Maintenance and Service Guide

E24 G5 model

Applicable to SN: CN4XXXXXXX

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.

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.

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

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 complaint, the replacement parts can be non-ROHS complaint. If the original parts are RoHS compliant, the replacement parts MUST be RoHS complaint.

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. 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.

2 Monitor features

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

Features

Display features

- 54.60 cm (21.5 in), 60.50 cm (23.8 in), plus full-screen support for lower resolutions; includes custom scaling for maximum image size while preserving original aspect ratio
- True 8 bit (QHD only)
- sRGB 99%
- Anti-glare panel with an LED backligh
- Touch screen capability (select product only)
- Ergonomic monitor setup guide (via the HP Display Center software) during first time use
- Tilt, swivel, height-adjustable, and pivot capabilities
- On-screen display (OSD) adjustments in several languages for easy setup and screen optimization
- Joypad OSD navigation
- Energy saver feature to meet requirements for reduced power consumption
- HP Eye Ease (TUV Low Blue Light Hardware Solution certified and 75 Hz Max Refresh rate)
- Compatible with displays software including:
  - HP Display Center
  - HP Display Manager
- Secure firmware updates with HP Display Center
- Security cable slot on the rear of the monitor for an optional security cable
- Cable management feature for placement of cables and cords

Connectors

- DisplayPort™ video input
- High-Definition Multimedia Interface® (HDMI®) video input
- USB Type-B port
- USB Type-A port
- Plug and Play capability, if supported by your operating system

Monitor stand

- Removable stand for flexible monitor head mounting solutions
- VESA® mounting capability (100 × 100 mm) for attaching the monitor to a swing arm mount

NOTE: For safety and regulatory information, see Legislation and regulations on page 39. To access the latest user guide, go to http://www.hp.com/support, and follow the instructions to find your product. Then select Manuals..

Front components

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

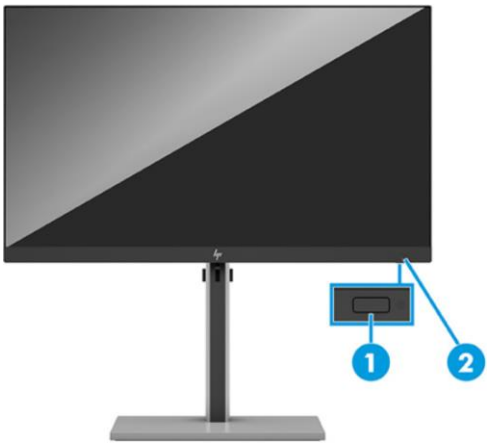


Table 2-1 Front components and their descriptions

Component		Description
(1)	Power button	Turns the monitor on or off.
(2)	Power LED	Indicates that the monitor is powered on.

Rear and side components

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

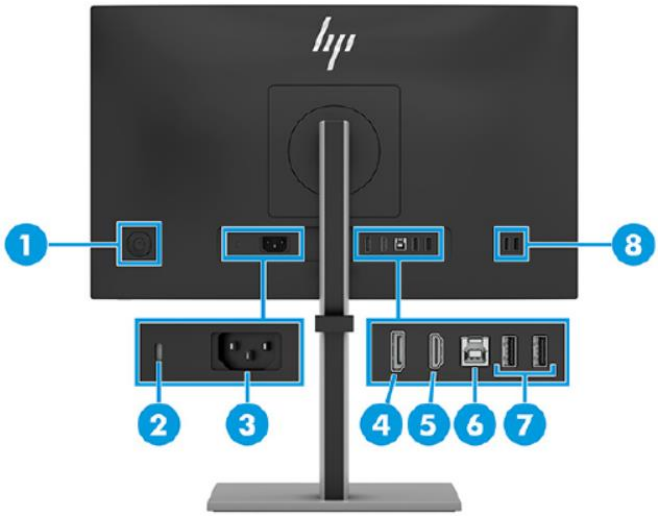
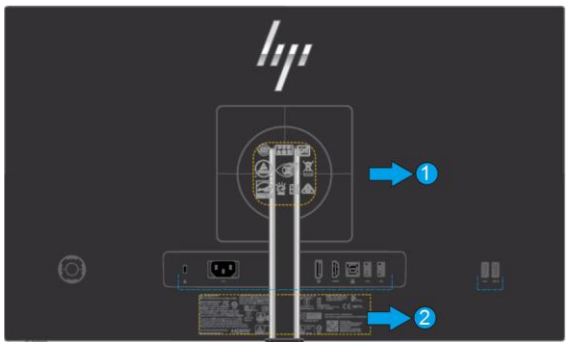


Table 2-2 Rear and side components and their descriptions

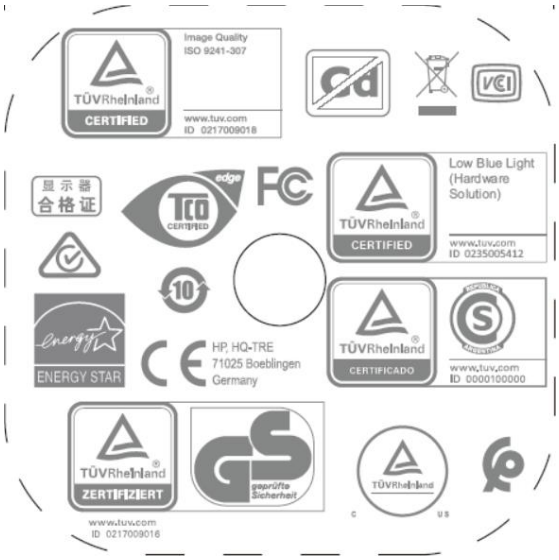
Component		Description
(1)	Joypad	Press to open the OSD settings.
(2)	Security cable slot	Connects an optional security cable.
(3)	Power connector	Connects a power cord.
(4)	DisplayPort connector	Connects a DisplayPort cable to a source device such as a computer or game console.
(5)	HDMI port	Connects the HDMI cable to a source device such as a computer or game console.
(6)	USB Type-B port	Connects a USB Type-B to A cable. NOTE: The USB hub is enabled only if the monitor is connected to the computer via a USB Type-B to A cable. NOTE: The touch screen function (select products only) is enabled only if the monitor is connected to the computer via a USB Type-B to A cable.
(7)	USB Type-A ports (2)	Connects a USB device, provides data transfer, and (for select products) charges small devices (such as a smartphone) when the computer is on or in Sleep mode. NOTE: Use a standard USB Type-A charging cable or cable adapter (purchased separately) when charging a small external device.
(8)	USB Type-A port (1), USB Type-A port with battery fast charging 1.2 (1)	USB port: Connects a USB device, provides data transfer, and (for select products) charges small devices (such as a smartphone) when the computer is on or in Sleep mode. USB port with battery fast charging: Connects a USB device, provides high-speed data transfer, and charges small devices (such as a smartphone), even when the monitor is DC off with OSD performance mode on. NOTE: Use a standard USB Type-A charging cable or cable adapter (purchased separately) when charging a small external device.

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 Barcode label. You may need these numbers when contacting HP about the monitor model.



Spec label (ww & India):



Barcode label (ww & India):

3 Illustrated parts catalog

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

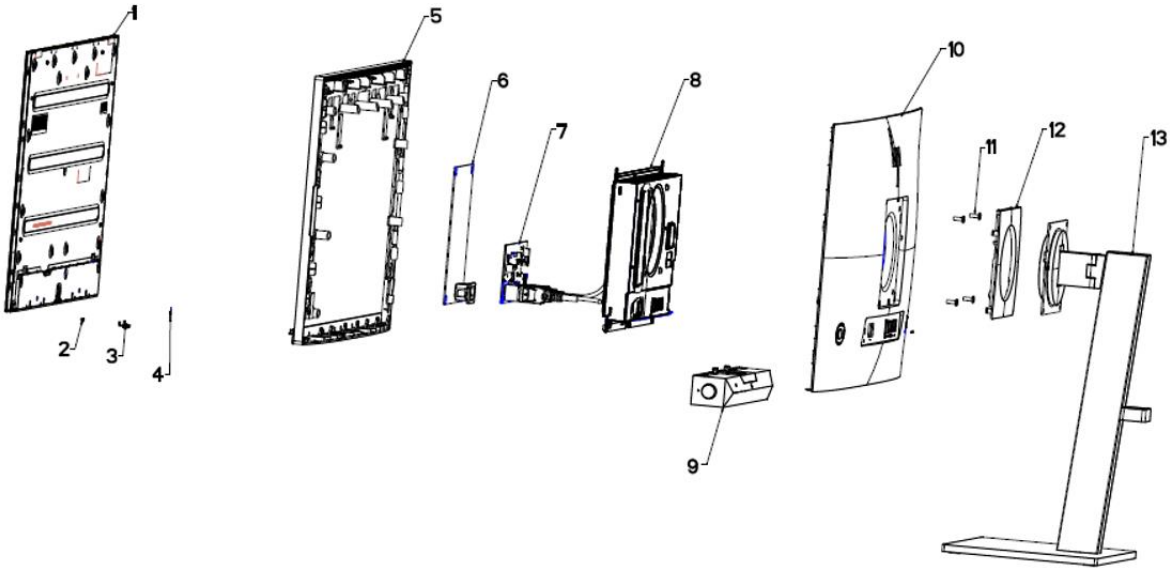


Table 3-1: Monitor major components and their descriptions

Item	Description	Part number	Qty
1	#ASSY Panel E24 G5		1
2	#Lens E24 G5		1
3	#Power key E24 G5		1
4	#Bezel Logo E24 G5		1
5	#Mid frame Assy E24 G5		1
6	#ASSY Power BD E24 G5		1
7	#ASSY IF BD E24 G5		1
8	#Main Chassis E24 G5		1
9	#Assy Speaker E24 G5		1
10	#Rear cover Assy E24 G5		1
11	#Wall mount screw E24 G5		4
12	#VESA cover E24 G5		1
13	#ASSY Stand E24 G5		1

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
POWER BD RE238HC-WUL-HU01(C) E24 G5 LGD/AUO	N40921-001	755.09Q02.0001
POWER BD RE238HC-WUL-HU01(C) E24 G5 HKC/BOE	N40922-001	755.09Q02.0002
POWER BD RE238HC-WUL-HU01(C) E24 G5 INX	N40923-001	755.09Q02.0003

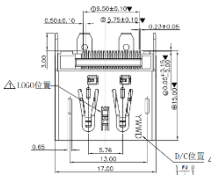
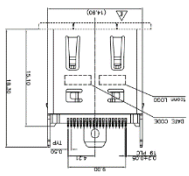
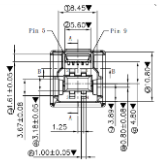
Capacitors and connectors are available for purchase from the following EU distributors:

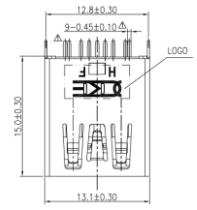
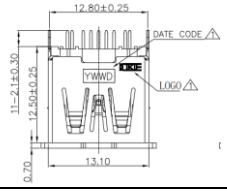
- SUSCON : www.su-scon.com
- CAPXON: www.capxongroup.com

Capacitors by distributor

Component description	Location	Component distributor	Distributor part number
CAP EL 100U 450V M P7.5 16*45 R CAPXON	PT501	CAPXON	009.1071M.0191
CAP EL 100U 450V M P7.5 16*45 R HE		SUSCON	009.1071M.009
CAP EL 100U M 450V SE RT7.5 16*40		SUSCON	009.1071M.0021
CAP EL 100U 450V M RT7.5 16*40 KL		CAPXON	009.1071M.0321

Connectors by manufacturer

Component description	Location identifier	Component distributor	Distributer part number	Remark
DP	DP1	XIANHE	https://www.digikey.com PN: 35420FKSLN1D4HF	Cut off the through hole 
HDMI	HDMI1	TCONN	https://www.digikey.com PN: T13-0002-2A30	
USB-B	USB1	XIANHE	https://www.digikey.com PN: 601ASPCEHF	Cut off the Pin as below 

USB-A	USB2 USB3	XIANHE	https://www.digikey.com PN: 601ASPBKHF	Cut off the Pin as below 
USB-A	USB4 USB5	XIANHE	https://www.digikey.com PN: 601ASPL3HF	Cut off the Pin as below 

NOTE: The connector may need to be modified to meet functionality, regulatory and safety requirements if it is not an exact match.

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

NOTE: HP continually improves and changes product parts. For complete and current information about supported parts for your computer, go to http://partsurfer.com, select your country or region, and then follow the on-screen instructions.

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

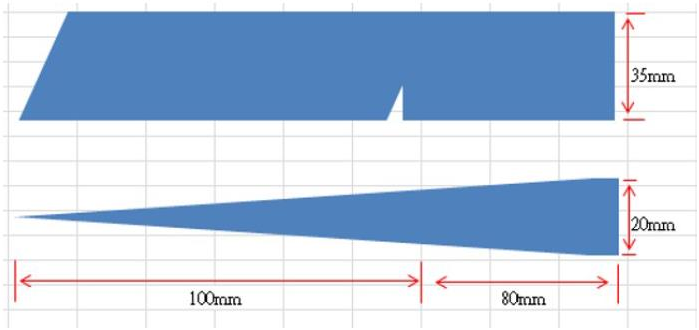
4 Removal and replacement procedures

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:

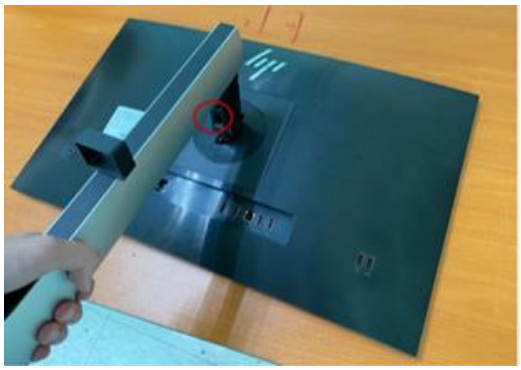


Rear Cover

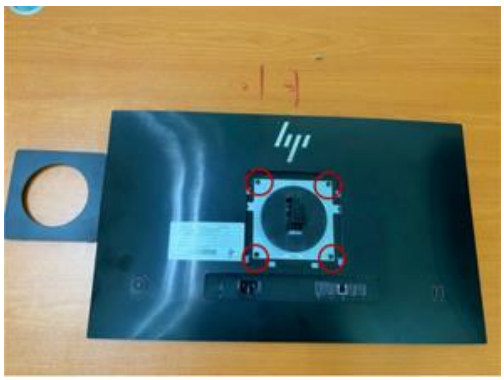
Before removing the Rear Cover, follow these steps:

▲ Prepare the monitor for disassembly. See Preparation for disassembly on page 10.

1) Pull the release button to remove Stand Base From Display Head

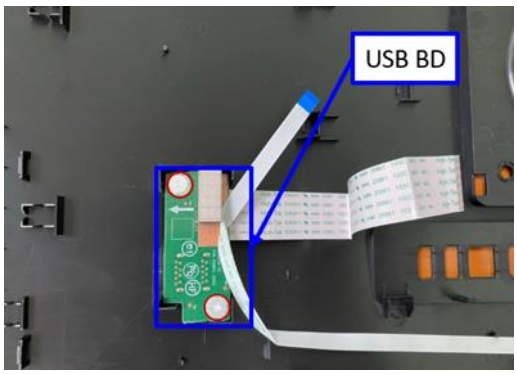


2) Use tool to remove 4pcs screws, then remove VESA cover and Hinge Assy from Display Head.

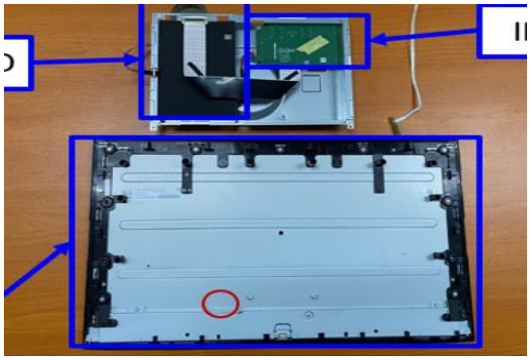


3) Disconnect the cables and remove the rear cover from the display head.

4) Remove 2pcs screws to release the USB BD. Remove 2pcs screw to release OSD BD

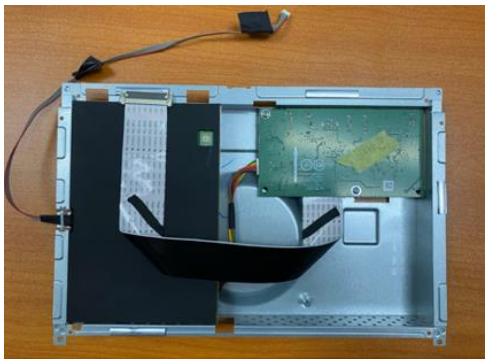
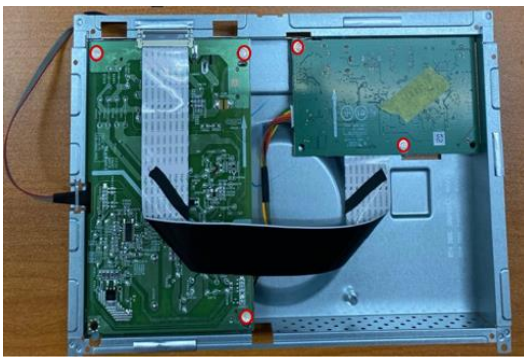


5) Remove all tape and disconnect all cables, then remove the main chassis from the panel..

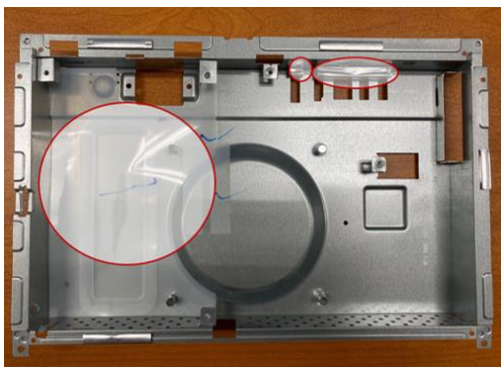


6) Remove all the screws to release the middle frame away from the panel module.

7) Remove the safety Mylar, then release the 5pcs screws from the interface BD and power BD

8) Remove 2pcs screws to release AC outlet, then remove the power board and interface board from chassis.



Power board

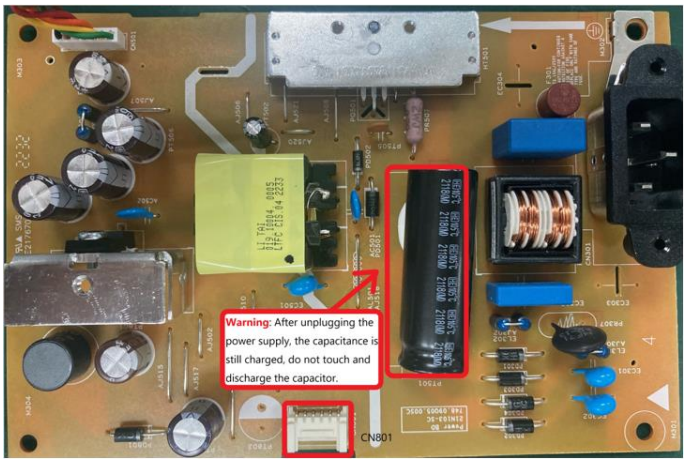
The power board part number is 755.09Q02.0001.

Before removing the power board, follow these steps:

▲ Prepare the monitor for disassembly. See Preparation for disassembly on page 10.

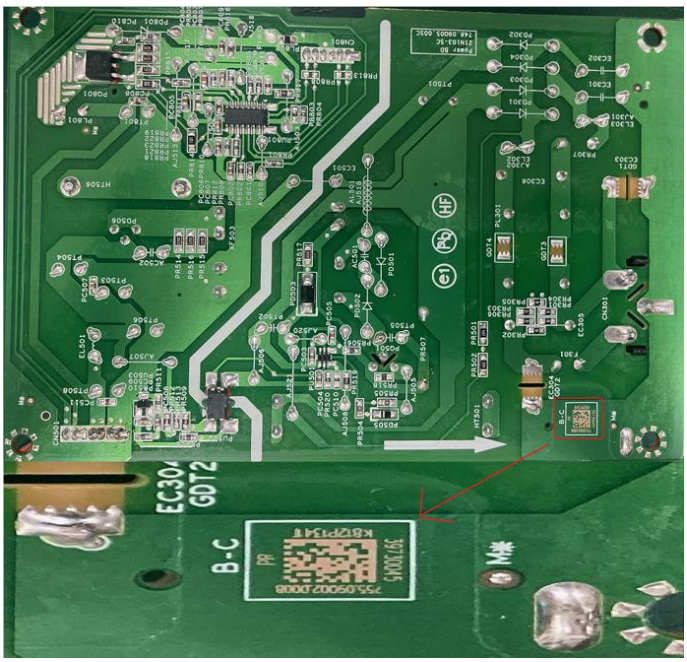
Remove the power board:

1) The HP E24 G5 power board connector position is as follows:

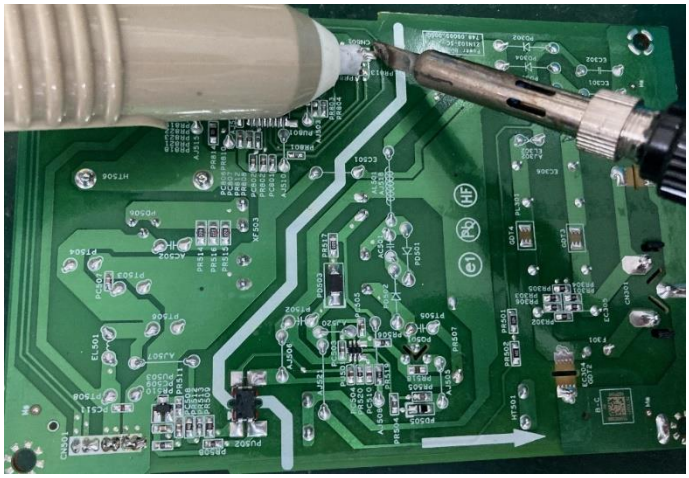


CN801 Wistron P/N: 021.61323.0106

2) Locate the part number location on the board.



3) Pin solder with soldering iron and absorber.
CN801



4) Lift the connector up and away from the PCB.
CN801

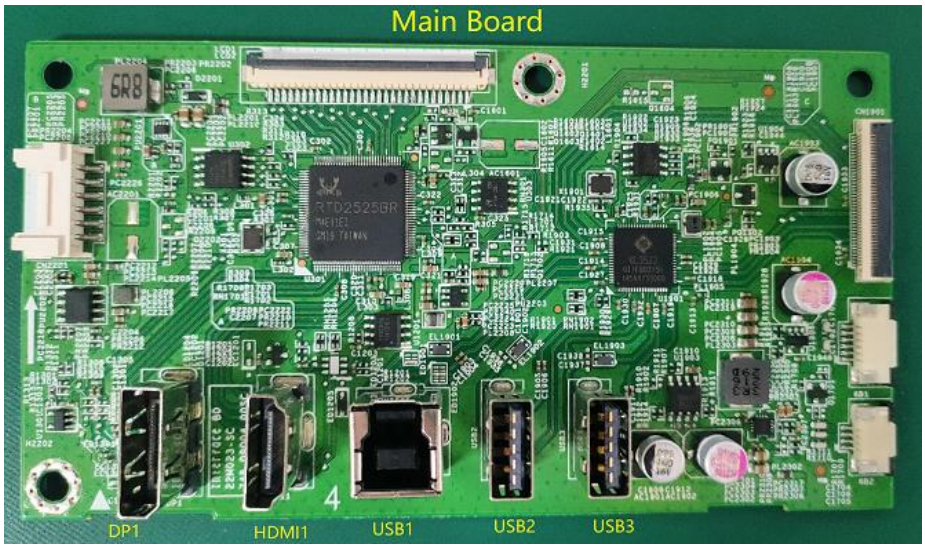
Connector repair

This procedure includes Display Port, HDMI, USB-B and USB-A connectors.

The connectors are on the main board (board part number 7ZB.09Q01.0018).

The connector identifiers are as follows:

Connector	Location
DP	DP1
HDMI	HDMI1
USB-B	USB1
USB-A	USB2, USB3
USB-A	USB4, USB5



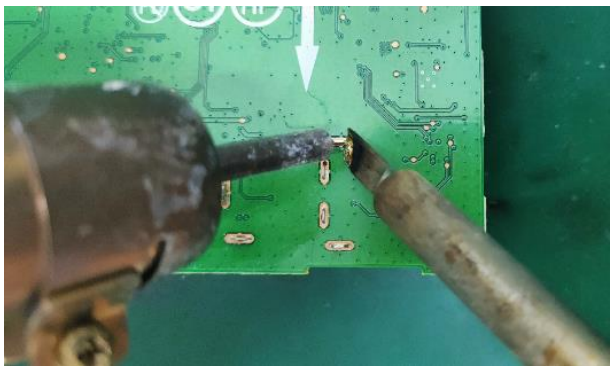
Before repairing connectors, follow these steps:

▲ Prepare the monitor for disassembly. See Preparation for disassembly on page 10.

DP connector DP1

Repair the DP connector:

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



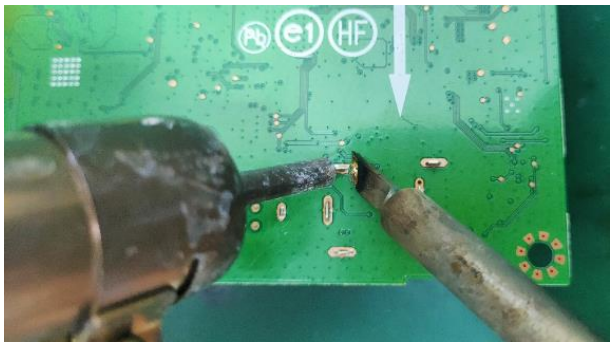
2) Use a hot air gun to melt the solder on the pins

3) Lift the DP connector from the PCB.
4) Place the new component on the PCB. Be sure that it matches the PCB footprint.
5) Solder the new component.

HDMI connector HDMI1

Repair the HDMI connector:

1) Use a soldering iron 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 HDMI connector from the PCB.
4) Place the new component on the PCB. Be sure that it matches the PCB footprint.
5) Solder the new component.

USB-B connector USB1

Repair the USB-B connector:

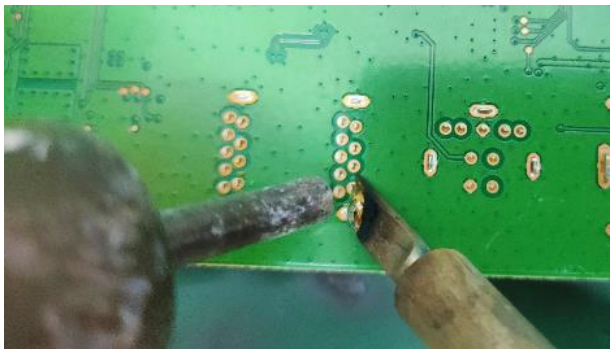
1) Use a soldering iron to remove as much solder as possible from the pin.

2) Lift the USB-B connector from the PCB.
3) Place the new component on the PCB. Be sure that it matches the PCB footprint.
4) Solder the new component

USB-A connector USB2/USB3

Repair the USB-A 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 USB-A connector out of the through holes

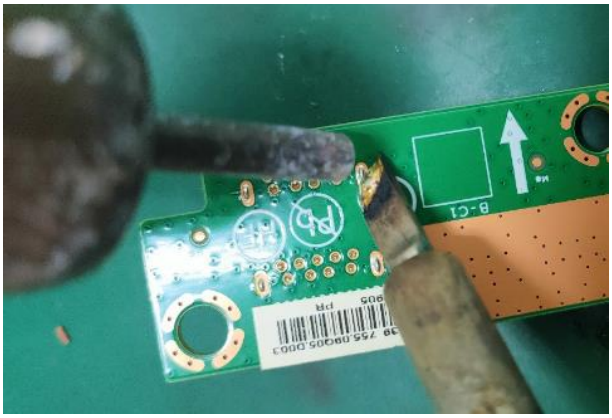


2) Lift the USB-A connector from the PCB.
3) Place the new component on the PCB. Be sure that it matches the PCB footprint.
4) Solder the new component.

USB-A connector USB4/USB5

Repair the USB-A 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 USB-A connector out of the through holes.



2) Lift the USB-A connector from the PCB.
3) Place the new component on the PCB. Be sure that it matches the PCB 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	Computer or DVD player
DP test	Confirm whether image displays	Computer or DVD player
USB Hub Test	Confirm USB function of 4-USB Type-A working normally.	Computer or Notebook

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 turned 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 toinactivate 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 ofthe 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 set auto-sleep to **On**.
"OSD Lockout" is displayed.	The monitor's OSD lock function is enabled.	Press and hold the Left button for 10 seconds to disable the OSD lockout function
"Power Button Lockout" is displayed.	The monitor's power button lockout feature is enabled..	Press and hold the **Power** button for 10 seconds to unlock the power button function
Monitor has trouble waking from Sleep mode		DisplayPort inputs: Set the DisplayPort hot-plug detection to Always Active. Power mode monitors: Set the hot-plug detection to Always Active to switch the monitor to Performance mode.

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