Power Systems

Managing the control panel functions

IBM

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IBM

This edition applies to IBM Power Systems™ servers that contain the POWER7 processor and to all associated models.

Contents

Safety notices

Safety notices may be printed throughout this guide:

- **DANGER** notices call attention to a situation that is potentially lethal or extremely hazardous to people.
- **CAUTION** notices call attention to a situation that is potentially hazardous to people because of some existing condition.
- **Attention** notices call attention to the possibility of damage to a program, device, system, or data.

World Trade safety information

Several countries require the safety information contained in product publications to be presented in their national languages. If this requirement applies to your country, safety information documentation is included in the publications package (such as in printed documentation, on DVD, or as part of the product) shipped with the product. The documentation contains the safety information in your national language with references to the U.S. English source. Before using a U.S. English publication to install, operate, or service this product, you must first become familiar with the related safety information documentation. You should also refer to the safety information documentation any time you do not clearly understand any safety information in the U.S. English publications.

Replacement or additional copies of safety information documentation can be obtained by calling the IBM Hotline at 1-800-300-8751.

German safety information

Das Produkt ist nicht für den Einsatz an Bildschirmarbeitsplätzen im Sinne § 2 der Bildschirmarbeitsverordnung geeignet.

Laser safety information

IBM® servers can use I/O cards or features that are fiber-optic based and that utilize lasers or LEDs.

Laser compliance

IBM servers may be installed inside or outside of an IT equipment rack.

DANGER

When working on or around the system, observe the following precautions:

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:
- Connect power to this unit only with the IBM provided power cord. Do not use the IBM provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
- Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.

   To Disconnect:
   1. Turn off everything (unless instructed otherwise).
   2. Remove the power cords from the outlets.
   3. Remove the signal cables from the connectors.
   4. Remove all cables from the devices.

   To Connect:
   1. Turn off everything (unless instructed otherwise).
   2. Attach all cables to the devices.
   3. Attach the signal cables to the connectors.
   4. Attach the power cords to the outlets.
   5. Turn on the devices.

   (D005)

DANGER

Observe the following precautions when working on or around your IT rack system:

- Heavy equipment–personal injury or equipment damage might result if mishandled.
- Always lower the leveling pads on the rack cabinet.
- Always install stabilizer brackets on the rack cabinet.
- To avoid hazardous conditions due to uneven mechanical loading, always install the heaviest devices in the bottom of the rack cabinet. Always install servers and optional devices starting from the bottom of the rack cabinet.
- Rack-mounted devices are not to be used as shelves or work spaces. Do not place objects on top of rack-mounted devices.

- Each rack cabinet might have more than one power cord. Be sure to disconnect all power cords in the rack cabinet when directed to disconnect power during servicing.
- Connect all devices installed in a rack cabinet to power devices installed in the same rack cabinet. Do not plug a power cord from a device installed in one rack cabinet into a power device installed in a different rack cabinet.
- An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

CAUTION

- Do not install a unit in a rack where the internal rack ambient temperatures will exceed the manufacturer's recommended ambient temperature for all your rack-mounted devices.
- Do not install a unit in a rack where the air flow is compromised. Ensure that air flow is not blocked or reduced on any side, front, or back of a unit used for air flow through the unit.
- Consideration should be given to the connection of the equipment to the supply circuit so that overloading of the circuits does not compromise the supply wiring or overcurrent protection. To provide the correct power connection to a rack, refer to the rating labels located on the equipment in the rack to determine the total power requirement of the supply circuit.
- *(For sliding drawers.)* Do not pull out or install any drawer or feature if the rack stabilizer brackets are not attached to the rack. Do not pull out more than one drawer at a time. The rack might become unstable if you pull out more than one drawer at a time.
- *(For fixed drawers.)* This drawer is a fixed drawer and must not be moved for servicing unless specified by the manufacturer. Attempting to move the drawer partially or completely out of the rack might cause the rack to become unstable or cause the drawer to fall out of the rack.

(R001)

CAUTION:
Removing components from the upper positions in the rack cabinet improves rack stability during relocation. Follow these general guidelines whenever you relocate a populated rack cabinet within a room or building:

- **Reduce the weight of the rack cabinet by removing equipment starting at the top of the rack cabinet. When possible, restore the rack cabinet to the configuration of the rack cabinet as you received it. If this configuration is not known, you must observe the following precautions:**
  - **Remove all devices in the 32U position and above.**
  - **Ensure that the heaviest devices are installed in the bottom of the rack cabinet.**
  - **Ensure that there are no empty U-levels between devices installed in the rack cabinet below the 32U level.**
- **If the rack cabinet you are relocating is part of a suite of rack cabinets, detach the rack cabinet from the suite.**
- **Inspect the route that you plan to take to eliminate potential hazards.**
- **Verify that the route that you choose can support the weight of the loaded rack cabinet. Refer to the documentation that comes with your rack cabinet for the weight of a loaded rack cabinet.**
- **Verify that all door openings are at least 760 x 230 mm (30 x 80 in.).**
- **Ensure that all devices, shelves, drawers, doors, and cables are secure.**
- **Ensure that the four leveling pads are raised to their highest position.**
- **Ensure that there is no stabilizer bracket installed on the rack cabinet during movement.**
- **Do not use a ramp inclined at more than 10 degrees.**
- **When the rack cabinet is in the new location, complete the following steps:**
  - **Lower the four leveling pads.**
  - **Install stabilizer brackets on the rack cabinet.**
  - **If you removed any devices from the rack cabinet, repopulate the rack cabinet from the lowest position to the highest position.**
- **If a long-distance relocation is required, restore the rack cabinet to the configuration of the rack cabinet as you received it. Pack the rack cabinet in the original packaging material, or equivalent. Also lower the leveling pads to raise the casters off of the pallet and bolt the rack cabinet to the pallet.**

(R002)

(L001)

(L002)

(L003)
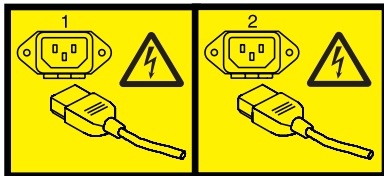
or

All lasers are certified in the U.S. to conform to the requirements of DHHS 21 CFR Subchapter J for class 1 laser products. Outside the U.S., they are certified to be in compliance with IEC 60825 as a class 1 laser product. Consult the label on each part for laser certification numbers and approval information.

CAUTION:
This product might contain one or more of the following devices: CD-ROM drive, DVD-ROM drive, DVD-RAM drive, or laser module, which are Class 1 laser products. Note the following information:
- **Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.**
- **Use of the controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.**

(C026)

CAUTION:
Data processing environments can contain equipment transmitting on system links with laser modules that operate at greater than Class 1 power levels. For this reason, never look into the end of an optical fiber cable or open receptacle. (C027)

CAUTION:
This product contains a Class 1M laser. Do not view directly with optical instruments. (C028)

CAUTION:
Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following information: laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam. (C030)

CAUTION:
The battery contains lithium. To avoid possible explosion, do not burn or charge the battery.

Do Not:
- ___ **Throw or immerse into water**
- ___ **Heat to more than 100°C (212°F)**
- ___ **Repair or disassemble**

Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call. (C003)

Power and cabling information for NEBS (Network Equipment-Building System) GR-1089-CORE

The following comments apply to the IBM servers that have been designated as conforming to NEBS (Network Equipment-Building System) GR-1089-CORE:

The equipment is suitable for installation in the following:
- Network telecommunications facilities
- Locations where the NEC (National Electrical Code) applies

The intrabuilding ports of this equipment are suitable for connection to intrabuilding or unexposed wiring or cabling only. The intrabuilding ports of this equipment *must not* be metallically connected to the interfaces that connect to the OSP (outside plant) or its wiring. These interfaces are designed for use as intrabuilding interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE) and require isolation from the exposed OSP cabling. The addition of primary protectors is not sufficient protection to connect these interfaces metallically to OSP wiring.

Note: All Ethernet cables must be shielded and grounded at both ends.

The ac-powered system does not require the use of an external surge protection device (SPD).

The dc-powered system employs an isolated DC return (DC-I) design. The DC battery return terminal *shall not* be connected to the chassis or frame ground.

Managing the control panel functions

Use the control panel functions to communicate with the server. Control panel functions range in complexity from functions that display status (such as initial program load (IPL) speed) to service functions that only service representatives must access.

Control panel concepts

Learn about the control panel functions, IPL modes and values, and other concepts.

Physical control panel

The physical control panel is your initial interface with the server. You can use the physical control panel to perform functions such as IPL, power on, and power off.
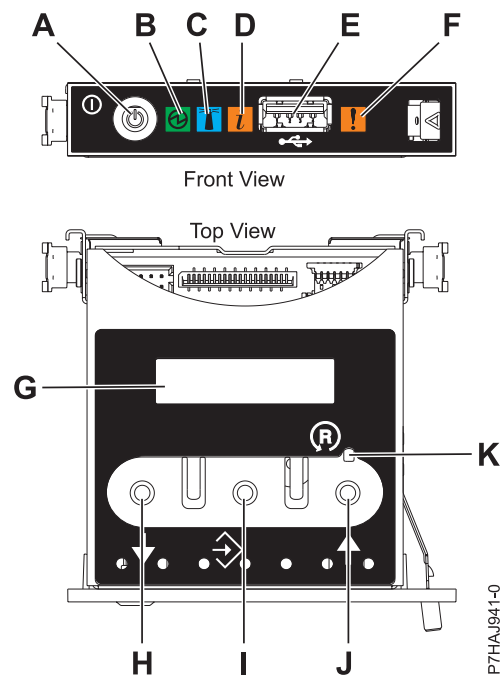
Figure 1. Control panel for the 8233-E8B

- **A**: Power-on button
- **B**: Power LED
    - A constant light indicates full system power to the unit.
    - A blinking light indicates standby power to the unit.

    Note: There is approximately a 30-second transition period from the time the power-on button is pressed to when the power LED goes from blinking to solid. During the transition period, the blinking intervals might speed up.
- **C**: Enclosure identify light
    - A constant light indicates the identify state, which is used to identify a part.
    - No light indicates that the system is operating normally.
- **D**: Attention light

- – No light indicates that the system is operating normally.
- – A blinking light indicates that the system requires attention.
- **E**: USB port
- **F**: Enclosure fault roll-up light
  - – A constant light indicates a fault in the system.
  - – No light indicates that the system is operating normally.
- **G**: Function/Data display
- **H**: Decrement button
- **I**: Enter button
- **J**: Increment button
- **K**: Pinhole reset button

Accessing the control panel functions using the physical control panel

The control panel functions correspond to function numbers on the control panel.

To activate a control panel function, do the following:

1. Select a function number by pressing the Increment (↑) or Decrement (↓) button on the control panel.
2. To activate the function, press Enter on the control panel.

Putting the physical control panel in manual operating mode

You must first put the physical control panel in manual operating mode before you can select or activate certain functions.

To put the physical control panel in manual operating mode, do the following:

1. Use the Increment button to scroll to function 02.

   ```
   0 2 _ _ _ _ _ _ _ _ _ _ _ _ _ _
   _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
   ```

2. Press Enter to start function 02.
3. Press Enter again to move to the second character on the function 02 menu. The current system operating mode is displayed with a pointer, as shown in the following example:

   ```
   0 2 _ _ B _ _ N < _ _ _ _ _ _ _
   _ _ _ _ _ _ _ _ _ _ _ P _ _ _
   ```

4. Use the Increment button to scroll through the system operating modes, and select M for manual, as shown in the following example:

   ```
   0 2 _ _ B _ _ M < _ _ _ _ _ _ _
   _ _ _ _ _ _ _ _ _ _ _ P _ _ _
   ```

5. Press Enter to select the system operating mode.
6. Press Enter again to exit function 02.

The control panel is in manual operating mode.

Control panel function codes

Learn about function codes that are displayed on the control panel to indicate status and function options.

To display all functions, put the control panel in manual operating mode. For details, see Putting the physical control panel in manual operating mode.

The following table includes descriptions of the primary and customer-extended control panel function codes.

Table 1. Primary and customer-extended control panel (32-character) function codes

Function code	Function selected
01	Displays the current IPL parameters. This function is available in both normal and manual operating mode.
02	Used to select the IPL type, system operating mode, IPL speed, and firmware IPL mode. This function is available in both normal and manual operating mode.
03	Restarts an IPL of the system using the selected IPL parameters. This function is available only in manual operating mode and when the system power is on.
04	Performs a lamp test; all displays and indicators are lit. This function is available in both normal and manual operating mode.
05 - 06	Reserved.
07	Allows you to perform SPCN service functions. This function is available only in the manual operating mode and from power on standby.
08	Causes a fast power off. This function is available only when the system is in manual operating mode and the system power is on.
09 - 10	Reserved.
11	Displays a system reference code (SRC) on the control panel using up to 32 ASCII characters, including non-hexadecimal characters. This function is available in both normal and manual operating mode when an SRC is available.
12	Displays an SRC on the control panel using up to four extended SRC data words. This function is available in both normal and manual operating mode when an SRC is available.
13	Displays an SRC on the control panel using up to eight extended SRC data words. This function is available in both normal and manual operating mode when an SRC is available.
14 - 19	Displays an SRC on the control panel using callout data. These functions are available in both normal and manual operating mode when an SRC is available.
20	Displays the machine type and model, VPD card CCIN, and IPL types. This function is available in both normal and manual operating mode.
22	Forces a partition dump. For more information on dumps, see Performing dumps. This function is available only in the manual operating mode and when activated by the operating system.
23 - 24	Reserved.
25 - 26	Use service switches 1 and 2 to enable or disable functions 50 through 99. These functions are available only in the manual operating mode.
27 - 29	Reserved.
30	Displays the service processor IP address and port location. This function is available only in the manual operating mode and in standby. **Note:** If IPv6 is displayed, then the service processor's network ports are configured with IPv6 IP addresses. There are not enough characters on the control panel to display the entire address.
31 - 33	Reserved.
34	Retries the partition dump. This function is available only in the manual operating mode and when activated by the firmware.
35 - 40	Reserved.

Table 1. Primary and customer-extended control panel (32-character) function codes (continued)

Function code	Function selected
41	Initiates a non-disruptive platform system dump. This function is available only in the manual operating mode and when activated by the system processor.
42	Performs a platform dump. This function is available only in the manual operating mode and when activated by the system processor.
43	Performs a service processor dump. This function is available only in the manual operating mode.
44 - 54	Reserved.
55	Displays or changes the platform system dump collection policy, platform system dump hardware content, and platform system dump firmware content settings. This function is available only in the manual operating mode.
56 - 62	Reserved on systems that are running on system firmware level A*x*710.
56	Displays the IPL diagnostic level for the next system boot on system firmware level A*x*720, or later.
63	Displays up to the last 25 system status SRCs. This function is available only in the manual operating mode.
64	Displays up to the last 25 diagnostic status SRCs. This function is available only in the manual operating mode.
65	Deactivates a remote service session. This function is available only in the manual operating mode.
66	Activates a remote service session. This function is available only in the manual operating mode.
67	Initiates an I/O processor dump and a disk unit I/O reset/reload. This function is available only in the manual operating mode.
68	Powers off power domains to affect concurrent replacement of IOPs and IOAs. This function is available only in the manual operating mode.
69	Powers on power domains to affect concurrent replacement of IOPs and IOAs. This function is available only in the manual operating mode.
70	Initiates IOP dumps. This function is available only in the manual operating mode.
71 - 99	Reserved.

If you cannot find the function code in this chart, added features or devices might not have been available when this information was produced. Look on the control panel for supplemental unit function code information for the function code that you displayed.

Related tasks:

You must first put the physical control panel in manual operating mode before you can select or activate certain functions.

Primary control panel functions

The primary control panel functions, include displaying the selected IPL type, selecting the firmware mode, or restarting an IPL.

Function 01: Display selected IPL type, system operating mode, and IPL speed

This function allows you to display the current system operating mode, the IPL speed for the next IPL, the firmware mode for the next IPL, and the operating system IPL mode (when enabled).

This function is available in both normal and manual operating mode.

This function displays the following information:
- The operating system (OS) IPL types (A, B, C, or D).
- The valid logical key modes (M or N).
- The IPL speed (F, V=F, S, V=S, H, V=H, X, or V=X).
- The firmware mode (P or T).

Table 2. Function 01 on systems without OS IPL enabled

Function/Data	Action or description
0 1 _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _	Use the Increment or Decrement buttons to scroll to function 01.
0 1 _ _ A _ _ M _ _ V = F _ _ _ _ _ _ _ _ _ _ _ _ _ _ P _ _ _	Valid OS IPL types are A, B, C, and D. Valid system operating modes are M and N. Valid IPL speed displays are F, V=F, S, V=S, H, and V=H. Valid firmware IPL modes are P and T.
0 1 _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _	Use the Increment or Decrement buttons to scroll through the control panel functions.

Function 02: Select IPL type, IPL speed override, system operating mode, and firmware mode

On systems that are running on system firmware level A*x*710, you can select the IPL type and the logical key mode when the system is either powered on or powered off by using this function.

This function is available in both normal and manual operating mode.

Before you can select the IPL speed, the system must be at power on standby.

For powered-on systems, function 02 is used to select the operating system (OS) IPL type, system operation mode, or firmware IPL mode. The following table shows an example of the function 02 IPL type, system operating mode, and firmware IPL mode selection sequence for a powered-on system.

Table 3. Function 02: Select IPL type, system operating mode, and firmware IPL mode on powered-on systems

Function/Data	Action or description
0 2 _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _	Use the Increment or Decrement buttons to scroll to function 02.
0 2 _ _ A < _ M _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ P _ _ _	Press Enter to start function 02. • The current OS IPL type is displayed with a pointer. • The current system operating mode is displayed. • The current firmware mode is displayed.
0 2 _ _ B < _ M _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ P _ _ _	Use the Increment or Decrement buttons to scroll through the OS IPL types.

Function/Data	Action or description
0 2 _ _ B _ _ M < _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ P _ _ _	Press Enter to select the OS IPL type. • The current OS IPL type is displayed. • The current system operating mode is displayed with a pointer. • The current firmware mode is displayed.
0 2 _ _ B _ _ N < _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ P _ _ _	Use the Increment or Decrement buttons to scroll through the system operating modes.
0 2 _ _ B _ _ N _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ P < _ _	Press Enter to select the system operating mode. • The current OS IPL type is displayed. • The current system operating mode is displayed. • The current firmware mode is displayed with a pointer.
0 2 _ _ B _ _ N _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ T < _ _	Use the Increment or Decrement buttons to scroll through the firmware IPL modes.
0 2 _	Press Enter to select the firmware IPL mode and exit function 02.
0 1 _	Use the Increment or Decrement buttons to scroll through the control panel functions.

For powered-off systems, function 02 is used to select the OS IPL type, system operating mode, system IPL speed, and firmware IPL mode. The following table shows an example of the function 02 OS IPL type, system operating mode, system IPL speed, and firmware IPL mode selection sequence for a powered-off system.

Table 4. Function 02: Select the IPL type, system operating mode, system IPL speed, and firmware IPL mode on powered-off systems

Function/Data	Action or description
0 2 _	Use the Increment or Decrement buttons to scroll to function 02.
0 2 _ _ A < _ M _ _ _ _ V _ _ _ _ _ _ _ _ _ _ _ _ _ _ T _ _ _	Press Enter to start function 02. • The current OS IPL type is displayed with a pointer. • The current system operating mode is displayed. • The current IPL speed is displayed. • The current firmware IPL mode is displayed.
0 2 _ _ B < _ M _ _ _ _ V _ _ _ _ _ _ _ _ _ _ _ _ _ _ T _ _ _	Use the Increment or Decrement buttons to scroll through the OS IPL types.
0 2 _ _ B _ _ M < _ _ _ V _ _ _ _ _ _ _ _ _ _ _ _ _ _ T _ _ _	Press Enter to select the IPL type. • The current IPL type is displayed. • The current system operating mode is displayed with a pointer. • The current IPL speed is displayed. • The current firmware IPL mode is displayed.
0 2 _ _ B _ _ N < _ _ _ V _ _ _ _ _ _ _ _ _ _ _ _ _ _ T _ _ _	Use the Increment or Decrement buttons to scroll through the system operating modes.

Table 4. Function 02: Select the IPL type, system operating mode, system IPL speed, and firmware IPL mode on powered-off systems (continued)

Function/Data	Action or description
0 2 _ _ B _ _ N _ _ _ _ V < _ _ _ _ _ _ _ _ _ _ _ _ _ _ T _ _ _	Press Enter to select the system operating mode. • The current IPL type is displayed. • The current system operation mode is displayed. • The current IPL speed is displayed with a pointer. • The current firmware IPL mode is displayed.
0 2 _ _ B _ _ N _ _ _ _ S < _ _ _ _ _ _ _ _ _ _ _ _ _ _ T _ _ _	Use the Increment or Decrement buttons to scroll through the IPL speeds.
0 2 _ _ B _ _ N _ _ _ _ S _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ T < _ _	Press Enter to select the IPL speed. • The current IPL type is displayed. • The current system operation mode is displayed. • The current IPL speed is displayed. • The current firmware IPL mode is displayed with a pointer.
0 2 _ _ B _ _ N _ _ _ _ S _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ P < _ _	Use the Increment or Decrement buttons to scroll through the firmware IPL modes.
0 2 _	Press Enter to select the firmware IPL mode and exit function 02.
0 1 _	Use the Increment or Decrement buttons to scroll through the control panel functions.

On systems that are running on system firmware level A*x*720, or later, you can select the operating system IPL type, the system operating mode, and the firmware IPL mode by using this function.

Table 5. Function 02: Select the IPL type, the system operating mode, and the firmware IPL mode

Function/Data	Action or description
0 2 _	Use the Increment or Decrement button to scroll to function 02.
0 2 _ _ A < _ M _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ P _ _ _	Press Enter to start function 02. • The current operating system IPL type is displayed with a pointer. • The current system operating mode is displayed. • The current firmware mode is displayed.
0 2 _ _ B < _ M _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ P _ _ _	Use the Increment or Decrement button to scroll through the operating system IPL types.
0 2 _ _ B _ _ M < _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ P _ _ _	Press Enter to select the operating system IPL type. • The current operating system IPL type is displayed. • The current system operating mode is displayed with a pointer. • The current firmware mode is displayed.
0 2 _ _ B _ _ N < _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ P _ _ _	Use the Increment or Decrement button to scroll through the system operating modes.

Table 5. Function 02: Select the IPL type, the system operating mode, and the firmware IPL mode (continued)

Function/Data	Action or description
0 2 _ _ B _ _ N _ P < _ _	Press Enter to select the system operating mode. • The current operating system IPL type is displayed. • The current system operating mode is displayed. • The current firmware mode is displayed with a pointer.
0 2 _ _ B _ _ N _ T < _ _	Use the Increment or Decrement button to scroll through the firmware IPL modes.
0 2 _	Press Enter to select the firmware IPL mode and exit function 02.
0 1 _	Use the Increment or Decrement button to scroll through the control panel functions.

Function 03: Restart IPL

This function restarts an IPL of the system using the selected IPL parameters.

This function is available only in manual operating mode and when the system power is on.

When you select function 03 and press Enter, a confirm action SRC (A1008003) is displayed. If you want to perform a restart IPL operation, select function 03 and press Enter again.

Notifications are not required prior to restarting the IPL.

Function 04: Lamp test

This function indicates whether any of the control panel indicators are not working correctly, and it also indicates whether the characters that are displayed in the Function/Data display on the control panel are valid.

This function is available in both the normal and manual operating modes.

When a lamp test is initiated, the firmware-controlled indicators in the central electronics complex (CEC) and the expansion units are turned on solid for 4 minutes and then restored to their previous states.

Use the following procedure to verify that the lights on the system control panel are working correctly.
1. Power on the system.
2. Press the Increment (↑) or Decrement (↓) buttons on the control panel to display function 04.
   Press Enter on the control panel.
3. Do all of the lights and indicators on the system control panel turn on?

Yes	No
↓	Exchange the FRU with the faulty LED indicator. For example, replace the fan if the LED on a fan does not turn on.

4. Do all the expansion-unit control-panel lights come on?

   Note: The expansion-unit control-panel lights will be lit for only about 25 seconds after function 04 is entered.

Yes	No
The lights on the system control panel are working correctly.	Exchange the control panel on the expansion unit.

Functions 05 - 06: Reserved

This function is reserved.

Function 07: SPCN functions

This function allows you to perform a system power control network (SPCN) operation.

This function is available only in the manual operating mode and from power on standby.

Notes:
- The system that will display the ID must be powered off with ac power applied.
- If you have just restored power to the system, the service processor must return to standby mode before the control panel functions will work correctly. Returning the service processor to standby mode takes a few minutes *after* the panel appears to be operational.
- The control panel must be in manual operating mode to access function 07 options.

To perform an SPCN operation that is controlled by function 07, do the following:

1. Select function 07, and then press Enter. 07** is displayed.
2. Select the function that you want to perform (see Table 6). Use the Increment or Decrement buttons (↑↓) to scroll to the appropriate function. Press Enter to display 07nn00, where nn is the function that you selected.

Table 6. SPCN functions in function 07

Function	Description	For more information
A1	Broadcasts a power-on command.	Go to step 5.
A6	Displays frame address on all I/O enclosures.	Go to step 5.
A8	Displays the SPCN configuration ID number for a selected frame.	07A8 is displayed. Go to step 3.
A9	Sets the SPCN configuration ID for a selected frame.	07A9 is displayed. Go to step 4.

3. If you selected function A8 in step 2, complete the following steps to display the configuration of the I/O enclosure:
   a. Use the Increment (↑) or Decrement (↓) buttons to select the first two characters of the frame address of the I/O enclosure, and then press Enter. 07nn00 is displayed, where nn is the first byte of the frame address.
   b. Use the Increment (↑) or Decrement (↓) buttons to select the second two characters of the frame address of the I/O enclosure, and then press Enter. 07nn00 is displayed on the selected I/O enclosure, where nn is the second byte of the frame address.

   Notes:
   - The display on the addressed I/O enclosure is blinking on and off.
   - The configuration ID is the last two characters of the bottom line.
4. If you selected function A9 in step 2, complete the following steps to set the configuration of the selected I/O enclosure:
   a. Ensure that the system power of the selected I/O enclosure is in standby mode. If the system power of the selected I/O enclosure is not in standby mode, power it off. Then return to step 1.

b. Use the (↑) or Decrement (↓) buttons to select the first two characters of the frame address of the I/O enclosure to configure, and then press Enter. 07nn00 is displayed, where nn is the first byte of the unit address.

c. Use the Increment (↑) or Decrement (↓) buttons to select the second two characters of the frame address of the I/O enclosure, and then press Enter. 07nn00 is displayed, where nn is the second byte of the frame address.

   Note: The display on the addressed I/O enclosure is blinking on and off.

d. Use the Increment (↑) or Decrement (↓) buttons to select the correct configuration ID. 07nn is displayed, where nn is the configuration ID.

e. Press Enter. 07nn00 is displayed. After 20 to 30 seconds, the display on the addressed I/O enclosure stops blinking and returns to the normal display format.

5. Scroll to 07** using the Increment (↑) or Decrement (↓) buttons, and then press Enter. This returns the control panel to the normal display.

Function 08: Fast power off

This function allows you to power off the system when it is suspended. This function is available only when the system is in manual operating mode and the system power is on.

When you select function 08 and press Enter, a confirm action SRC (A1008008) is displayed. If you want to perform a fast power off (FPO) operation, select function 08 and press Enter again. After the fast power off, the system returns to its default display.

Attention: Because of the potential for causing a loss of data, do not use this function if you can shut down the system from the operating system.

Note: If you changed the system password at the most recent IPL, performing a fast power off might cause that new password information to be lost.

Functions 09 - 10: Reserved

These functions are reserved.

Function 11: SRC display (ASCII string)

This function displays a system reference code (SRC) on the control panel using up to 32 ASCII characters, including nonhexadecimal characters, and can be displayed in all display positions. This function serves as a diagnostic aid that helps you determine the source of a hardware or operating system problem.

This function is the default SRC display and is available in both normal and manual operating mode when an SRC is available.

Function 11, if enabled, represents the words of the SRC.

Record SRC information for error reporting. For more information, see Using the control panel to collect reference codes and system information.

Related information:

➥ Using the control panel to collect reference codes and system information

Function 12: SRC display (hex words 2 - 5)

This function displays a system reference code (SRC) on the control panel to serve as a diagnostic aid that helps you determine the source of a hardware or operating system problem.

This function is available in both normal and manual operating mode when an SRC is available.

The extended SRC data words are displayed depending on the number in the SRC. Extended SRC data words are displayed four words at a time. If any extended SRC data words exist, function 12 is scrollable. Unused words are presented as blanks in the required display.

Record SRC information for error reporting. For more information, see Using the control panel to collect reference codes and system information.

Function 13: SRC display (hex words 6 - 9)

This function displays a system reference code (SRC) on the control panel to serve as a diagnostic aid that helps you determine the source of a hardware or operating system problem.

This function is available in both normal and manual operating mode when an SRC is available.

The extended SRC data words are displayed depending on the number in the SRC. Extended SRC data words are displayed four words at a time. If there are only one to four extended SRC data words, function 13 is not scrollable. If there are five to eight extended SRC data words, function 13 is scrollable. Unused words are presented as blanks in the required display.

Record SRC information for error reporting. For more information, see Using the control panel to collect reference codes and system information..

Related information:

➦ Using the control panel to collect reference codes and system information

Functions 14 - 19: SRC display (callouts)

These functions display a system reference code (SRC) on the control panel to serve as a diagnostic aid to help you determine the source of a hardware or operating system problem.

These functions are available in both normal and manual operating mode when an SRC is available.

Functions 14 - 19, if enabled, display field replaceable unit (FRU) and procedure callout data. This data is displayed following any present extended SRC data words. Multiple FRU and procedure callout data entries can be included with each SRC. One FRU or procedure callout data entry is displayed for each function number. Up to six different FRU or procedure callout data entries can be presented at the control panel using functions 14 - 19.

The following table shows an example of a function 14 FRU callout display selection sequence.

Table 7. Function 14: FRU callout display selection sequence

Function/Data	Action or description
1 4 _	Use the Increment or Decrement buttons to scroll to function 14.
H_ -PARTNUM_ CCIN_ _ U970305010ABCDE-_ _ _	Press Enter to select function 14. The FRU callout data is displayed.
1 4 _	Pressing Enter toggles between function and data display.

The following table shows an example of a function 15 procedure callout display selection sequence.

Table 8. Function 15: Procedure callout display selection sequence

Function/Data	Action or description
1 5 _	Use the Increment or Decrement buttons to scroll to function 15.
M_ -FSPSP04_ _	Press Enter to select function 15. The procedure callout data is displayed.
1 5 _	Pressing Enter toggles between function and data display.

Record SRC information for error reporting.

Related information:

➡ Using the control panel to collect reference codes and system information

Function 20: System type, model, feature code, and IPL type

This function displays the machine type and model, the custom card identification number (CCIN) for the vital product data (VPD) card, and IPL types. This function is available in both normal and manual operating mode.

The machine type, model, CCIN for the VPD card, and IPL type are displayed in the following format:

```
p p p p - m m m _ _ _ _ c c c c

T T T T T T T T t t t t t t t t
```

The values are indicated as follows:
- Values for *p* indicate the machine type.
- Values for *m* indicate the machine model.
- Values for *c* indicate the system CCIN for the VPD card.
- Values for *T* indicate the CEC IPL type.
- Values for *t* indicate the FSP IPL type.

Record this information with the system reference code (SRC).

If you select this function and it has not been activated, the command is rejected.

Customer-extended panel functions

The customer-extended panel functions include partition dumps, service processor IP address and port location.

Function 21: Service tool initiation

Function 22: Partition dump

This function initiates a dump of the operating system data in a logical partition.

This function is available only in the manual operating mode and when activated by the operating system.

You must perform two consecutive function 22 selections to initiate a partition dump. The following table shows an example of function 22.

Table 9. Function 22: Initiate a partition dump

Function/Data	Action or description
2 2 _	Use the Increment or Decrement buttons to scroll to function 22.
2 2 _ _ _ _ 0 0 _	Press Enter to start function 22.
A 1 0 0 3 0 2 2 _	Displays the partition dump verification system reference code (SRC).
2 2 _	Use the Increment or Decrement buttons to scroll to function 22.
2 2 _ _ _ _ 0 0 _	Press Enter to start function 22.

Functions 23 - 24: Reserved

These functions are reserved.

Functions 25 - 26: Service switches 1 and 2

These functions are used to set the service function range (50 to 99). These functions are available only in the manual operating mode.

To set the service function range (50 to 99), use function 25 to set the service representative switch 1, and then use function 26 to set the service representative switch 2.

Functions 27 - 29: Reserved

These functions are reserved.

Function 30: Service processor IP address and port location

This function displays the service processor IP address and port location. This function is available only in the manual operating mode and from power on standby.

Note: If IPv6 is displayed on the control panel, then the service processor's network ports are configured with IPv6 IP addresses. There are not enough characters on the control panel to display the entire address.

The following table shows an example of function 30.

Table 10. Function 30: Service processor IP address and port location

Function/Data	Action or description
3 0 _	Use the Increment or Decrement buttons to scroll to function 30.
3 0 * * _	Press Enter to enter subfunction mode.

Table 10. Function 30: Service processor IP address and port location (continued)

Function/Data	Action or description
3 0 0 0 _	Use the Increment or Decrement buttons to select an IP address 00 = SP A: ETH0 (primary enclosure) 01 = SP A: ETH1 (primary enclosure) 02 = SP B: ETH0 (secondary enclosure) 03 = SP B: ETH1 (secondary enclosure)
S P _ A : _ E T H 0 : _ _ _ T 5 9 . 5 . 1 0 5 . 2 4 3 _ _ _ _ _	Press Enter to display the selected IP address.
3 0 * * _	Use the Increment or Decrement buttons to select subfunction exit.
3 0 _	Press Enter to exit subfunction mode.

Functions 31 - 33: Reserved

These functions are reserved.

Function 34: Retry partition dump

Not applicable.

Functions 35 - 41: Reserved

These functions are reserved.

Function 41: Nondisruptive platform system dump

This function initiates a nondisruptive platform system dump. This function is available only in the manual operating mode and when activated by the service processor.

You can use function 41 to dump IBM POWER® Hypervisor™ main storage data. The following table shows an example of function 41.

Table 11. Function 41: Start a platform dump

Function/Data	Action or description
4 1 _	Use the Increment or Decrement buttons to scroll to function 41.
4 1 _ _ _ _ 0 0 _	Press Enter to start function 42.
A 1 0 0 3 0 4 1 _	Displays the confirmation SRC.
4 1 _	Use the Increment or Decrement buttons to scroll to function 42.
4 1 _ _ _ _ 0 0 _	Press Enter to start function 42.

Function 42: Platform system dump

This function initiates a platform system dump. This function is available only in the manual operating mode and when activated by the service processor.

You can use function 42 to dump IBM POWER Hypervisor™ main storage and hardware data. You must perform two consecutive function 42 selections to initiate a platform system dump. The following table shows an example of function 42.

Table 12. Function 42: Start a platform system dump

Function/Data	Action or description
4 2 _	Use the Increment or Decrement buttons to scroll to function 42.
4 2 _ _ _ _ 0 0 _	Press Enter to start function 42.
A 1 0 0 3 0 4 2 _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _	Displays the confirmation SRC.
4 2 _	Use the Increment or Decrement buttons to scroll to function 42.
4 2 _ _ _ _ 0 0 _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _	Press Enter to start function 42.

Function 43: Service processor dump

This function initiates a service processor dump. This function is available only in the manual operating mode.

You must perform two consecutive function 43 selections to initiate a service processor dump. The following table shows an example of function 43.

Table 13. Function 43: Start a service processor dump

Function/Data	Action or description
4 3 _	Use the Increment or Decrement buttons to scroll to function 43.
4 3 0 0 _	Press Enter to confirm.
A 1 0 0 3 0 4 3 _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _	Displays the confirmation system reference code (SRC).
4 3 _	Use the Increment or Decrement buttons to scroll to function 43.
4 3 0 0 _	Press Enter to confirm.

Functions 44 - 54: Reserved

These functions are reserved.

Function 55: View and change platform system dump data

This function allows you to view and change the platform dump data. This function is available only in the manual operating mode.

When you select function 55 and press Enter, you can view and change the platform system dump collection policy, platform system dump hardware content, and platform system dump firmware content settings.

The following table shows an example of how to view the platform system dump data.

Table 14. Function 55: View the platform system dump data

Function/Data	Action or description
5 5 _	Use the Increment or Decrement buttons to scroll to function 55.
5 5 * * _	Press Enter to enter subfunction mode.
5 5 0 0 _	Use the Increment or Decrement buttons to view the platform system dump variables.
5 5 0 0 _ xxyyzz_ _	Press Enter to process the selected subfunction. xx = Collection policy yy = Hardware content zz = Firmware content
5 5 * * _	Use the Increment or Decrement buttons to select subfunction exit.
5 5 _	Press Enter to exit subfunction mode.

The following table shows an example of how to change the platform system dump data.

Table 15. Function 55: Change the platform system dump data

Function/Data	Action or description
5 5 _	Use the Increment or Decrement buttons to scroll to function 55.
5 5 * * _	Press Enter to enter subfunction mode.

Table 15. Function 55: Change the platform system dump data (continued)

Function/Data	Action or description
5 5 0 2 _	Use the Increment or Decrement buttons to select to change the platform system dump variable. 01 = Set platform system dump collection policy to *disable* 02 = Set platform system dump collection policy to *enable* 03 = N/A - will always display FF in Line 1 when selected 04 = Set platform system dump hardware content to *maximum* 05 = Set platform system dump hardware content to *automatic* 06 = N/A - will always display FF in Line 1 when selected 07 = N/A - will always display FF in Line 1 when selected 08 = Set platform system dump firmware content to *automatic* 09 = Set platform system dump firmware content to *maximum* 0A = Set platform system dump firmware content to *physical I/O* 0B = Set platform system dump firmware content to *virtual I/O* 0C = Set platform system dump firmware content to *HPS cluster* 0D = Set platform system dump firmware content to *Host Channel Adapter (HCA)*
5 5 0 2 _ 0 0 _	Press Enter to process the selected subfunction. 00 = Accept FF = Reject
5 5 * * _	Use the Increment or Decrement buttons to select subfunction exit.
5 5 _	Press Enter to exit subfunction mode.

Functions 56 - 62: Reserved

Functions 56 - 62 are reserved on systems running system firmware level A*x*710. Functions 57 - 62 are reserved on systems running system firmware level A*x*720 or later.

Function 56: Select IPL diagnostic level

On systems that are running on system firmware level A*x*720, or later, you can select the IPL diagnostic level for the next system boot by using this function.

This function is available only in manual operating mode and when the service functions range is enabled.

Table 16. Function 56: Select IPL diagnostic level

Function/Data	Action or description
56 _	Use the Increment or Decrement button to scroll to function 56.
56 _ _ _ N< _	Press Enter to start function 56, and select the current IPL diagnostic level. The current IPL diagnostic level is displayed with a pointer.
56 _ _ _ M< _	Use the Increment or Decrement button to scroll through the IPL diagnostic levels.
56 _	Press Enter to accept the IPL diagnostic level, and exit function 56.

Function 63: Display system status SRCs

When you select function 63 and press Enter, you can display up to the last 25 system status SRCs. This function is available only in the manual operating mode.

The following table shows an example of how to display the last 25 system status SRCs.

Table 17. Function 63: Display system status SRCs

Function/Data	Action or description
6 3 _	Use the Increment or Decrement buttons to scroll to function 63.
6 3 * * _	Press Enter to enter subfunction mode.
6 3 1 8 _	Use the Increment or Decrement buttons to select the address offset. **Note:** Enter a subfunction between 00 and 18 to view the SRCs in sequential order. The most recent SRC displays at the highest possible subfunction number (18). If no system status SRCs exist, then only subfunction 00 is available and it will not display an SRC when selected.
C 1 0 0 1 0 3 4 _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _	Press Enter to read the SRC data.
6 3 * * _	Use the Increment or Decrement buttons to select subfunction exit.
6 3 _	Press Enter to exit subfunction mode.

Function 64: Display diagnostic status SRCs

When you select function 64 and press Enter, you can display up to the last 25 diagnostic status SRCs. This function is available only in the manual operating mode.

The following table shows an example of how to display the diagnostic status SRCs.

Table 18. Function 63: Display diagnostic status SRCs

Function/Data	Action or description
6 4 _	Use the Increment or Decrement buttons to scroll to function 64.
6 4 * * _	Press Enter to enter subfunction mode.

Table 18. Function 63: Display diagnostic status SRCs (continued)

Function/Data	Action or description
6 4 0 2 _	Use the Increment or Decrement buttons to select the address offset. **Note:** Enter a subfunction between 00 and 18 to view the SRCs in sequential order. The most recent SRC displays at the highest possible subfunction number (18). If no diagnostic status SRCs exist, then only subfunction 00 is available and it will not display an SRC when selected.
D 1 2 3 4 5 6 7 _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _	Press Enter to read the SRC data.
6 4 * * _	Use the Increment or Decrement buttons to select subfunction exit.
6 4 _	Press Enter to exit subfunction mode.

Function 65: Deactivate remote service

Use this function to deactivate a remote service session.

This function is available in manual operating mode when activated by the OS.

Function 66: Activate remote service

Use this function to activate a remote service session.

This function is available in manual operating mode when activated by the operating system.

Function 67: Disk unit IOP reset/reload

Use this function to initiate an I/O processor dump and a disk unit I/O reset/reload.

This function is available in manual operating mode when activated by the OS. This function is enabled only when the I/O processor of a displayed SRC supports a reset/reload function.

Function 68: Concurrent maintenance – power off

Use this function to power off power domains to affect concurrent replacement of IOPs and IOAs.

This function is available in manual operating mode when activated by the OS.

Function 69: Concurrent maintenance – power on

Use this function to power on power domains to change concurrent replacement of IOPs and IOAs.

This function is available in manual operating mode when activated by the OS.

Function 70: IOP dump

Use this function to initiate IOP dumps. This function is available in manual operating mode when activated by the OS.

This function is available in manual operating mode when activated by the OS.

Functions 71 - 99: Reserved

These functions are reserved.

Values for IPL types, system operating modes, and speeds

Learn about the valid initial program load (IPL) types, system operating modes, IPL speeds, and firmware IPL types that are used in control panel functions.

The following table shows examples of the IPL types and descriptions.

Note: Operating system IPL types are displayed only when the operating system IPL mode has been enabled from the operating system.

Table 19. Operating system IPL types

Initial program load (IPL) type	Action or description
A	IPL from disk using copy A of the system Licensed Internal Code.
B	IPL from disk using copy B of the system Licensed Internal Code.
C	Reserved for hardware service use only. **Attention:** Incorrect use of this function can cause severe data loss.
D	IPL from media other than load-source disk. Alternate IPL for code installation support.

The following table shows examples of the operating mode values.

Table 20. System operating mode values

System operating mode	Action or description
Manual (M)	Allows you to perform an attended IPL and provides access to restricted control panel functions.
Normal (N)	Allows you to perform an unattended IPL.

The following table shows examples of the IPL speeds.

Table 21. IPL speeds

IPL speed	Action or description	Details
F	Fast override for one IPL.	Fast IPL runs. Some hardware diagnostics are passed over.
S	Slow override for one IPL.	Full hardware diagnostics runs. Use this speed whenever hardware is changed, for intermittent hardware failure, or on the first installation IPL. The following diagnostics are run: • Main storage tests. • Service processor inter-chip interface tests (wire test). • Extended logical built-in self tests.
V=F	Use system-defined speed.	Fast IPL set by the system value (displayed at function 01).
V=S	Use system-defined speed.	Slow IPL set by the system value (displayed at function 01).
V	Fast IPL or slow IPL set by the system value (selected at function 02).	Function 02 selection, or the system default at each IPL.

Table 21. IPL speeds (continued)

IPL speed	Action or description	Details
H	Hyperboot override for one IPL.	Hyperboot IPL runs. Most hardware diagnostics are skipped and the system's cached data is used unless new VPD is discovered.
V=H	Use system-defined speed.	Hyperboot IPL is set by the system value (displayed at function 01).

The following table shows examples of firmware IPL types.

Table 22. Firmware IPL types

IPL type	Action or description
P	IPL from disk using copy P of the system Licensed Internal Code.
T	IPL from disk using copy T of the system Licensed Internal Code.

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高調波ガイドライン適合品

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高調波ガイドライン準用品

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声　明

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Germany Compliance Statement

Deutschsprachiger EU Hinweis: Hinweis für Geräte der Klasse A EU-Richtlinie zur Elektromagnetischen Verträglichkeit

Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie 2004/108/EG zur Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaaten und hält die Grenzwerte der EN 55022 Klasse A ein.

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Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten

Dieses Produkt entspricht dem "Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG)". Dies ist die Umsetzung der EU-Richtlinie 2004/108/EG in der Bundesrepublik Deutschland.

Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) (bzw. der EMC EG Richtlinie 2004/108/EG) für Geräte der Klasse A

Dieses Gerät ist berechtigt, in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen.

Verantwortlich für die Einhaltung der EMV Vorschriften ist der Hersteller:
International Business Machines Corp.
New Orchard Road
Armonk, New York 10504
Tel: 914-499-1900

Der verantwortliche Ansprechpartner des Herstellers in der EU ist:
IBM Deutschland GmbH
Technical Regulations, Abteilung M372
IBM-Allee 1, 71139 Ehningen, Germany
Tel: +49 7032 15 2941
email: lugi@de.ibm.com

Generelle Informationen:

Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022 Klasse A.

Electromagnetic Interference (EMI) Statement - Russia

ВНИМАНИЕ! Настоящее изделие относится к классу А.
В жилых помещениях оно может создавать
радиопомехи, для снижения которых необходимы
дополнительные меры

Class B Notices

The following Class B statements apply to features designated as electromagnetic compatibility (EMC) Class B in the feature installation information.

Federal Communications Commission (FCC) statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an IBM-authorized dealer or service representative for help.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Proper cables and connectors are available from IBM-authorized dealers. IBM is not responsible for

any radio or television interference caused by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Compliance Statement

This Class B digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

European Community Compliance Statement

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class B Information Technology Equipment according to European Standard EN 55022. The limits for Class B equipment were derived for typical residential environments to provide reasonable protection against interference with licensed communication equipment.

European Community contact:
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Tele: +49 7032 15 2941
email: lugi@de.ibm.com

VCCI Statement - Japan

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取扱説明書に従って正しい取り扱いをして下さい。　　　　VCCI－B

Japanese Electronics and Information Technology Industries Association (JEITA) Confirmed Harmonics Guideline (products less than or equal to 20 A per phase)

高調波ガイドライン適合品

Japanese Electronics and Information Technology Industries Association (JEITA) Confirmed Harmonics Guideline with Modifications (products greater than 20 A per phase)

高調波ガイドライン準用品

IBM Taiwan Contact Information

台灣IBM 產品服務聯絡方式：
台灣國際商業機器股份有限公司
台北市松仁路7號3樓
電話：0800-016-888

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Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie 2004/108/EG zur Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaaten und hält die Grenzwerte der EN 55022 Klasse B ein.

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Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten

Dieses Produkt entspricht dem "Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG)". Dies ist die Umsetzung der EU-Richtlinie 2004/108/EG in der Bundesrepublik Deutschland.

Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) (bzw. der EMC EG Richtlinie 2004/108/EG) für Geräte der Klasse B

Dieses Gerät ist berechtigt, in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen.

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Tel: +49 7032 15 2941
email: lugi@de.ibm.com

Generelle Informationen:

Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022 Klasse B.

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