



# Maintenance and Service Guide

## E24m G4 model

### **SUMMARY**

This guide provides information about spare parts, removal and replacement of parts, diagnostic tests, problem troubleshooting, and more.

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#### **Product notice**

Only trained service personnel familiar with this product should service it. Before performing any maintenance or service, be sure to read "Important Safety Information".

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# 1 Getting started

Read this chapter to learn about safety information and where to find additional HP resources.

## Important safety information

Carefully read the cautions and notes within this document to minimize the risk of personal injury to service personnel. The cautions and notes are not exhaustive. Proper service methods are important to the safe, reliable operation of equipment. Improper service methods can damage equipment.

The service procedures recommended and described in this service manual provide effective methods of performing service operations. Service engineers should have prior repair knowledge and experience as well as appropriate training for the product before performing service procedures.

- Be sure your working environment is dry and clean and meets all government safety requirements.
- Be sure that other persons are safe while you are servicing the product.
- Do not perform any action that can cause a hazard to the customer or make the product unsafe.
- Use proper safety devices to ensure your personal safety.
- Always use approved tools and test equipment for servicing.
- Never assume the product's power is disconnected from the main power supply. Check that it is disconnected before opening the product's cabinet.
- Modules containing electrical components are sensitive to electrostatic discharge (ESD). Follow ESD safety procedures while handling these parts.
- Some products contain more than one battery. Do not disassemble or expose a battery to high temperatures, such as throwing into fire, or the battery may explode.
- Refer to government requirements for battery recycling or disposal.

This information provides general service information for the monitor. Adherence to the procedures and precautions is essential for proper service.

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**IMPORTANT:** Only trained service personnel who are familiar with this HP product should perform service or maintenance for it. Before performing any service or maintenance, personnel must read the important safety information.

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**IMPORTANT:** You must disconnect the power cord from the power source before opening the monitor to prevent component damage.

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## Important service information and precautions

- Repair must be performed by professional service technicians in a repair center. End users should not perform these procedures.
- Please note during servicing that the primary side is the high voltage area.
- This monitor meets ROHS requirements. Be sure to use lead-free solder wire when soldering.
- If you must change a capacitor, be sure to match the polarity as printed on the PCB.
- If you must replace a capacitor, make sure the specification and part number match the BOM and location.
- If you must replace a capacitor, insert new parts carefully to avoid a short circuit caused by the

near pin.

- Do not get the board wet. Water and moisture can cause a short circuit that causes malfunctions.
- To avoid damage, be sure to use lead-free solder.
- When soldering, work quickly to avoid overheating the circuit board.
- Keep the soldering iron tip clean and well tinned when replacing parts.
- After repair, perform a close inspection of the circuit board to confirm it is in good condition.
- After repair, perform a function test to confirm the power supply is working properly.

#### **ERP Lot5 requirement**

1. A professional repairer must have the technical competence to repair electronic displays and comply with the applicable regulations for repairers of electrical equipment in the Member States where the repairer operates. Reference to an official registration system as professional repairer, where such a system exists in the Member States, shall be accepted as proof of compliance.
2. A professional repairer must have insurance that covers liabilities resulting from repairs, regardless of whether required by the Member State.

## **RoHS (2002/95/EC) requirements**

#### **Applied to all countries that require RoHS.**

The RoHS (Restriction of Hazardous Substance in Electrical and Electronic Equipment Directive) is a legal requirement by the EU (European Union) for the global electronics industry sold in the EU and other countries. Any electrical and electronics products launched in the market after June 2006 should meet this RoHS requirement. Products launched in the market before June 2006 are not required to be compliant with RoHS parts. If the original parts are not RoHS compliant, the replacement parts can be non-ROHS compliant. If the original parts are RoHS compliant, the replacement parts **MUST** be RoHS compliant.

If product service or maintenance requires replacing parts, confirm the RoHS requirement before replacement.

## **General descriptions**

This manual contains general information. There are two levels of service:

Level 1: Cosmetic/appearance/alignment service

Level 2: Circuit board or standard parts replacement

## **Firmware updates**

Firmware updates for the monitor are available at [support.hp.com](http://support.hp.com). If no firmware is posted, the monitor does not need a firmware update.

## **Before returning the repaired product to the customer**

Perform an AC leakage current check on exposed metallic parts to be sure the product is safe to operate without the potential of electrical shock. Do not use a line isolation transformer during this check.

Measurements that are not within specified limits present a possible shock hazard. You must check and repair the product before returning it to the customer.

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## 2 Monitor features

This chapter provides an overview of the monitor's features.

### Features

Depending on the model, your monitor might include the following features:

- 60.5 cm (23.8 in) diagonal viewable screen area with 1920 x 1080 @ 60 hz resolution, plus fullscreen support for lower resolutions; includes custom scaling for maximum image size while preserving original aspect ratio
- Wide color gamut to provide coverage of NTSC color spaces
- Nonglare panel with an LED backlight
- Antiglare panel with an LED backlight
- Wide viewing angle to allow viewing from a sitting or standing position, or moving from side to side
- Tilt, swivel and height adjustment capabilities for 23.8 and 27" monitor
- Pivot capability to rotate the monitor head from landscape to portrait orientation for 23.8 and 27" monitor
- Menu button and three onscreen display (OSD) buttons, three that you can reconfigure to quickly allow selection of the most commonly used operations
- Onscreen display (OSD) adjustments in several languages for easy setup and screen optimization
- Embedded 5w SPK per side in monitor
- Popup camera and microphone for online collaboration
- Energy saver feature to meet requirements for reduced power consumption
- Security cable slot on the rear of the monitor for an optional security cable
- Cable management feature for placement of cables and cords connector
- DisplayPort™ video input
- High-Definition Multimedia Interface™ (HDMI) video input (cable included)
- Audi-out (headphone) port on side
- USB hub with one USB Type C port that connects to the computer (upstream) and four USB ports that connect to USB devices (downstream). 1 of side USBA support BC1.2(1.5A)
- Ethernet jack
- USB Type C ports that provides network, data, video and power delivery(up to 65w)
- Plug and Play capability, if supported by your operating system Monitor stand
- Removable stand for flexible monitor head mounting solutions
- HP Quick Release 2 device to quickly attach the monitor head to the stand with a simple click, and then remove it with the convenient sliding tab release

- VESA® mounting bracket for attaching the monitor head to a wall mount device or swing arm
- VESA mounting capability (100 × 100 mm) for attaching the monitor to a swing arm mount

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**NOTE:** For safety and regulatory information, refer to the Product Notices provided in your documentation kit. To access the latest user guides or manuals for your product, go to <http://www.hp.com/support> and follow the instructions to find your product. Then select **Manuals**.

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## Front components

To identify the components on the front of the monitor, use this illustration and table.

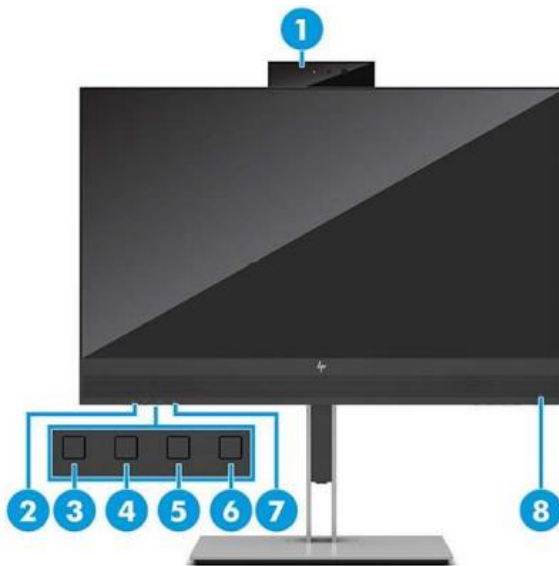


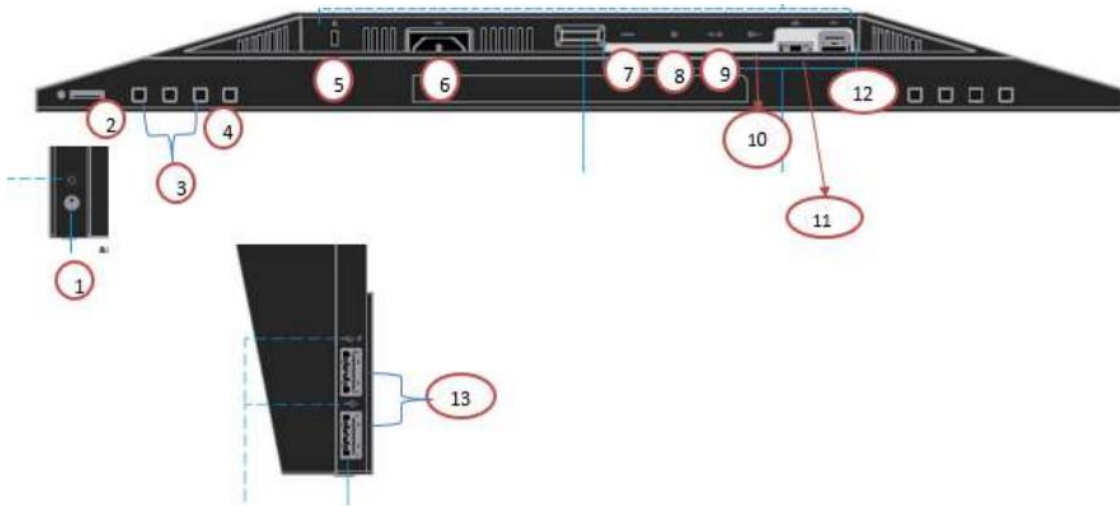
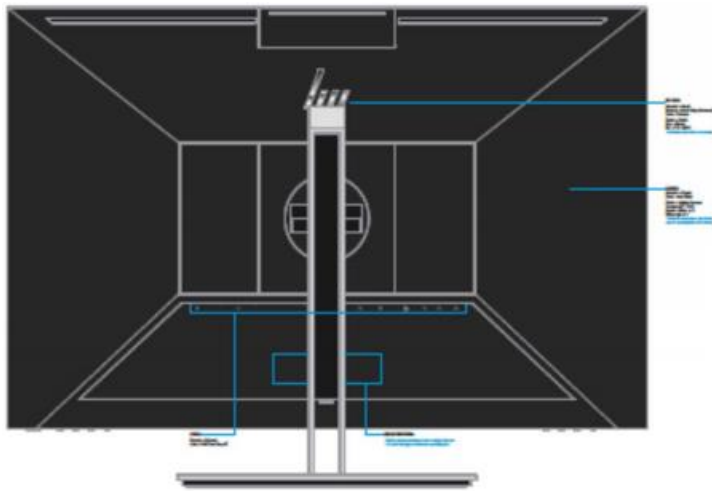
Table 1-1: Front components and their descriptions

Component	Function
1 Camera	Allows you to video chat, record video, and record still images. NOTE: Camera functions vary depending on the camera hardware and software installed on your product.
2 Speaker mute light	The mute button has been turned on.
3 Speaker mute button	Mutes or restores speaker sound.
4 Speaker button (decrease sound)	Decreases speaker volume incrementally while you hold down the key.
5 Speaker button (increase sound)	Increases speaker volume incrementally while you hold down the key.
6 Microphone mute button	Mutes or restores microphone.
7 Microphone mute light	The mute button has been turned on.
8 Power light	White: The monitor is on. Amber: The monitor is in a reduced power state because of inactivity. Blinking amber: The monitor is in a reduced power state because of an Energy Saver setting.

## Rear components

To identify the components on the rear of the monitor, use this illustration and table.





**Table 1-2: Rear components and their descriptions**

Component	Function
1 Audi-out (headphone)/Audio in (microphone) combo jack	Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone. This jack does not support optional standalone microphones.
	<b>IMPORTANT:</b> To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, see the Regulatory, Safety, and Environmental Notices
	To access this guide, type HP Documentation in the taskbar search box, and then select HP Documentation.

		NOTE: When a device is connected to the jack, the speakers are disabled.
2	Power button	Turns the monitor on or off.
3	OSD buttons (assignable)	When the OSD menu is open, press the buttons to navigate through the menu. The function light icons indicate the default button functions. For a description of these functions, see Using the OSD function buttons on page 19. You can reassign the function buttons to quickly select the most commonly used operations. See Reassigning the function buttons on page 20.
4	Menu button	Press to open the OSD menu.
5	Security cable slot	Connects an optional security cable.
6	Power connector	Connects a power cord.
7	HDMI Port	Connects an HDMI cable from the source device to the monitor.
8	DisplayPort IN port	Connects a DisplayPort cable from the source device to the monitor.
		NOTE: Use a standard USB Type-A charging cable or cable adapter (purchased separately) when charging a small external device.
9	USB Type C	Connects a USB Type C cable from the source device to the monitor. Serves as a single connection when docking an HP notebook.
10	DisplayPort OUT port (For 23.8" and 27" monitor only)	Connects a DisplayPort cable from the monitor to a secondary monitor.
11	Network jack	Connects an RJ-45 Ethernet cable to the monitor.
12	USB port (2)	Connects a USB device, provides high-speed data transfer, and charges small devices such as a smartphone, even when the computer is off with OSD Performance mode on.
13	USB port (2)	Connect USB devices to the monitor NOTE: The upper port supports USB battery charging.

# Locating the serial number and product number

The SPEC label (1) and Barcode label (2) are located on the rear of the monitor. The serial number and product number are located on a Safety label. You may need these numbers when contacting HP about the monitor model.



**For worldwide models (except India):**

Barcode label



Spec label



**For India:**

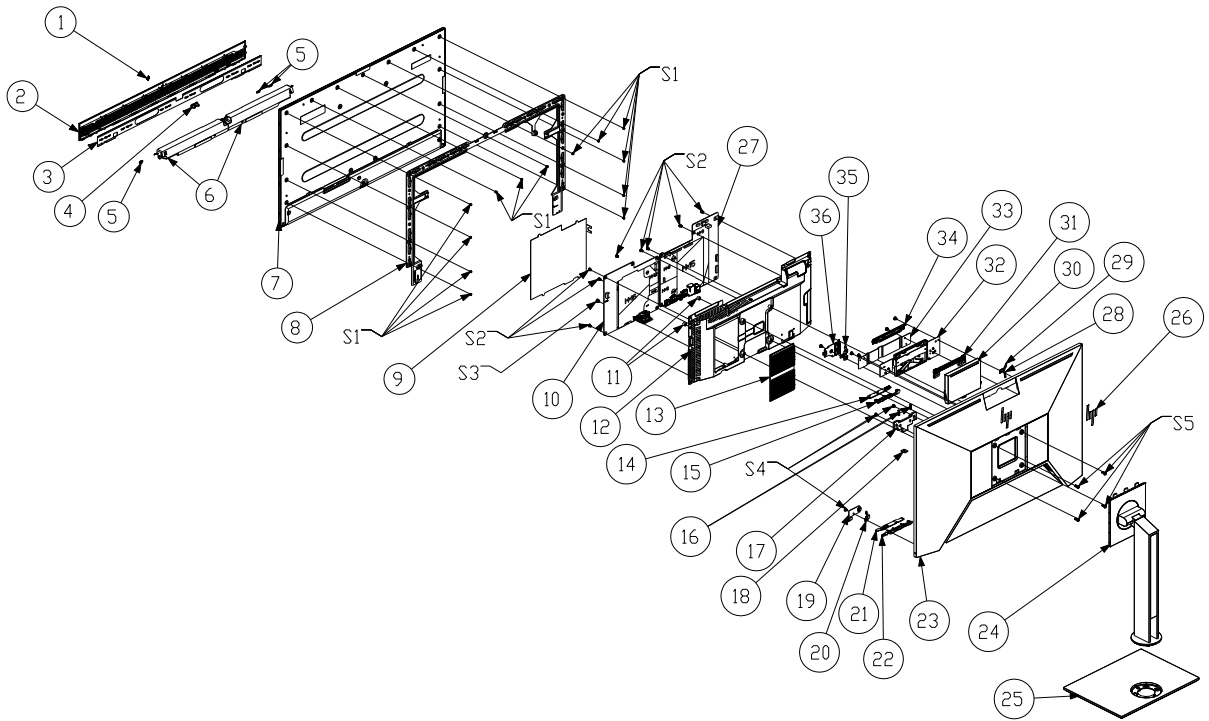
Bar code label





# 3 Illustrated parts catalog

To identify the monitor major components, use this illustration and table.



Item	Description	Qty
1	LOGO HP 12	1
2	DECO_BEZEL	1
3	Deco mylar	1
4	Speaker Cover	1
5	Lens	3
6	SPEAKER	1
7	Panel	1
8	MIDDLE_FRAME	1
9	INSULATING SHEET	1
10	Power Board	1
11	RUBBER PAD	2
12	MAINFRAME	1
13	HEAT SINK	1
14	Skype key board	1

15	Skype key	1
16	Spring	1
17	Release button	1
18	K-lock plate	1
19	Audio board	1
20	SHIELD_AUDIO	1
21	OSD key board	1
22	OSD key board	1
23	REAR_COVER	1
24	stand ass'y	1
25	BASE_ASS'Y	1
26	LOGO HP 56	1
27	Main Board	1
28	HARNESS 1P-1P 180	1
29	SHIELD_PLATE	1
30	HINGE ASS'Y	1
31	HINGE ASS'Y	1
32	HINGE ASS'Y	1
33	Webcam bracket	2
34	HINGE ASS'Y	1
35	SHIELD_USB	1
36	USB Board	1
S1	QM1G30300301200ARA	17
S2	0D1G1030 6120	8
S3	QM1G38400601200ARA	1
S4	0M1G102500404700RA	1
S5	QM1G074Z1002250AH1	4

## How to order parts

The HP authorized repair center can purchase the power board from HP.

### Power board

Description	HP spare part number	Manufacturer part number
PSU E24m G4 1 <sup>st</sup> source	M74290-001	PLPCD561KAAG
PSU E24m G4 2 <sup>nd</sup> source	M74290-002	PLPCLE311QA2

Capacitors and connectors are available for purchase from the following EU distributors:

- Farnell: [Farnell UK - Electronic Components Distributor](#)
- RS Component: [Capacitors | RS Components \(rs-online.com\)](#)

- The Component: [Transfer Multisort Elektronik](#)

#### Capacitors by distributor

Component description	Location	Component distributor	Distributor part number
NA	NA	NA	NA

#### Connectors by manufacturer

Component description	Location identifier	Component distributor	Distributor part number
DisplayPort	CN502&CN503	Farnell	DP1RD20JQ1 (JAE)
HDMI	CN501	RS	SD-47151-001 (Molex)
Audio	CN610	NA	NA
USB Type-C	CN101	RS	DX07S024JJ2R1300 (JAE)
RJ45	CN105	tme	LMJ34788114NWDGY (AMPHENOL)
USB3.0	CN1032&CN033	RS	SD-48394-001 (Molex)
USB3.0	CN103	Farnell	48406-0001 (Molex)

**NOTE:** Rear cover and chassis need to be modified to hold connector. Connector may need modifications to meet functional, safety and regulatory requirements accordingly if it doesn't match exactly.

You can purchase cables from the HP part store at <https://partsurfer.hp.com/Search.aspx>.

Internal and External Power Supplies are available for purchase from the following EU distributor: EET\_ <https://www.eetgroup.com/en-eu/>

**NOTE:** HP continually improves and changes product parts. For complete and current information about supported parts for your product, go to <https://partsurfer.hp.com/Search.aspx>, select your country or region, and then follow the on-screen instructions.

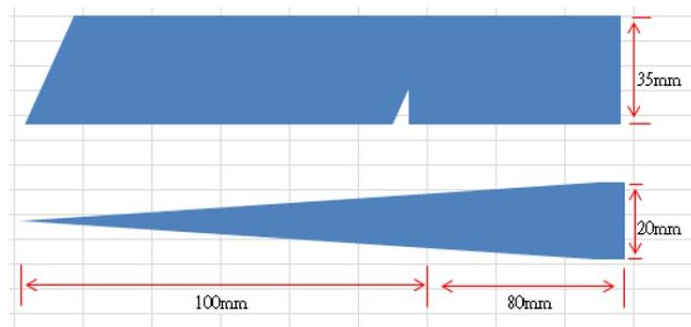
# 4 Removal and replacement procedures

Adherence to these procedures and precautions is essential for proper service.

## Preparation for disassembly

Use this information to properly prepare to disassemble and reassemble the monitor.

- 1) Read the “Important safety information” and “Important service information and precautions” sections in the “Getting started” chapter of this guide.
- 2) Clean the room for disassembly.
- 3) Identify the disassembly area.
- 4) Check the position that the monitors are to be placed along with the number of monitors. Prepare the area for material flow according to the disassembly layout.
- 5) Be sure to have the following equipment and materials:
  - Press fixture
  - Working table
  - Screwdriver
  - Knife
  - Gloves
  - Cleaning cloth
  - ESD protection
  - Scraper bar in the following dimensions:



## Rear Cover

Before removing the Rear Cover, follow these steps:

- ▲ Prepare the monitor for disassembly. See Preparation for disassembly on page 14.

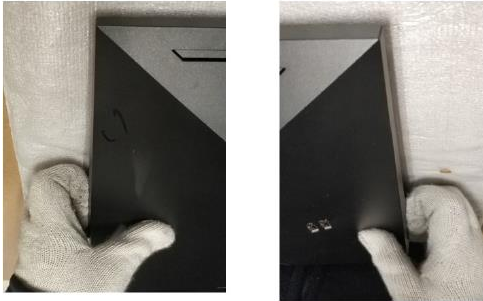
Remove the Rear Cover:



- 1) Remove four screw from the rear case.



- 2) Use your fingers to split the left and right sides apart between the middle frame and rear case.



- 3) Insert the scraper bar tool into the gap between the middle frame and rear case, and then rotate. The hook opens. Repeat the steps.



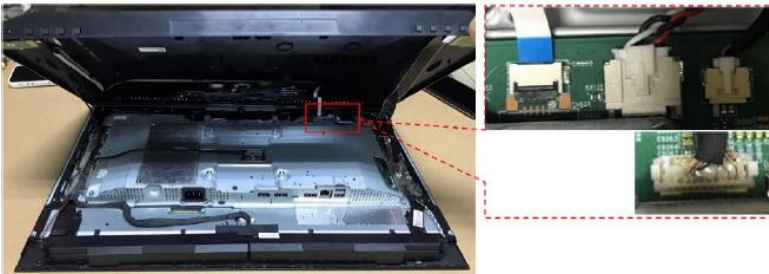
- 4) Disassemble Rear Cover.



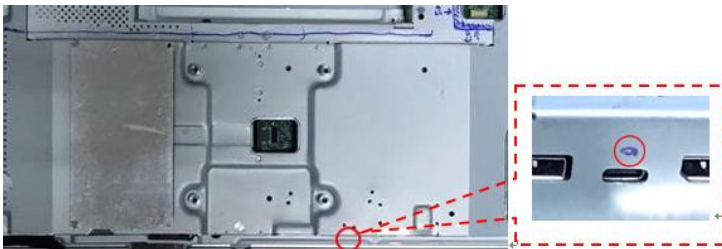
- 5) Remove the Control board wire, USB board wire and key board wire from the Interface-board.



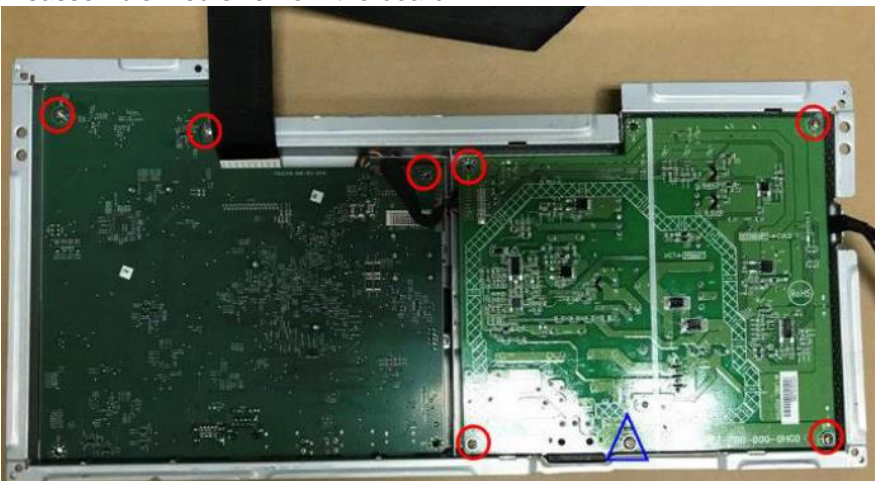
- 6) Remove the Audio board wire, Connector board wire and Webcam module wire from the Interface-board.



- 7) Disassemble the USB board from the Rear Cover (if required).
- 8) Remove 2 screws from the bracket.



- 9) Disassemble 7 screws from the board.



- 10) Disassemble all the boards from housing.
- 11) Disconnect all the wires from the board.

## Power board

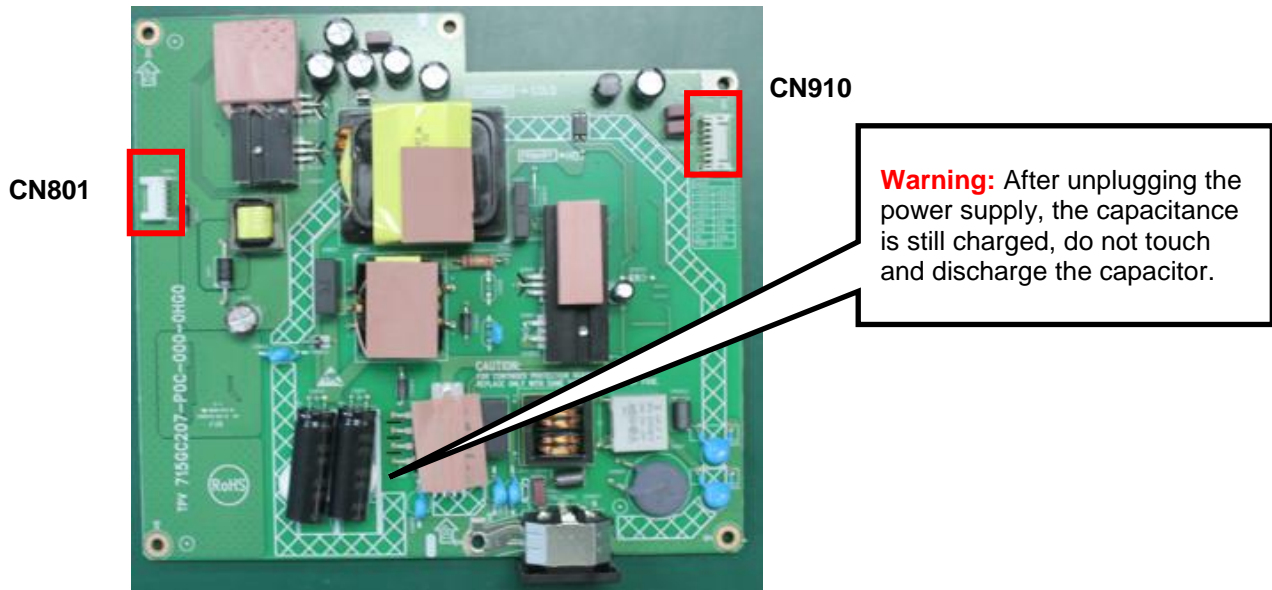
The power board part number is PLPCD561KAAG (1<sup>st</sup> source) or PLPCLE311QA2 (2<sup>nd</sup> source).

Before removing the power board, follow these steps:

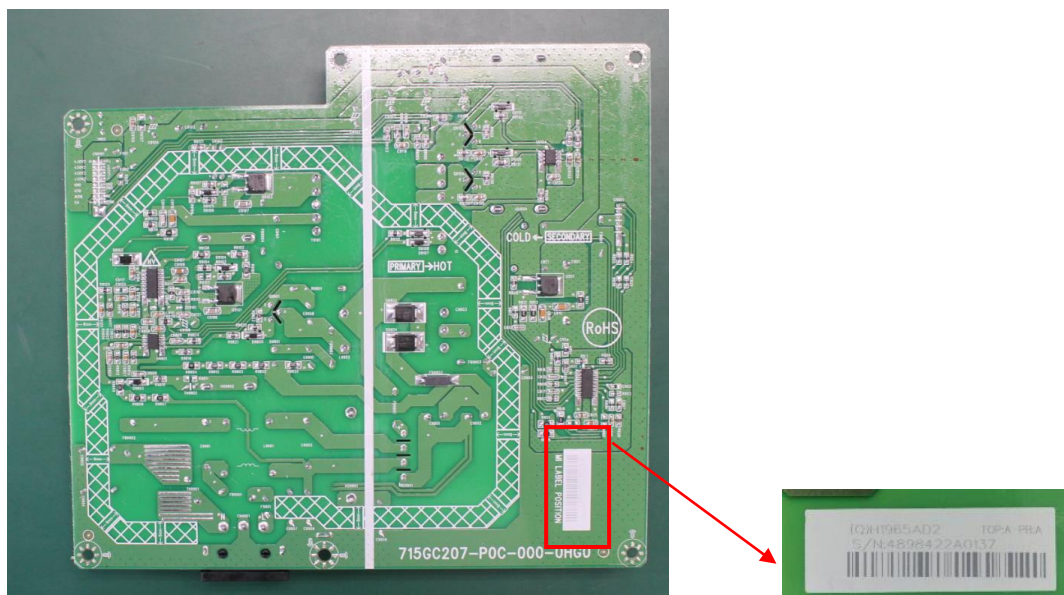
- ▲ Prepare the monitor for disassembly. See Preparation for disassembly on page 14.

Remove the power board:

- 1) The HP E24m G4 power board connector position is as follows:



- 2) Locate the part number location on the board



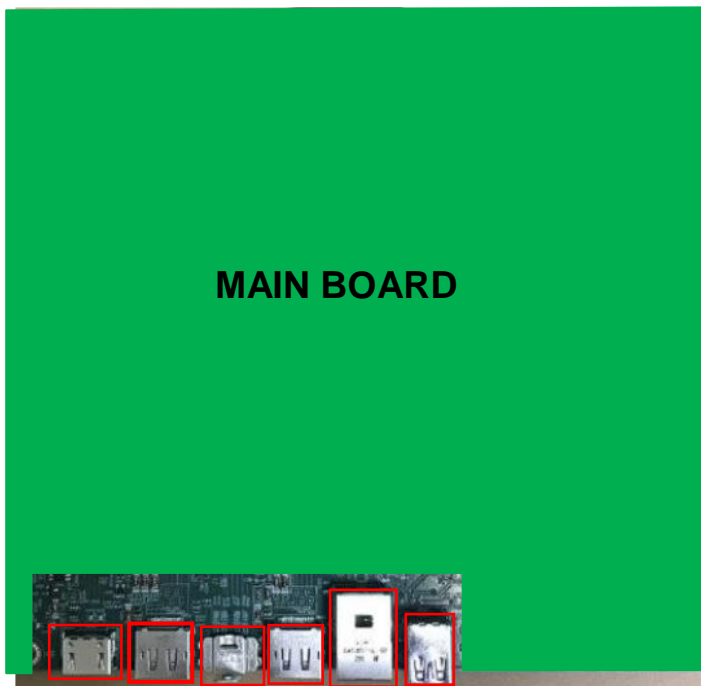
## Connector repair

This procedure includes HDMI, DisplayPort, USB Type-C, RJ45 and USB3.0 connectors.

The connectors are on the main board (board part number CBPCPD9H1Q1)

The connectors identifiers are as follows:

Connector	Location
HDMI	CN501
DisplayPort 1	CN502
DisplayPort 2	CN503
USB Type-C	CN101
RJ45	CN105
USB 3.0	CN103



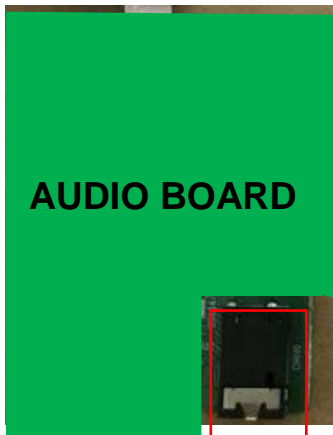
**CN501 CN502 CN101 CN503 CN105 CN103**

This procedure includes audio connectors.

The connectors is on Audio board (board part number AUPCPQA5)

The connector identifiers are as follows:

Connector	Location
Audio	CN610



CN610

This procedure includes USB3.0 connectors

The connectors is on USB board (board part number USBPQAE).

The connector identifiers are as follows:

Connector	Location
USB 3.0	CN1032
USB 3.0	CN1033



CN1033

CN1032

Before repairing connectors, follow these steps:

- ▲ Prepare the monitor for disassembly. See [Preparation for disassembly](#) on page 14.

**IMPORTANT:**

- **Repair Condition: Connector repair is only for out of warranty.**
- **Repairing must operate by professional repairers (Note) in repair center, not applicable for end user.**
- **Electrostatic protection is required when component replacement is required.**
- **The monitor meets ROHS, please use Lead-free solder wire for soldering.**
- **If Connector need to replace, must check specification and part number whether match the BOM and location.**

- If connector need to replace, please insert new parts carefully because the near pin may cause short circuit by inappropriate operate.
- DO NOT allow any liquid on the board. Water and moisture may cause short-circuit to the electronic components and lead to malfunctions.
- The fusion point of Lead-Free solder is requested. Repairing with conventional lead wire may cause damage.
- Work quickly to avoid overheating the circuit board as soon as you confirm the steady soldering condition.
- Keep the soldering iron tip clean and well tinned and when replacing parts.
- A close inspection of the circuit board revealed look in good condition.
- After repaired, must connect source to each port to check Main board function is ordinary.

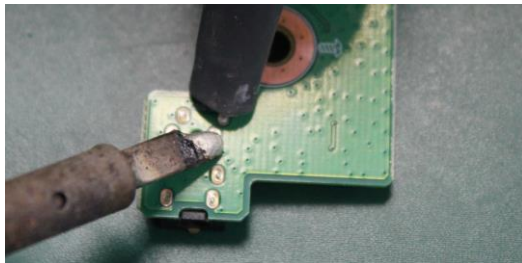
Note: (The requirement of professional repairers' regulation by ERP lot5)

- 1) The professional repairer has the technical competence to repair electronic displays and complies with the applicable regulations for repairers of electrical equipment in the Member States where it operates. Reference to an official registration system as professional repairer, where such system exists in the Member States concerned, shall be accepted as proof of compliance with this point.
- 2) The professional repairer is covered by insurance covering liabilities resulting from its activity, regardless of whether this is required by the Member State.

## Audio connector CN610

Repair the audio connector:

- 1) Use a hot air gun to melt the solder on the pins. Pin solder with soldering iron and absorber. You can gently push down with the soldering iron once everything is molten to move the M1 out of the through holes.



- 2) Lift the CN610 connector from the circuit board.
- 3) Place the new component on the circuit board. Be sure that it matches the footprint.
- 4) Solder the new component.

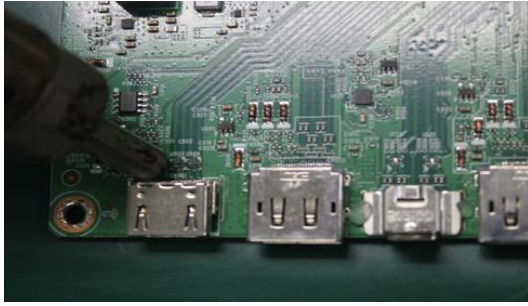
## HDMI connector CN501

Repair the HDMI connector:

- 1) Use a soldering iron and a de-soldering pump to remove as much solder as possible from the pin.



- 2) Use a hot air gun to melt the solder on the pins.



- 3) Lift the CN501 connector from the circuit board.
- 4) Place the new component on the circuit board. Be sure that it matches the footprint.
- 5) Solder the new component.

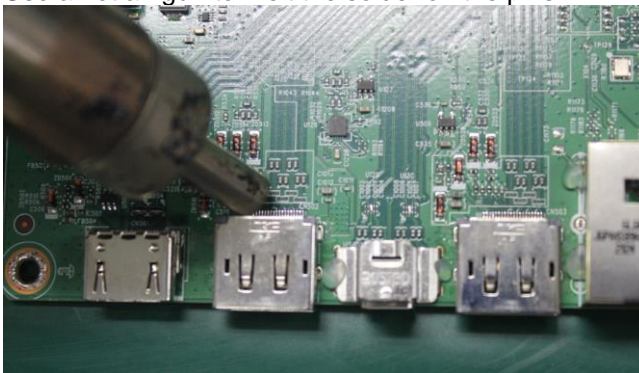
## DP connector CN502

Repair the DP connector:

- 1) Use a soldering iron and a de-soldering pump to remove as much solder as possible from the pin.



- 2) Use a hot air gun to melt the solder on the pins.

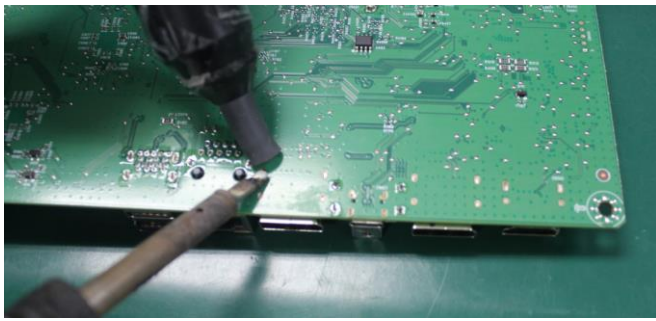


- 3) Lift the CN502 connector from the circuit board.
- 4) Place the new component on the circuit board. Be sure that it matches the footprint.
- 5) Solder the new component.

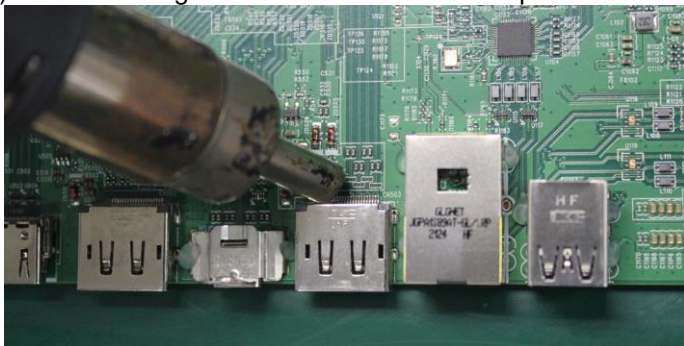
## DP connector CN503

Repair the DP connector:

- 1) Use a soldering iron and a de-soldering pump to remove as much solder as possible from the pin.



2) Use a hot air gun to melt the solder on the pins.



3) Lift the CN503 connector from the circuit board..

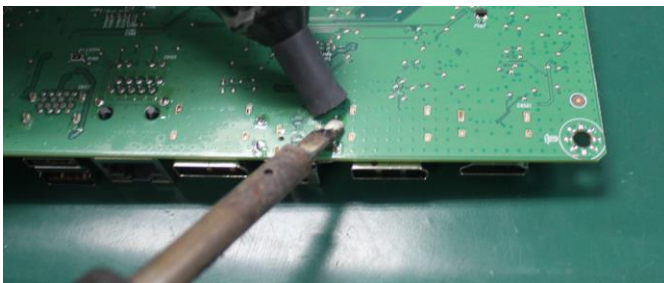
4) Place the new component on the circuit board. Be sure that it matches the footprint.

5) Solder the new component.

## TYPE-C connector CN101

Repair the TYPE-C connector:

1) Use a soldering iron and a de-soldering pump to remove as much solder as possible from the pin.



2) Use a hot air gun to melt the solder on the pins.



3) Lift the CN101 connector from the circuit board.



- 4) Place the new component on the circuit board. Be sure that it matches the footprint.
- 5) Solder the new component.

## RJ45 connector CN105

Repair the RJ45 connector:

- 1) Use a soldering iron and a de-soldering pump to remove as much solder as possible from the pin.



- 2) Lift the CN105 connector from the circuit board.
- 3) Place the new component on the circuit board. Be sure that it matches the circuit board footprint.
- 4) Solder the new component.

## USB3.0 connector CN103

Repair the USB connector:

- 1) Use a hot air gun to melt the solder on the pins. Pin solder with soldering iron and absorber. You can gently push down with the soldering iron once everything is molten to move the CN103 out of the through holes.

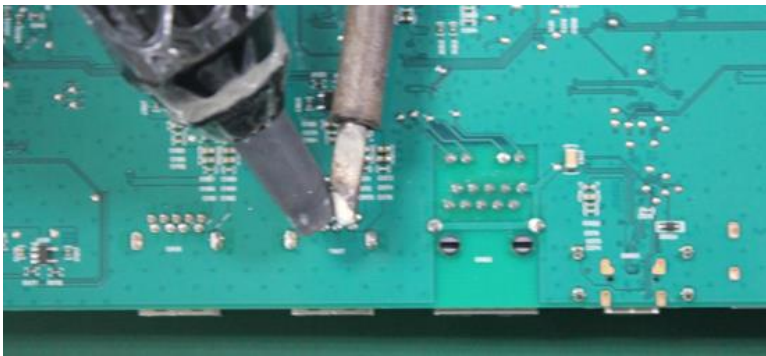


- 2) Lift the CN103 connector from the circuit board.
- 3) Place the new component on the circuit board. Be sure that it matches the circuit board footprint.
- 4) Solder the new component.

## USB 3.0 connector CN1032&CN1033

Repair the USB connector:

- 1) Use a hot air gun to melt the solder on the pins. Pin solder with soldering iron and absorber. You can gently push down with the soldering iron once everything is molten to move the CN103 out of the through holes.



- 2) Lift the CN1032&CN1033 connector from the circuit board.
- 3) Place the new component on the circuit board. Be sure that it matches the circuit board footprint.
- 4) Solder the new component.

# Function test

After repair, be sure to confirm that all functions are working.

**Table 4-1:** Function test

Test item	Operating description	Tool used
HDMI test	Confirm whether image displays and sound plays correctly on the monitor.	Computer or DVD player
DP test	Confirm whether image displays and sound plays correctly on the monitor.	Computer or DVD player
USB-C test	Confirm whether image displays and sound plays correctly on the monitor	Computer or USB-C player
Audio test	Change volume and balance to confirm whether volume is smooth and loud enough.	Speaker

# Support and troubleshooting

The following table lists possible problems, the possible cause or each problem, and the recommended solutions.

**Table 4-2:** Solving common problems

Problem	Possible cause	Solution
Screen is blank or video is flashing.	Power cord is disconnected.	Connect the power cord.
	Monitor is off.	Power the power button. NOTE: If pressing the Power button has no effect, press and hold the power button for 10 seconds to disable the Power button lockout feature.
	Video cable is improperly connected.	Connect the video cable properly.
	System is in Auto-Sleep Mode.	Press any key on the keyboard or move the mouse to inactivate the screen blanking utility.
	Video card is incompatible.	Open the OSD menu and select the Input menu. Set Auto-Switch Input to Off and manually select the input or replace the video card or connect the video cable to one of the

		computer's on-board video sources.
Image appears blurred, indistinct, or too dark.	Brightness is too low.	Open the OSD menu and select Brightness to adjust the brightness scale as needed.
Check Video Cable is displayed on screen.	Monitor video cable is disconnected.	Connect the appropriate video signal cable between the computer and monitor. Be sure that the computer power is off while you connect the video cable.
Input Signal Out of Range is displayed on screen.	Video resolution and/or refresh rate are set higher than what the monitor supports.	Change the settings to a supported setting.
The monitor does not enter into a low-power sleep state.	The monitor's power saving control is disabled.	Open the OSD menu and select Power, select Auto-Sleep Mode, and then set auto-sleep to On.
"OSD Lockout" is displayed	The monitor's OSD lock function is enabled.	Press and hold the Menu button for 10 seconds to disable the OSD Lockout function.
Power Button is Locked is Displayed	The monitor's Power Button Lockout function is enabled.	Press and hold the Power button for 10 seconds to unlock the power button function.

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