the bottom of the cabinet is required for use as cable processing space. Keep this space open. Do not mount any PCI\_Box in it.
2. A blank panel is installed where a PCI\_Box is not mounted. If a PCI\_Box has not been added here, be sure to keep the blank panel installed to ensure normal cooling of the other PCI\_Boxes.

Figure 2.15 Input cable connection ports in the Extended I/O Cabinet (connected to PRIMEQUEST 580A/580/480 unit)

## (7) External interface ports in the PCI\_Box

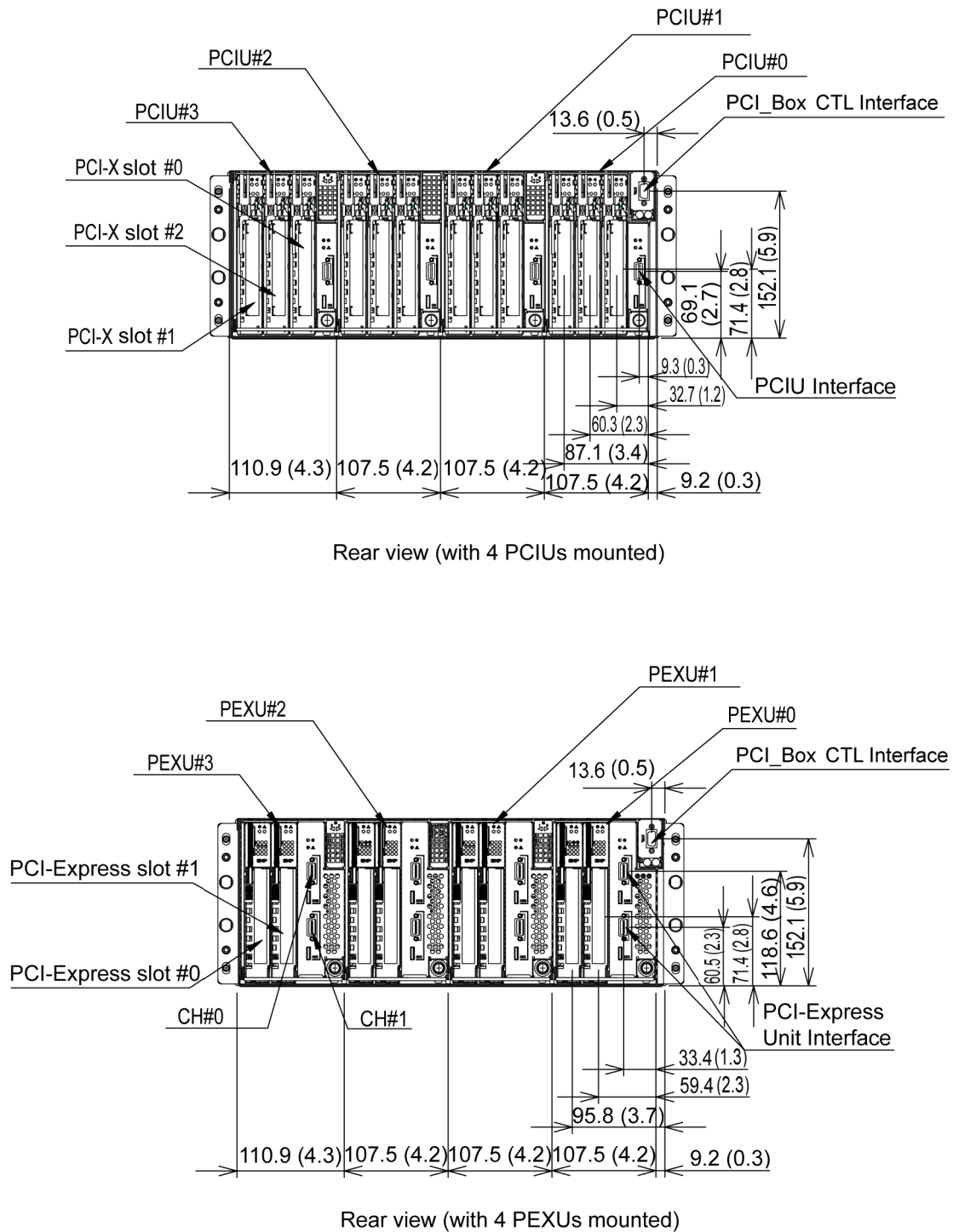


Figure 2.16 External interface ports in the PCI\_Box

## 2.3 Power Cable Connections

This section provides diagrams of the input power circuit connection for the PRIMEQUEST 580A/540A/580/540/480/440 and the PCI\_Box.

- [Input power system diagram for the PRIMEQUEST 540A/540/440 \(Section 2.3.1\)](#)
- [Input power system diagram for the PRIMEQUEST 580A/580/480 \(Section 2.3.2\)](#)
- [Input power system diagram for the Extended I/O Cabinet and the PCI\\_Box \(Section 2.3.3\)](#)

Remarks: In model names, a is any digit from 1 to 9 or any letter from A to Z, while x is any letter from A to Z or blank.

### 2.3.1 Input power system diagram for the PRIMEQUEST 540A/540/440

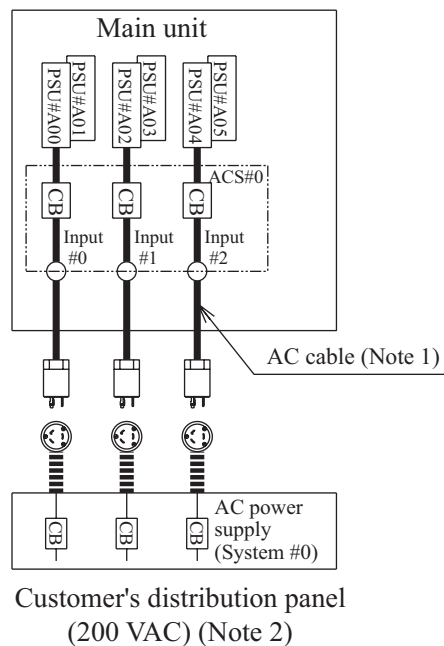
The figures in this section show the input power system diagrams for the PRIMEQUEST 540A/540/440.

- [Standard configuration \(including single power feed system and redundant power supply unit\) \(Figure 2.17\)](#)
- [Dual power feed configuration \(Figure 2.19\)](#)

#### (1) Standard configuration (including single power feed system and redundant power supply unit)

This section shows the input power system and PSU locations in the standard PRIMEQUEST 540A/540/440 configuration (including a single power feed option and redundant power supply unit).

##### a) Input power system diagram



CB: Circuit Breaker

Note1: Connect the AC cables of this unit to their counterparts on the power distribution board on a one-to-one basis.

Note2: For information about the circuit breakers on the customer's distribution panel, see [Section 2.6, "Circuit Breaker Characteristics."](#)

Figure 2.17 Input power system diagram for the PRIMEQUEST 540A/540/440 (standard configuration)

## b) PSU locations

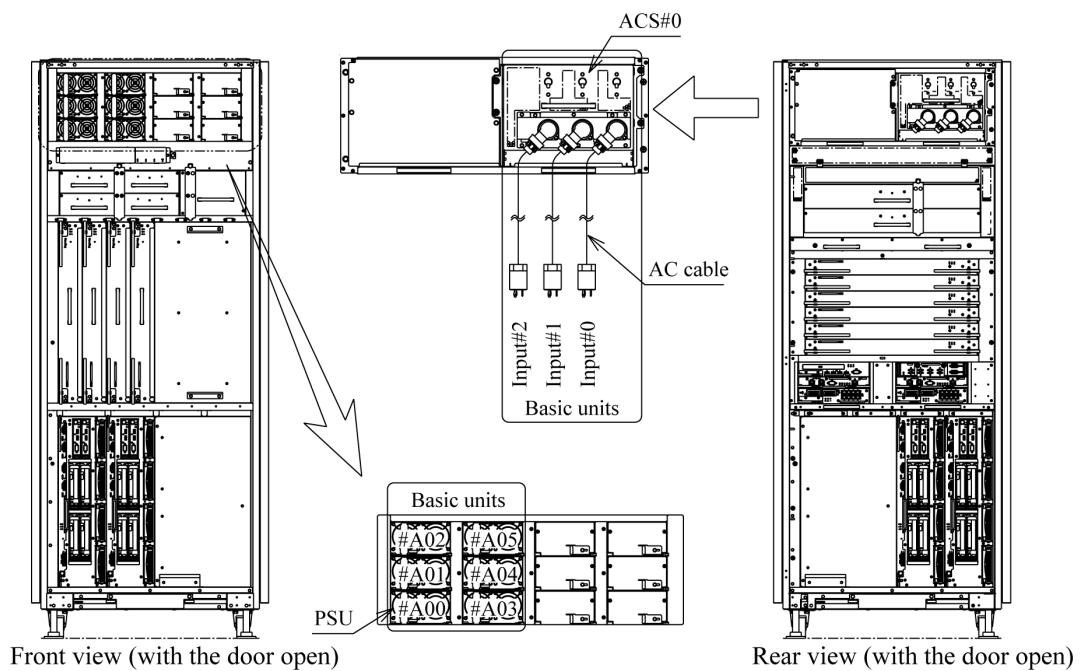


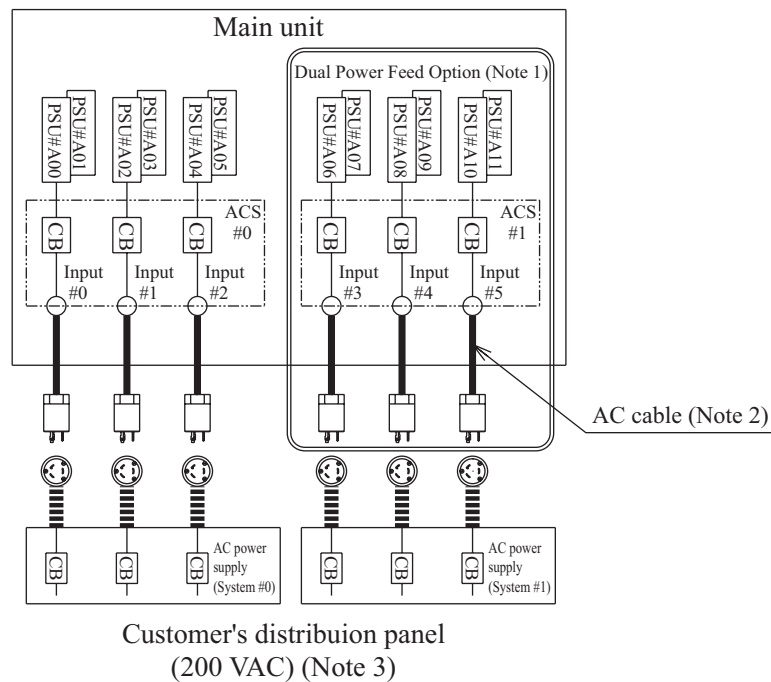
Figure 2.18 PSU locations in the standard PRIMEQUEST 540A/540/440 configuration (including a single power feed option and redundant power supply unit)



## (2) Dual power feed configuration

This section shows the input power system and PSU locations in the PRIMEQUEST 540A/540/440 containing a Dual Power Feed Option.

### a) Input power system diagram



CB: Circuit Breaker

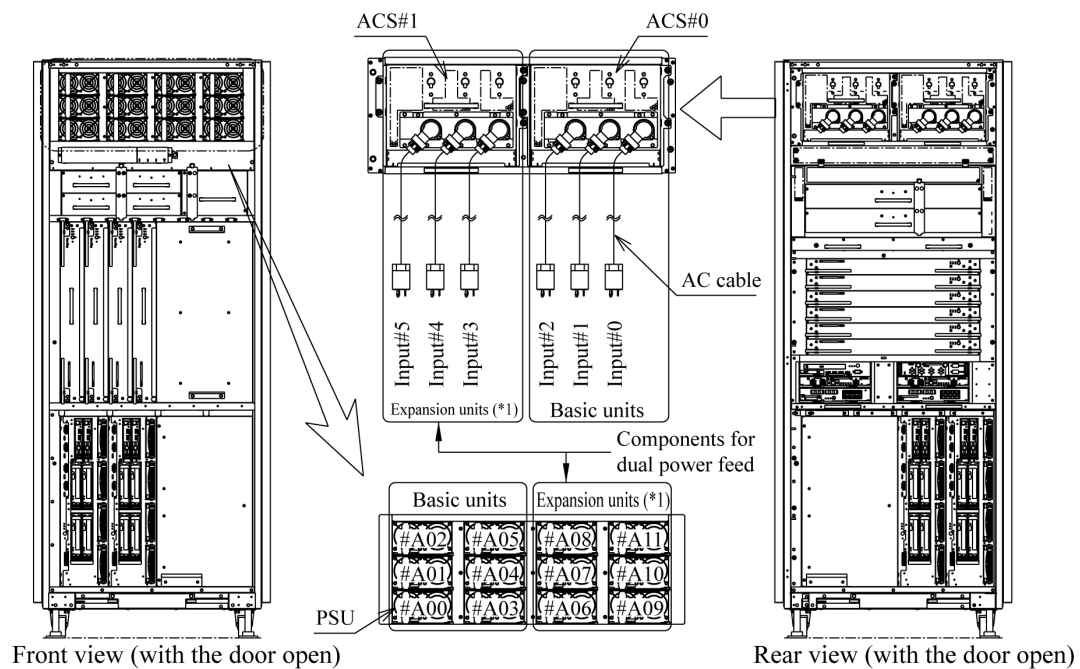
Note1: To implement a dual power feed configuration, purchase the MC-57DPa1x, a Dual Power Feed Option.

Note2: Connect the AC cables of this unit to their counterparts on the power distribution board on a one-to-one basis.

Note3: For information about the circuit breakers on the customer's distribution panel, see [Section 2.6, "Circuit Breaker Characteristics."](#)

Figure 2.19 Input power system diagram for the PRIMEQUEST 540A/540/440 (dual power feed configuration)

## b) PSU locations



\*1: To implement a dual power feed configuration, purchase the MC-47DPa1x, a Dual Power Feed Option.

Figure 2.20 PSU locations in the PRIMEQUEST 540A/540/440 with a Dual Power Feed Option

### 2.3.2 Input power system diagram for the PRIMEQUEST 580A/580/480

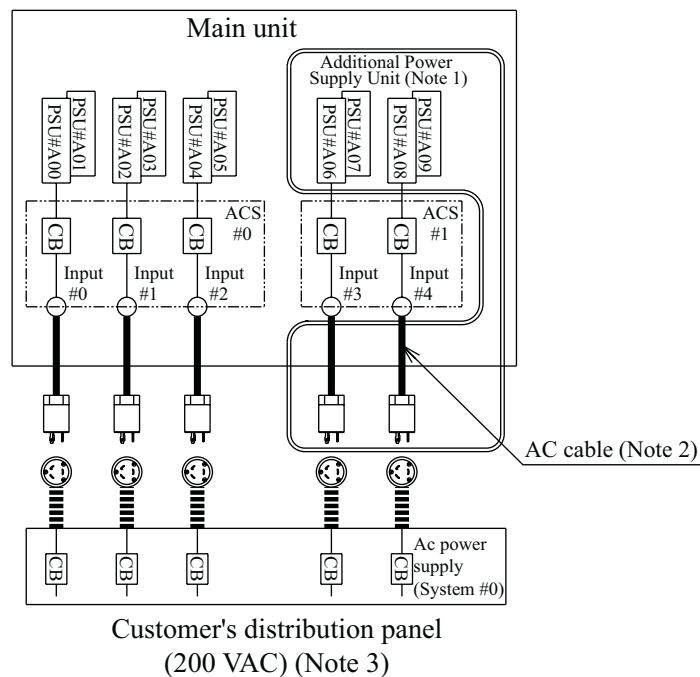
The figures in this section show the input power system diagrams for the PRIMEQUEST 580A/580/480.

- Standard configuration (including single power feed system and redundant power supply unit) (Figure 2.21)
- Dual power feed configuration (Figure 2.23)

#### (1) Standard configuration (including single power feed system and redundant power supply unit)

This section shows the input power system and PSU locations in the standard PRIMEQUEST 580A/580/480 configuration (including a single power feed option and redundant power supply unit).

## a) Input power system diagram



CB: Circuit breaker

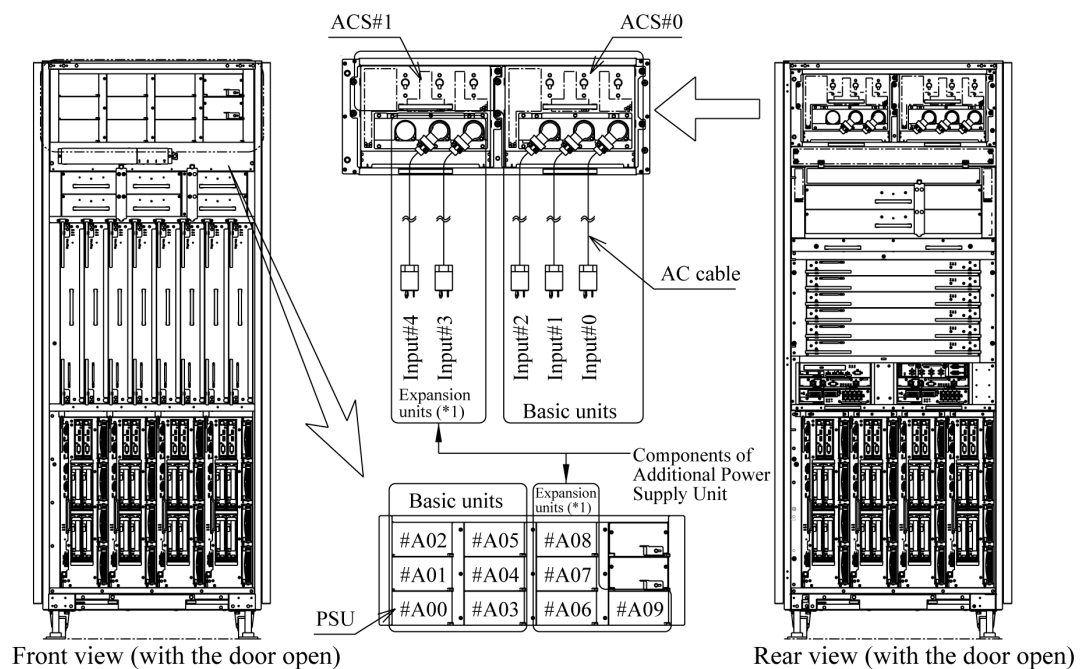
Note1: If five or more system boards or five or more IO Units are to be mounted, the MC-57PSa1x Additional Power Supply Unit needs to be prepared. When an Additional Power Supply Unit is not mounted, a dummy component is mounted in the relevant slot.

Note2: Connect the AC cables of this unit to their counterparts on the power distribution board on a one-to-one basis.

Note3: For information about the circuit breakers on the customer's distribution panel, see [Section 2.6, "Circuit Breaker Characteristics."](#)

Figure 2.21 Input power system diagram for the PRIMEQUEST 580A/580/480 (standard configuration)

## b) PSU locations



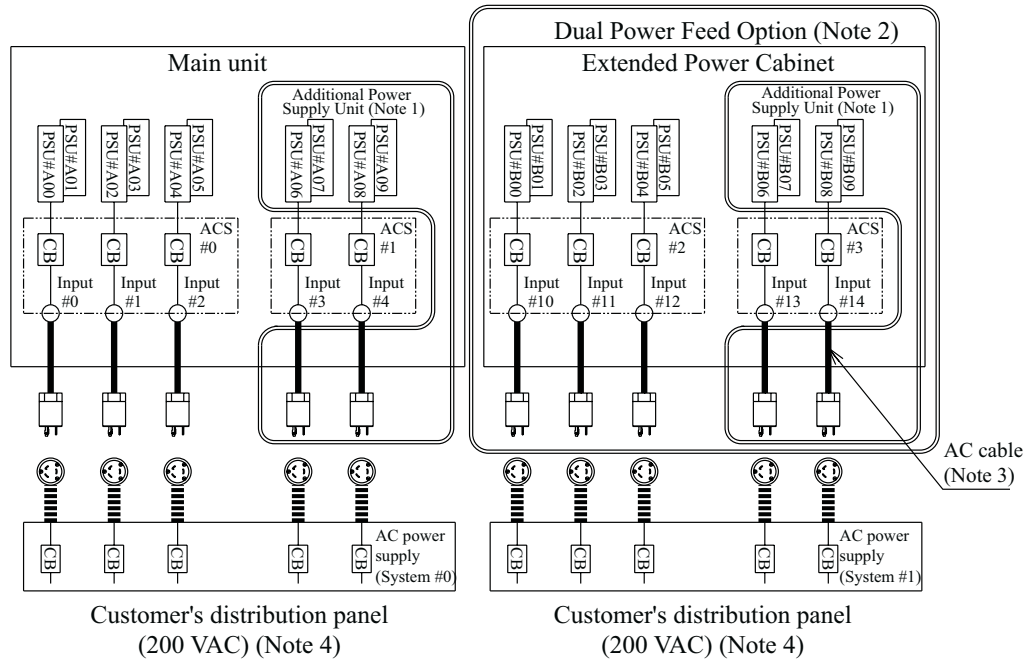
- \*1 If five or more system boards or five or more IO Units are to be mounted, the MC-57PSa1x, Additional Power Supply Unit needs to be prepared. When an Additional Power Supply Unit is not mounted, a dummy component is mounted in the relevant slot.

Figure 2.22 PSU locations in the standard PRIMEQUEST 580A/580/480 configuration (including a single power feed option and redundant power supply unit)

## (2) Dual power feed configuration

This section shows the input power system and PSU locations in the PRIMEQUEST 580A/580/480 containing a Dual Power Feed Option.

### a) Input power system diagram



CB: Circuit breaker

Note1: If five or more system boards or five or more IO Units are to be mounted, two sets of the MC-57PSa1x Additional Power Supply Units need to be prepared.

When this option has not been prepared, a dummy component is mounted in the relevant slot.

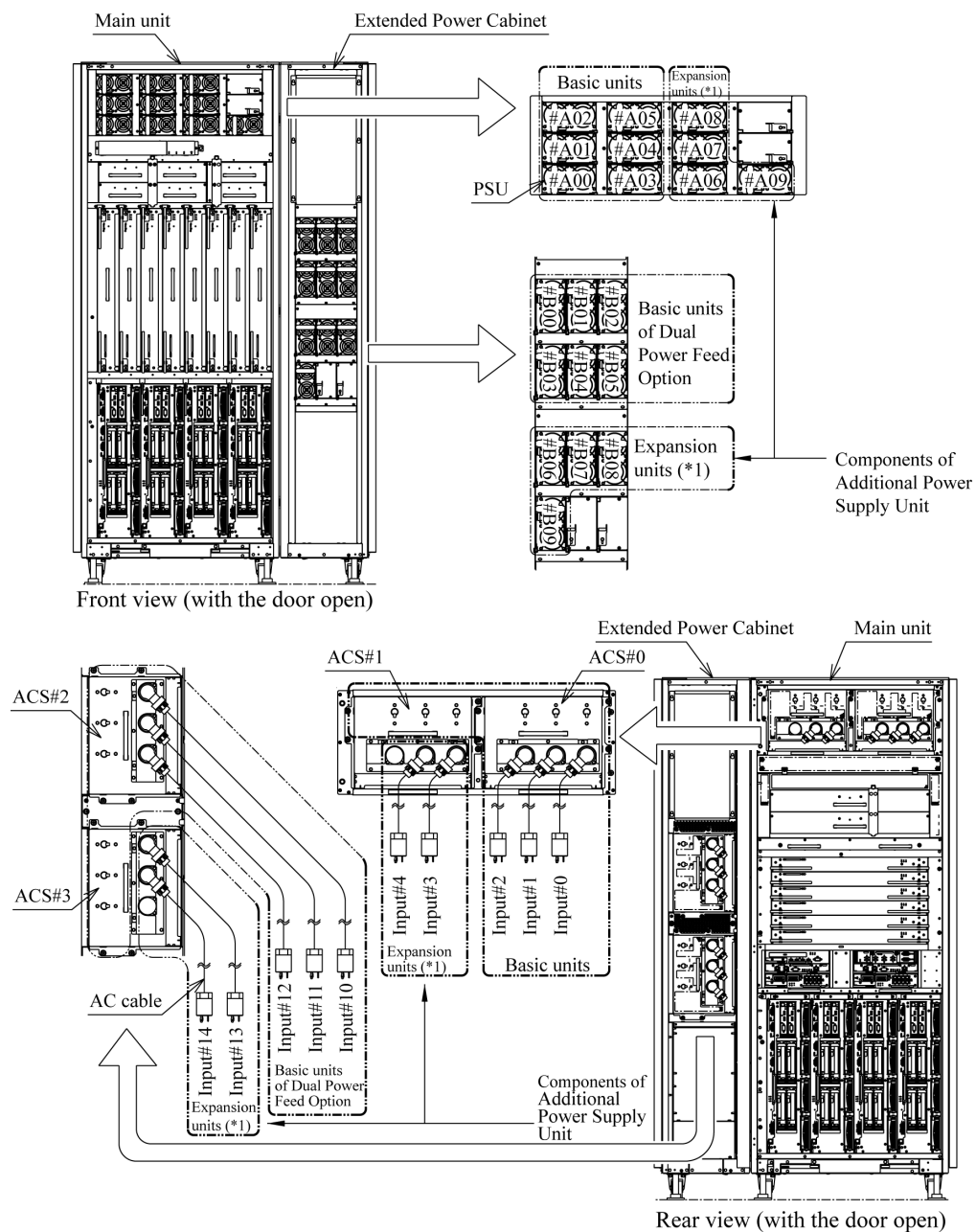
Note2: If dual power feed is used, the MC-57DPA1x Dual Power Feed Option needs to be prepared.

Note3: Connect the AC cables of this unit to their counterparts on the power distribution board on a one-to-one basis.

Note4: For information about the circuit breakers on the customer's distribution panel, see [Section 2.6, "Circuit Breaker Characteristics."](#)

Figure 2.23 Input power system diagram for the PRIMEQUEST 580A/580/480 and Extended Power Cabinet (dual power feed configuration)

## b) PSU locations



- \*1 If five or more system boards or five or more IO Units are to be mounted, two sets of the MC-57PSa1x Additional Power Supply Units need to be prepared.
- When Additional Power Supply Units are not mounted, dummy components are mounted in the relevant slots.

Figure 2.24 PSU locations in the PRIMEQUEST 580A/580/480 with a Dual Power Feed Option

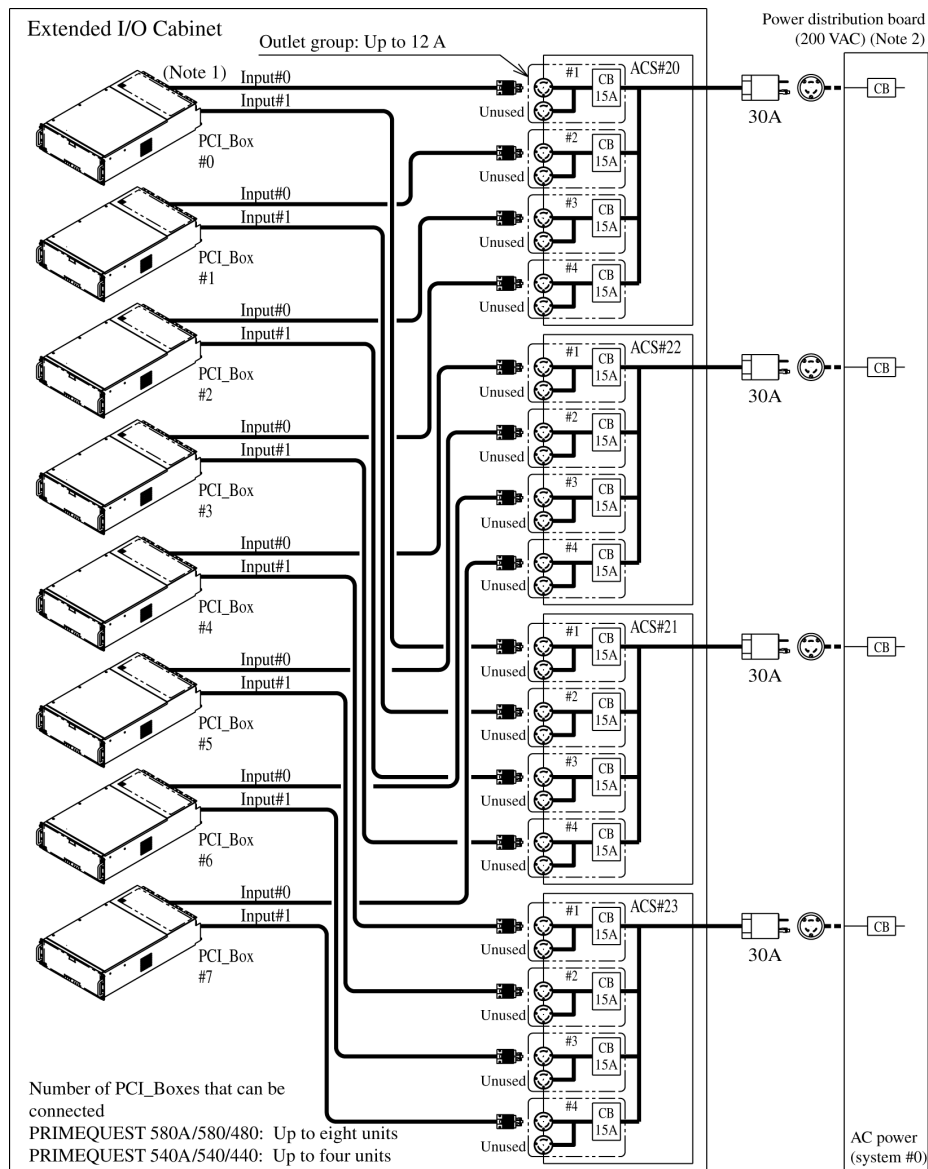
### 2.3.3 Input power system diagram for the Extended I/O Cabinet and the PCI\_Box

The figures in this section show the input power system diagrams for the PCI\_Box.

- [Input power system diagram of PCI\\_Boxes in a single power feed configuration \(including a redundant PSU\) for use in Japan \(Figure 2.25\)](#)
- [Input power system diagram of PCI\\_Boxes in a dual power feed configuration for use in Japan \(Figure 2.26\)](#)
- [Input power system diagram of PCI\\_Boxes in a single power feed configuration \(including a redundant PSU\) for use outside Japan \(general\) \(Figure 2.27\)](#)
- [Input power system diagram of PCI\\_Boxes in a dual power feed configuration for use outside Japan \(general\) \(Figure 2.28\)](#)
- [Input power system diagram of PCI\\_Boxes in a single power feed configuration \(including a redundant PSU\) for use in Europe \(Figure 2.29\)](#)
- [Input power system diagram of PCI\\_Boxes in a dual power feed configuration for use in Europe \(Figure 2.30\)](#)

# (1) Single power feed for use in Japan (including a redundant power supply unit)

Figure 2.25 shows the input power system diagram of PCI\_Boxes in a single power feed configuration (including a redundant PSU) for use in Japan.



CB: Circuit Breaker

Note1: For high reliability of the redundant configuration, connect Input #0 and Input #1 of each PCI\_Box to different ACSs.

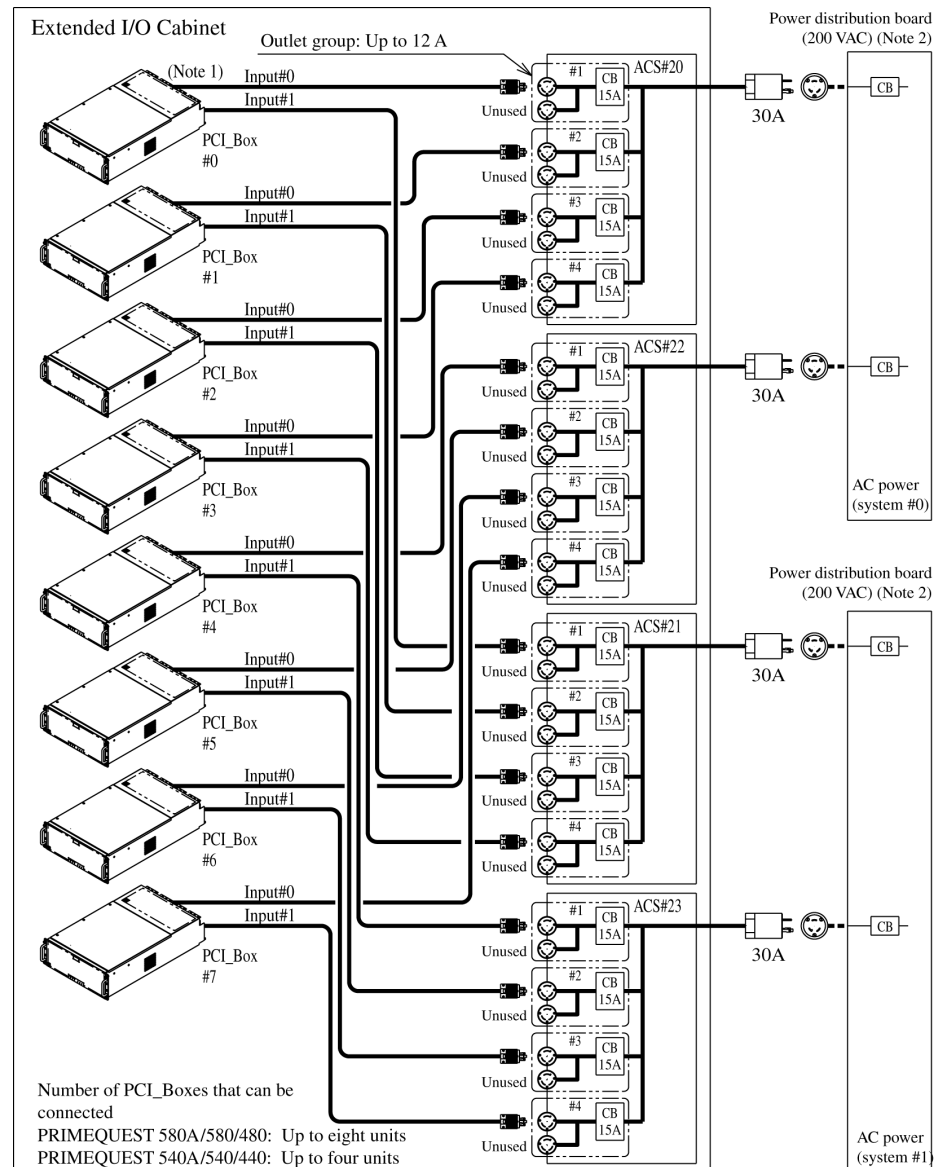
Note2: For information about the circuit breakers on the customer's distribution panel, see [Section 2.6, "Circuit Breaker Characteristics."](#)

Figure 2.25 Input power system diagram of PCI\_Boxes in a single power feed configuration (including a redundant PSU) for use in Japan



## (2) Dual power feed for use in Japan

Figure 2.26 shows an input power system diagram of PCI\_Boxes in a dual power feed configuration for use in Japan.



CB:      Circuit Breaker

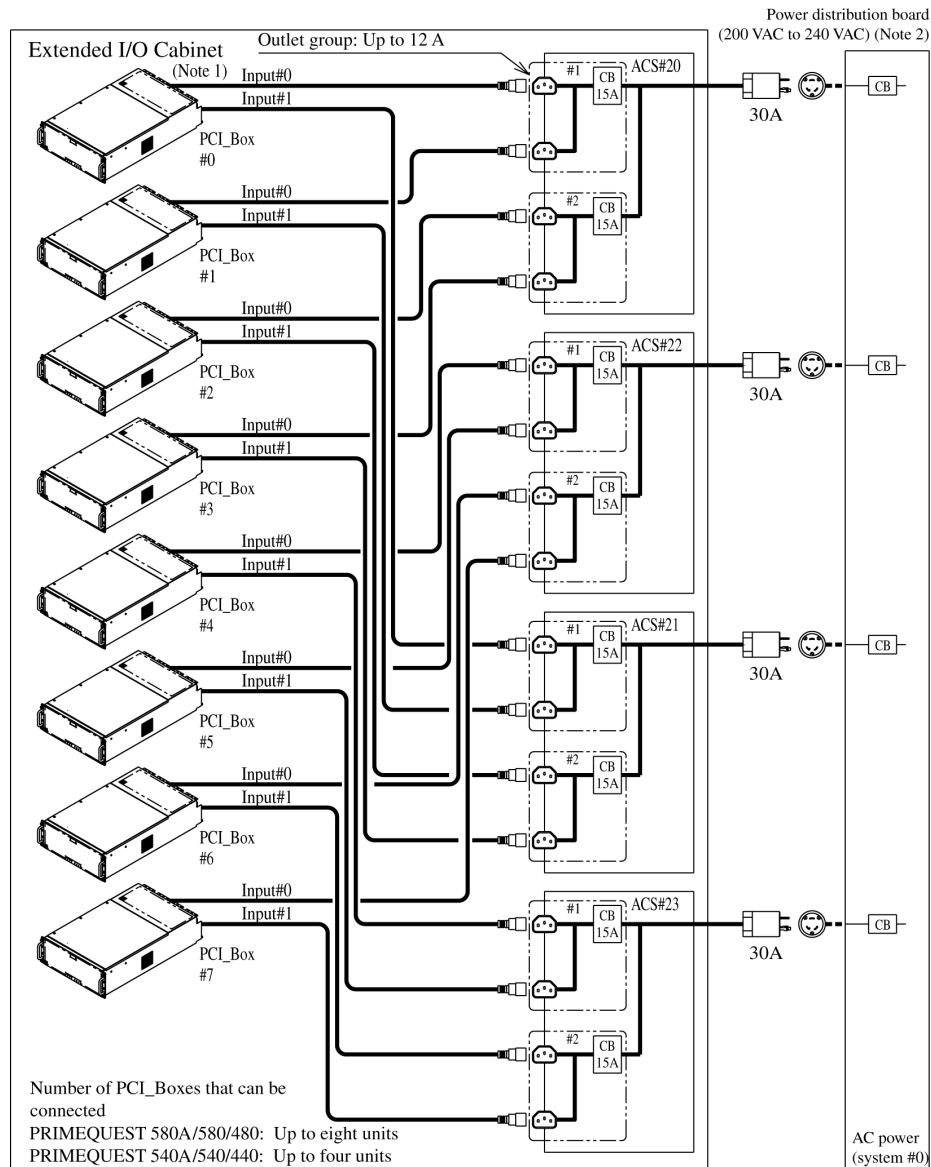
Note1: For high reliability of the redundant configuration, connect Input #0 and Input #1 of each PCI Box to the ACSs on the different system.

Note2: For information about the circuit breakers on the customer's distribution panel, see [Section 2.6, "Circuit Breaker Characteristics."](#)

Figure 2.26 Input power system diagram of PCI\_Boxes in a dual power feed configuration for use in Japan

### (3) Single power feed (including a redundant PSU) for use outside Japan (general)

Figure 2.27 shows the input power system diagram of PCI\_Boxes in a single power feed configuration (including a redundant PSU) for use outside Japan (general).



CB: Circuit Breaker

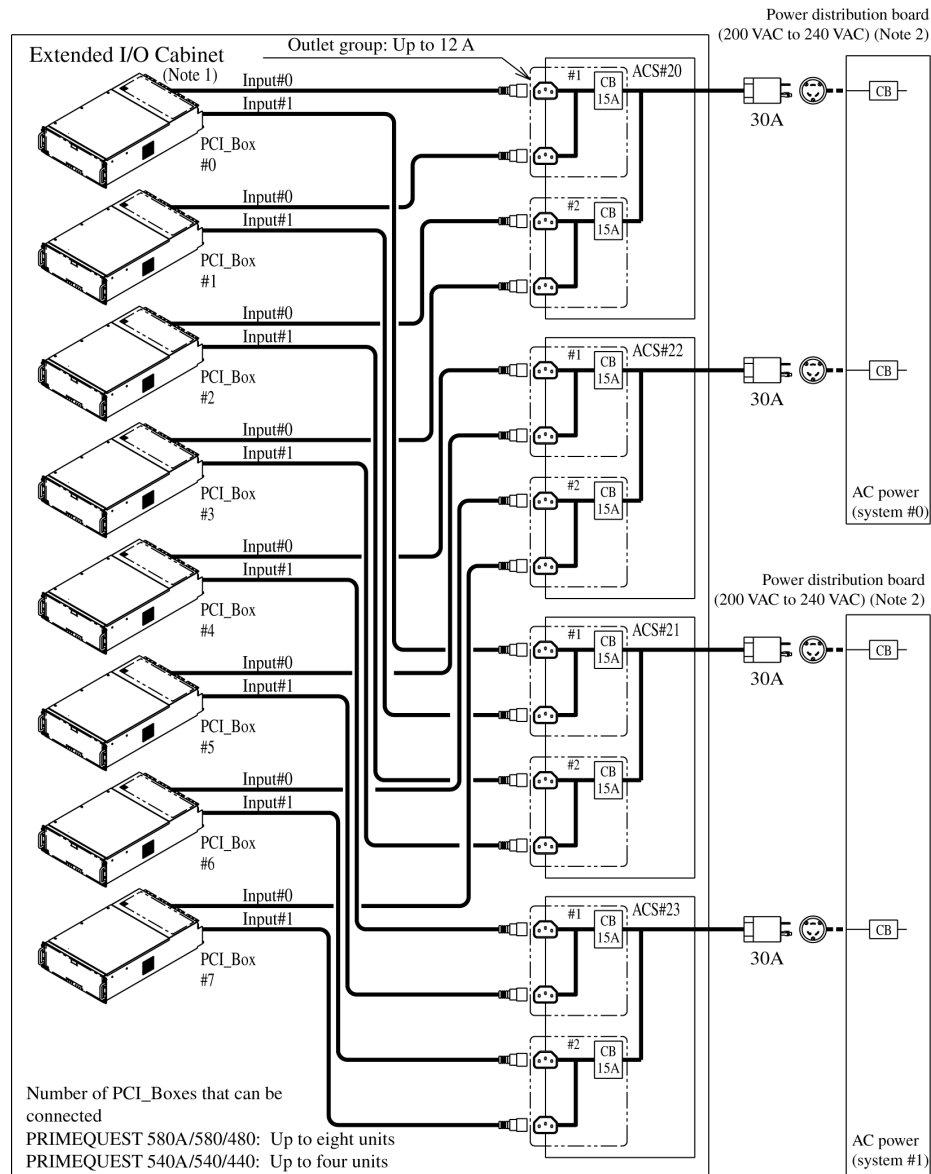
Note1: For high reliability of the redundant configuration, connect Input #0 and Input #1 of each PCI\_Box to different ACSs.

Note2: For information about the circuit breakers on the customer's distribution panel, see [Section 2.6, "Circuit Breaker Characteristics."](#)

Figure 2.27 Input power system diagram of PCI\_Boxes in a single power feed configuration (including a redundant PSU) for use outside Japan (general)

#### (4) Dual power feed for use outside Japan (general)

Figure 2.28 shows the input power system diagram of PCI\_Boxes in a dual power feed configuration for use outside Japan (general).



CB: Circuit Breaker

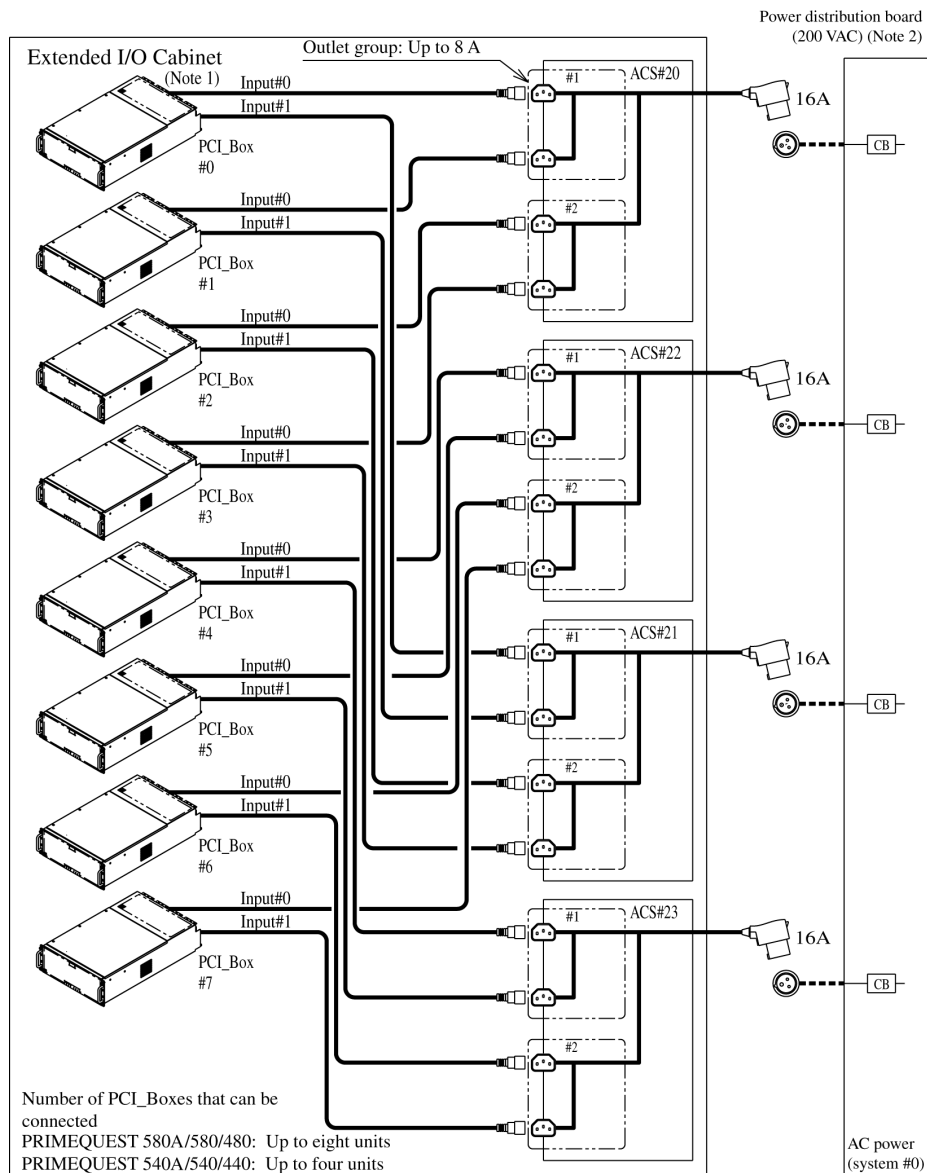
Note1: For high reliability of the redundant configuration, connect Input #0 and Input #1 of each PCI\_Box to the ACSs on the different system.

Note2: For information about the circuit breakers on the customer's distribution panel, see [Section 2.6, "Circuit Breaker Characteristics."](#)

Figure 2.28 Input power system diagram of PCI\_Boxes in a dual power feed configuration for use outside Japan (general)

### (5) Single power feed (including a redundant PSU) for use in Europe

Figure 2.29 shows the input power system diagram of PCI\_Boxes in a single power feed configuration (including a redundant PSU) for use in Europe.



CB: Circuit Breaker

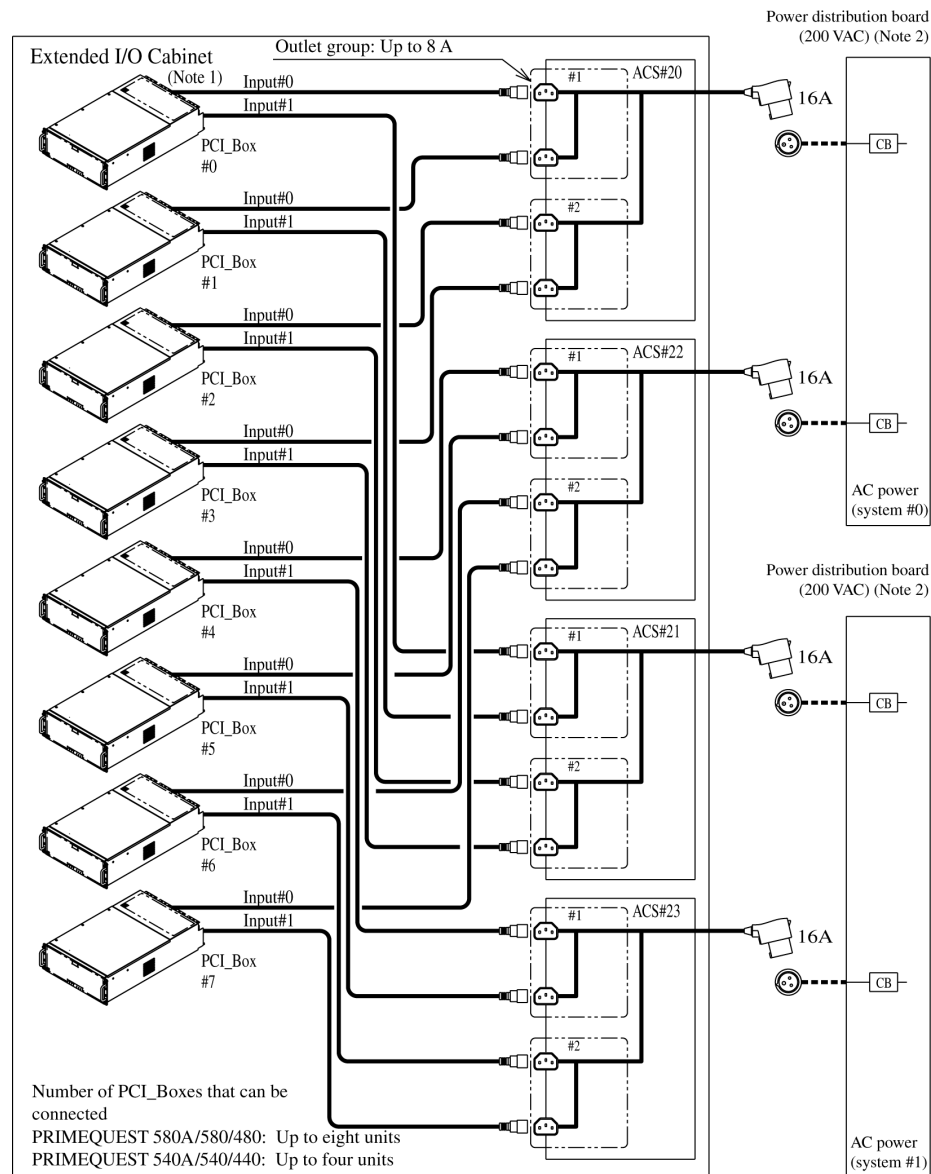
Note1: For high reliability of the redundant configuration, connect Input #0 and Input #1 of each PCI\_Box to different ACSs.

Note2: For information about the circuit breakers on the customer's distribution panel, see [Section 2.6, "Circuit Breaker Characteristics."](#)

Figure 2.29 Input power system diagram of PCI\_Boxes in a single power feed configuration (including a redundant PSU) for use in Europe

## (6) Dual power feed for use in Europe

Figure 2.30 shows the input power system diagram of PCI\_Boxes in a dual power feed configuration for use in Europe.



CB: Circuit Breaker

Note1: For high reliability of the redundant configuration, connect Input #0 and Input #1 of each PCI\_Box to the ACSs on the different system.

Note2: For information about the circuit breakers on the customer's distribution panel, see [Section 2.6, "Circuit Breaker Characteristics."](#)

Figure 2.30 Input power system diagram of PCI\_Boxes in a dual power feed configuration for use in Europe

## 2.4 Input Power Supply Unit Connections




The following table lists the connection specifications for the input power supply unit.

- [PRIMEQUEST 580A/540A/580/540/480/440 main unit \(Section 2.4.1\)](#)
- [Cables between PCI\\_Box and ACS in the Extended I/O Cabinet \(Section 2.4.2\)](#)
- [Cables between ACS in the Extended I/O Cabinet and power distribution board \(Section 2.4.3\)](#)

### 2.4.1 PRIMEQUEST 580A/540A/580/540/480/440 main unit

[Table 2.3](#) lists the specifications for connecting the input power supply unit to the PRIMEQUEST 580A/540A/580/540/480/440 main unit.

Table 2.3 AC cable specifications for the PRIMEQUEST 580A/540A/580/540/480/440 main unit

Destination	Plug type	Remarks
JAPAN	Two-prong hook-type plug with grounding electrode (250V30A) NEMA standard name: L6-30P	Power-receiving outlets must be available. Two-prong hook-type receptacle with grounding electrode (250V30A) NEMA L6-30R Embedded type: 3320-L6 (American Denki) Exposed type: 3321-L6 (American Denki) 
Outside Japan (general)	NEMA L6-30P	NEMA L6-30R (only for North America) 30A-220 VAC 
Europe	IEC60309 (32A)	IEC60309 (32A) 

Note: Use the supplied accessory AC cable to connect the main unit. Do not use the accessory AC cable for other products.

## 2.4.2 Cables between PCI\_Box and ACS in the Extended I/O Cabinet

Table 2.4 lists the specifications of the AC cables used between a PCI\_Box and the ACS in the Extended I/O Cabinet.

Table 2.4 Specifications of the AC cables used between a PCI\_Box and ACS in the Extended I/O Cabinet



Destination	Plug type	Remarks
Japan	Two-prong twist-lock plug with grounding electrode (250V30A) NEMA standard name: L6-15P	
Outside Japan (including Europe)	Covered 3-pin plug (for power distribution box connection)	

Note: Use the supplied accessory AC cable to connect the main unit. Do not use the accessory AC cable for other products.

### 2.4.3 Cables between ACS in the Extended I/O Cabinet and power distribution board

Table 2.5 lists the specifications of the AC cables between the ACS in the Extended I/O Cabinet and the power distribution board.

Table 2.5 Specifications of the AC cables between ACS in the Extended I/O Cabinet and power distribution board

Destination	Plug type	Remarks
Japan	Two-prong twist-lock plug with grounding electrode (250V30A) NEMA standard name: L6-30P	Prepare the following power-receiving outlets: Outlet for two-prong twist-lock plug with grounding electrode (250V30A) [NEMA L6-30R] Embedded type: 3320-L6 (American Denki) Exposed type: 3321-L6 (American Denki) 
Outside Japan (general)	NEMA standard name: L6-30P	NEMA L6-30R (for North America only) 30A, 220 VAC 

Note: Use the supplied accessory AC cable to connect the main unit. Do not use the accessory AC cable for other products.

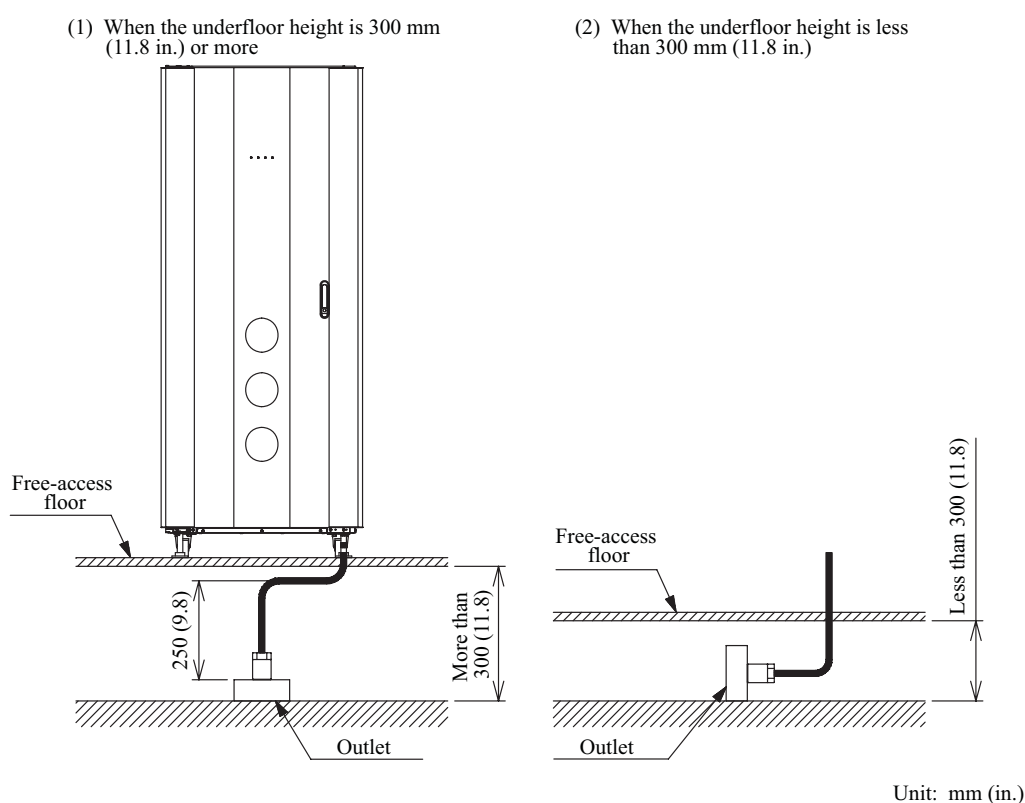


## 2.5 AC Cable Connection under a Free-Access Floor (Only for Use inside Japan and General Use outside Japan)

If AC cables are connected to the main unit, Extended I/O Cabinet, Extended Power Cabinet, or Dual Power Feed Option under a free-access floor, Fujitsu recommends that the underfloor height be 300 mm (11.8 in.) or more in consideration of the shape of the AC cable connector, cable bending radius (see [Figure 2.31](#) (1)).

However, if the underfloor height is less than 300 mm (11.8 in.), place outlets sideways (see [Figure 2.31](#) (2)).

The AC cables of the main unit, Extended Power Cabinet, and Extended I/O Cabinet ACS each can be drawn about 2.5 m (9.8 in.) from the bottom of the unit. Prepare an outlet near the unit by considering this pull-out length.



Remark 1: In this figure, the main unit is shown as an example.

Remark 2: Values in ( ) are in inches.

Figure 2.31 AC cable connection under a free-access floor (only for use inside Japan and general use outside Japan)

## 2.6 Circuit Breaker Characteristics

This section describes the circuit breaker characteristics.

### (1) For customers in Japan

Table 2.6 lists the requirements for the circuit breakers. Figure 2.32 shows the characteristics of the circuit breakers.

Table 2.6 Requirements for circuit breakers in customers' distribution panels installed in Japan

Main unit (PRIMEQUEST 580A/540A/580/540/480/440 base cabinet) Extended Power Cabinet	PCI_Box
The breaking capacity must be 30 A or greater. The tripping time must be equal to or slower than the characteristics shown in Figure 2.32.	The breaking capacity must be 20 A or greater. The tripping time must be equal to or slower than the characteristics shown in Figure 2.32.

**IMPORTANT**

- ▶ If breakers other than those specified above are used, they may be tripped at the occurrence of a device-internal short circuit, which in turn may cause the entire device to shut down. This may occur even if a PSU is present that provides a redundant configuration.

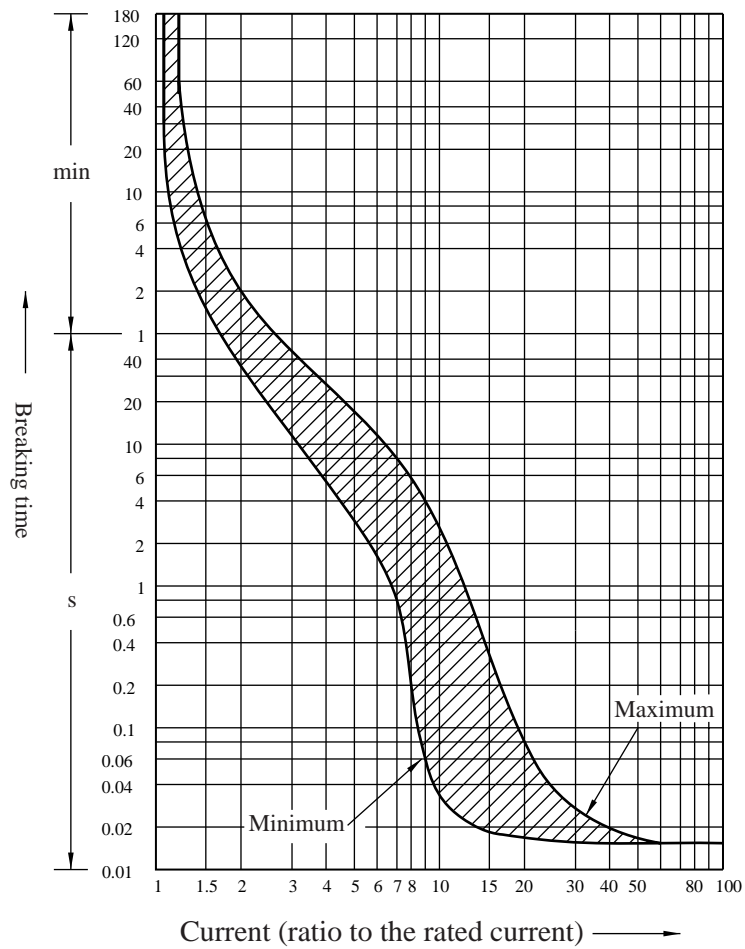


Figure 2.32 Characteristics of circuit breakers in customers' distribution panels installed in Japan

(2) For customers outside Japan

Table 2.7 lists the requirements for the circuit breakers. Figure 2.33 shows the characteristics of such circuit breakers.

Table 2.7 Requirements for circuit breakers in customers' distribution panels installed outside Japan

Main unit (PRIMEQUEST 580A/540A/580/540/480/440 base cabinet) Extended Power Cabinet	PCI_Box
The breaking capacity must be 32 A or greater. The tripping time must be equal to or slower than the "D" characteristics (IEC898 or DIN0641 Part II) shown in Figure 2.33.	The breaking capacity must be 16 A or greater. The tripping time must be equal to or slower than "C" or "D" characteristics (IEC898 or DIN 0641 Part II) shown in Figure 2.33.

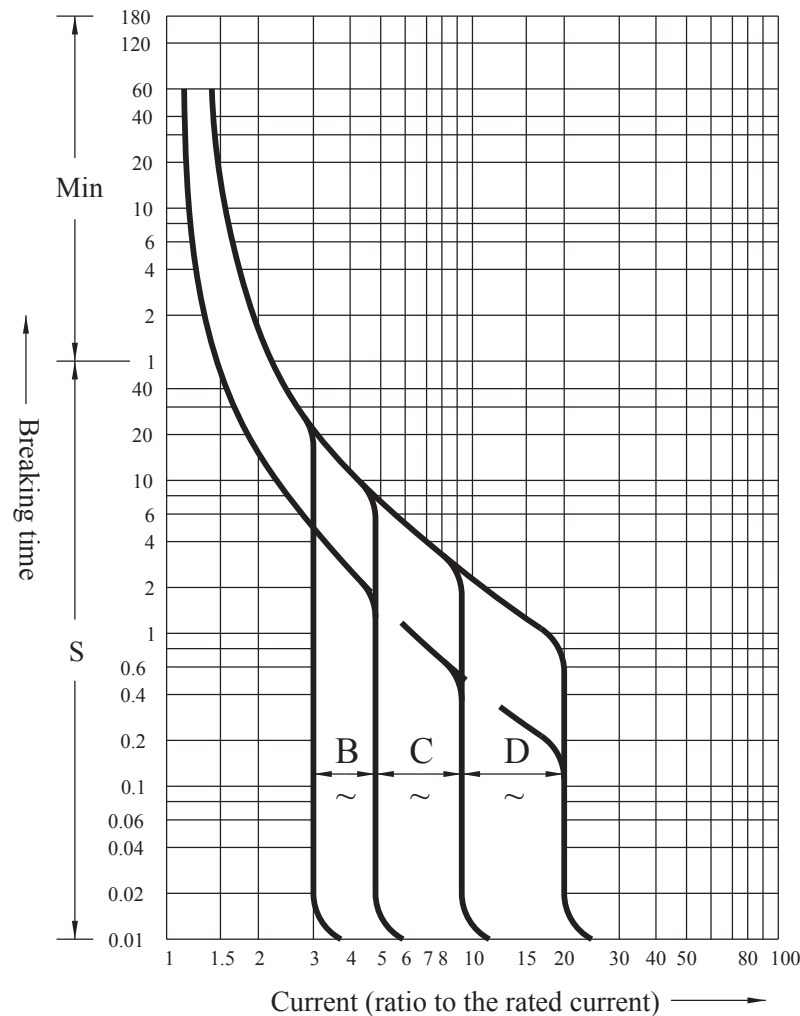


Figure 2.33 Characteristics of circuit breakers in customers' distribution panels installed outside Japan

# CHAPTER 3 Precautions Pertaining to Delivery and Installation

This chapter contains precautions regarding delivery and installation of the equipment.

## 3.1 Elevator Load Requirements

The equipment is wider than a typical server system. To load this equipment on an elevator, you may need to remove side panels and/or doors. Before loading equipment mounted on an expansion rack onto an elevator, see the elevator load requirements listed in [Table 3.1](#). In this table, dimensions are stated in units of mm (in), and weight is stated in units of kg (lb).

Table 3.1 Elevator load requirements

Elevator code	Load	Inside dimensions of cage			Effective doorway dimensions		PRIMEQUEST 580A/540A/580/540/480/440 main unit	Extended I/O Cabinet	Extended Power Cabinet	Main unit and Extended Power Cabinet
		Width	Depth	Height	Width	Height				
P-6-C0	400 (880)	1150 (45)	900 (35)	2300 (91)	800 (31)	2100 (83)	N	N	N	N
P-9-C0	600 (1320)	1400 (55)	1100 (43)	2300 (91)	800 (31)	2100 (83)	N	N	N	N
P-11-C0	750 (1650)	1400 (55)	1350 (53)	2300 (91)	800 (31)	2100 (83)	Y	Y	Y	N
P-13-C0	900 (1980)	1600 (63)	1350 (53)	2300 (91)	900 (35)	2100 (83)	Y	Y	Y	N
P-15-C0	1000 (2200)	1600 (63) 1800 (71)	1500 (59) 1300 (51)	2300 (91)	900 (35) 1000 (39)	2100 (83)	Y	Y	Y	N
P-17-C0	1150 (2530)	1800 (71) 2000 (79)	1500 (59) 1350 (53)	2300 (91)	1000 (39) 1100 (43)	2100 (83)	Y	Y	Y	Y (Note)
P-20-C0	1350 (2970)	1800 (71) 2000 (79)	1700 (67) 1500 (59)	2300 (91)	1000 (39) 1100 (43)	2100 (83)	Y	Y	Y	Y (Note)
P-24-C0	1600 (3520)	2000 (79) 2150 (85)	1750 (69) 1600 (63)	2300 (91)	1100 (43)	2100 (83)	Y	Y	Y	Y (Note)

Y: The equipment can be loaded.

N: The equipment cannot be loaded.

Note: These units can be loaded by removing the front and rear doors.

## 3.2 Earthquake Preparedness Measures

Earthquake preparedness measures are intended to prevent computers from falling over, to ensure the safety of operators, to prevent damage, and to enable the quick recovery of systems. Fujitsu has standardized the following techniques to prevent damage to computer systems resulting from an earthquake.

- **Seismic isolation:** Seismic isolation is provided by the seismic-isolation leveling feet to prevent the equipment from toppling over.
- **Securing techniques:** Techniques that secure the equipment in place prevent toppling by providing resistance to the force of an earthquake.

Select the appropriate technique depending on the following factors:

- Floor vibration levels at the location where the equipment is installed
- Whether or not a free-access floor is being used
- Structure of the equipment

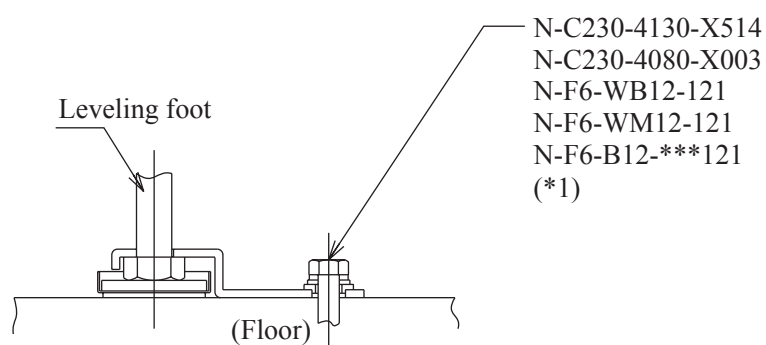
When selecting construction techniques for earthquake-preparedness measures and before starting construction work, contact Fujitsu's construction department.

### 3.2.1 Earthquake-proofing construction method

This section explains how to mount each unit by using the earthquake-proofing construction method.

#### (1) Anchoring to floor surfaces

Anchoring items need to be prepared separately to install the unit using this method.



\*1 Bolt length must be specified.

\*\*\* = Bolt length (mm)

The bolt length (mm) varies depending on the building structure. Consult with your Fujitsu engineer.

Figure 3.1 Earthquake-proofing construction method  
(anchoring on the floor surface)

## (2) Through-floor anchoring

Special leveling feet must be prepared separately to anchor a unit by using this anchoring method.

### **IMPORTANT**

- ▶ Each leveling foot of a unit must be replaced with F6-DA6G when it is bolted from the underside of the floor.

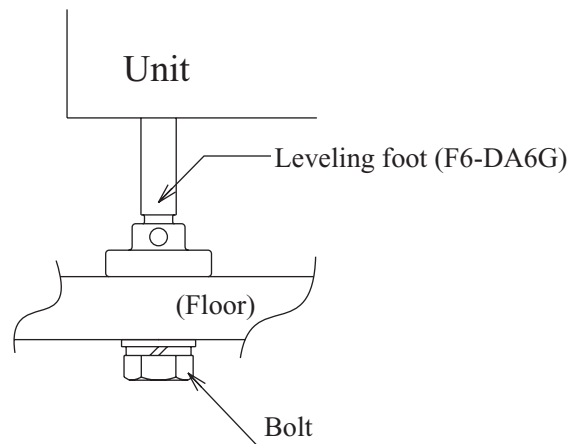


Figure 3.2 Earthquake-proofing construction method  
(through-floor anchoring)



### 3.2.2 Examples of installing units using earthquake-proofing construction methods

This section shows the locations of the anchoring elements used when installing units by using the earthquake-proofing construction method.

#### (1) Example of installing a PRIMEQUEST 580A/540A/580/540/480/440 system

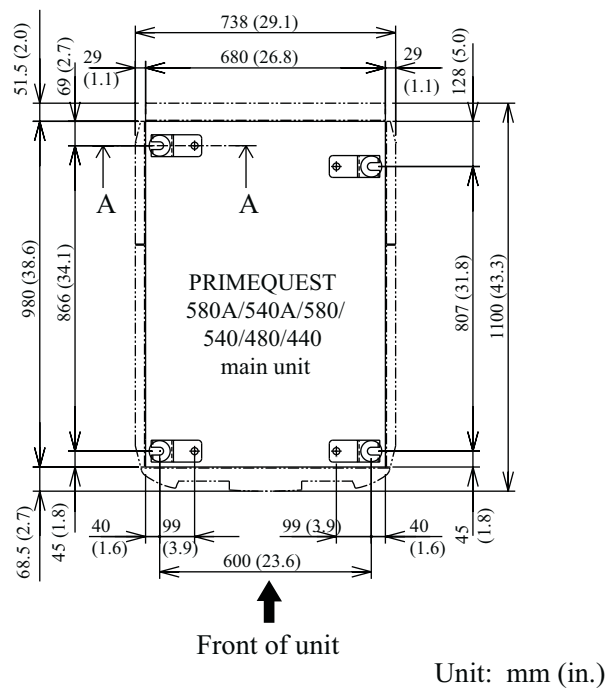


Figure 3.3 Example of installing a PRIMEQUEST 580A/540A/580/540/480/440 system by using the earthquake-proofing construction method

**(2) Example of installing the PRIMEQUEST 580A/540A/580/480 main unit with an Extended Power Cabinet**

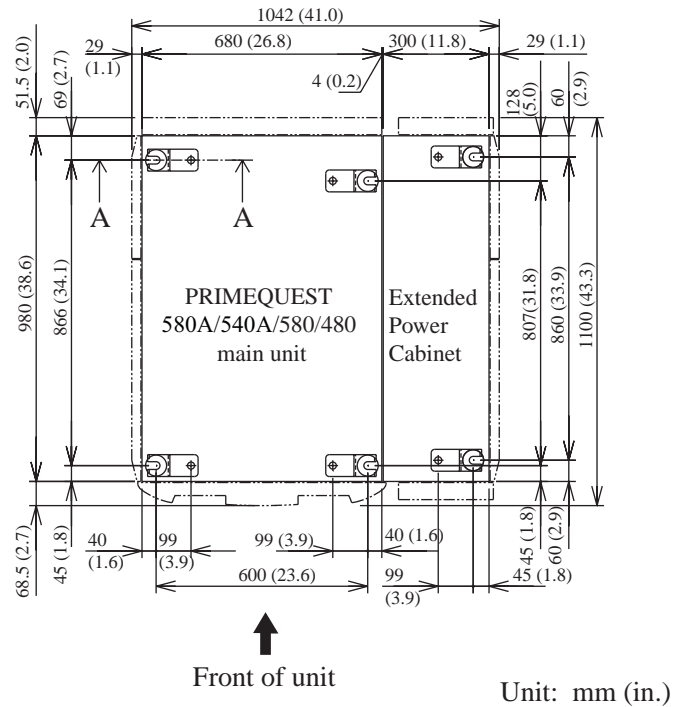


Figure 3.4 Example of installing a PRIMEQUEST 580A/540A/580/480 system with an Extended Power Cabinet by using the earthquake-proofing construction method

**(3) Example of installing the PRIMEQUEST 580A/540A/580/540/480/440 main unit with an Extended I/O Cabinet**

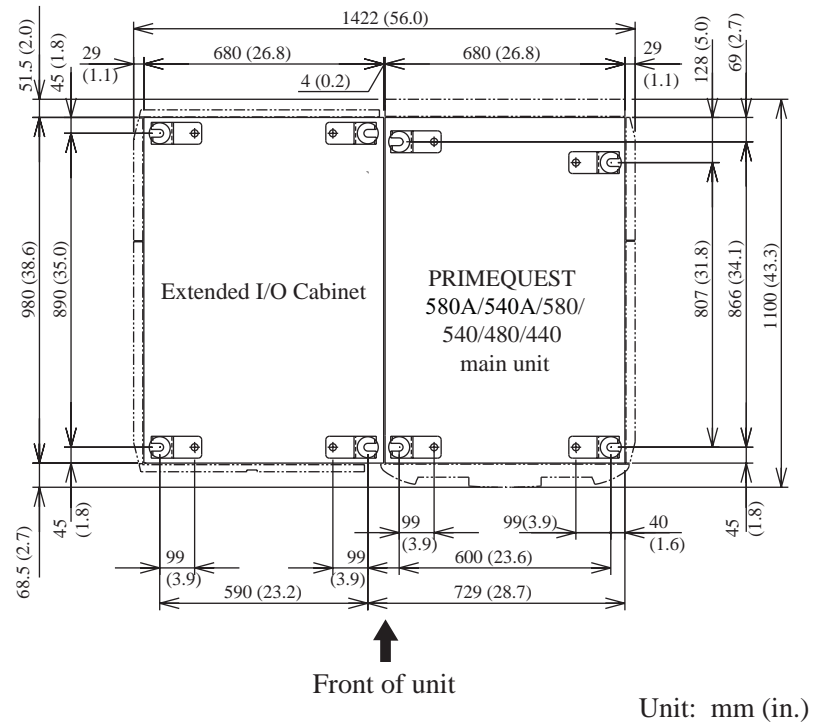


Figure 3.5 Example of installing a PRIMEQUEST 580A/540A/580/540/480/440 system with an Extended I/O Cabinet by using the earthquake-proofing construction method

**(4) Example of installing the PRIMEQUEST 580A/580/480 main unit with an Extended Power Cabinet and Extended I/O Cabinet**

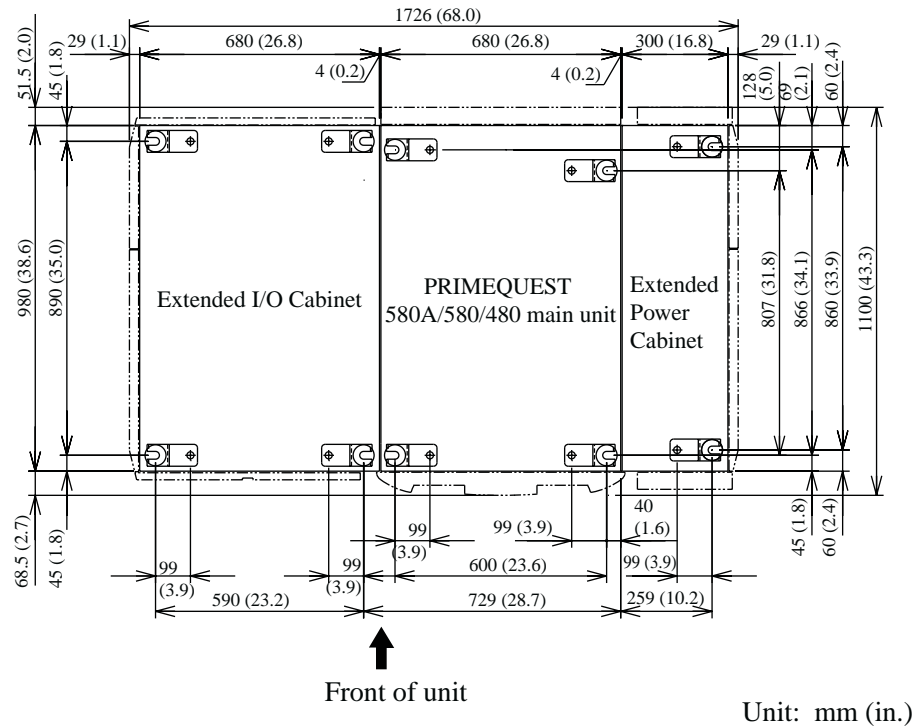


Figure 3.6 Example of installing a PRIMEQUEST 580A/580/480 system with an Extended Power Cabinet and Extended I/O Cabinet by using the earthquake-proofing construction method

### 3.2.3 Seismic isolation

This section explains installing units using seismic isolation.

When a unit is installed using seismic isolation, the leveling feet of the unit must be replaced with seismic-isolation leveling feet (CA82001-3000).

#### **IMPORTANT**

- ▶ If openings for cables or air conditioning are provided on the free-access floor, secure the following distances:
  - 1 105 mm (4.1 in.) or more from the center of a seismic-isolation leveling foot
  - 2 60 mm (2.4 in.) or more from the center of a caster

Figure 3.7 shows an example of opening on the free-access floor when a seismic-isolation leveling foot is used.

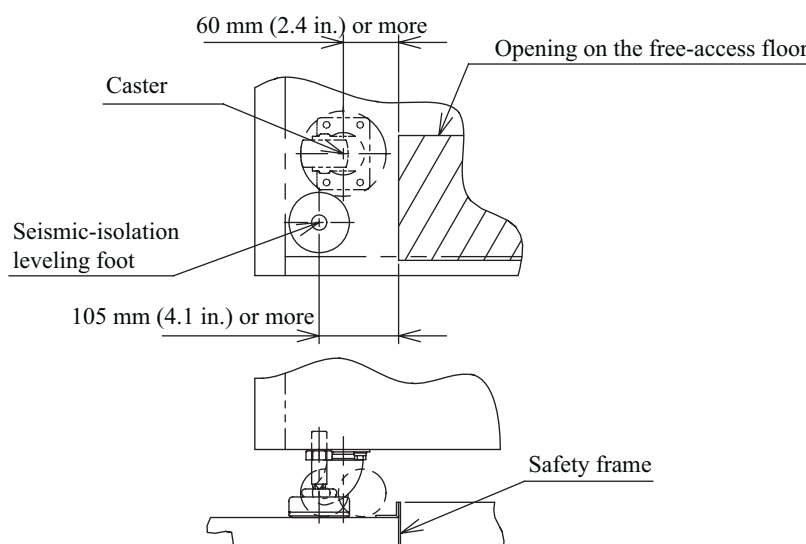


Figure 3.7 Opening on the free-access floor when a seismic-isolation leveling foot is used



# Acronyms & Abbreviations

## A

ACS AC Section

## C

CB Circuit Breaker  
CPU Central Processing Unit

## D

DLT Digital Linear Tape

## F

FC Fibre Channel

## I

IEC International Electrotechnical  
Commission

## L

LAN Local Area Network

## P

PCI Peripheral Component Interconnect  
PSU Power Supply Unit (AC to DC)

## S

SB System Board  
SCSI Small Computer System Interface

## U

UPS Uninterruptible Power Supply  
UTP Unshielded Twisted Pair

## V

VHDCI Very High Density Cable Interconnect

## W

WAN Wide Area Network





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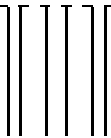
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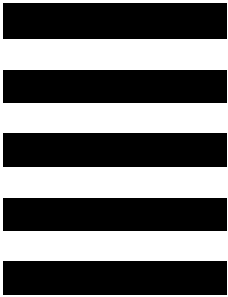


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