

# ASUS TUF Gaming A15 (FA506I/Q) series

**Service Guide** 



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#### Disclaimer

ASUS is not responsible for direct, indirect, intentional or unintentional damages resulting from improper installation and operation.

#### **Safety precautions**

- Keep liquids or moisture away from your Notebook PC before installing or removing any components.
- Ensure to place your Notebook PC on a stable surface before installing or removing any components.
- Detach the clip or flap before removing the signal cables to prevent damage.
- Disconnect the power plug by pulling the plug evenly to avoid damage. Ensure to connect the signal cables in the correct orientation.
- Disconnect all power cables and remove the battery pack (if applicable) before cleaning your Notebook PC with liquid detergent to avoid risk of electric shock.
- Disconnect all power cables and remove the battery pack (if applicable) before installing or removing any components. Ensure to read and follow the instructions in the manual.
- Before handling components, use a grounded wrist strap or touch a safely grounded object to avoid damaging them due to static electricity.
- Keep liquids or moisture away from your Notebook PC to avoid short circuits.
- Hold components by the edges to avoid touching the ICs.
- Ensure to properly install all the components before connecting the AC power.
- Do not use power adapters or batteries from other devices to reduce the risk of injury to persons due to fire or explosion. Use only certified power adapters or batteries supplied by the manufacturer or authorized retailers.
- Ensure to install the correct screw models on your Notebook PC to prevent damage.



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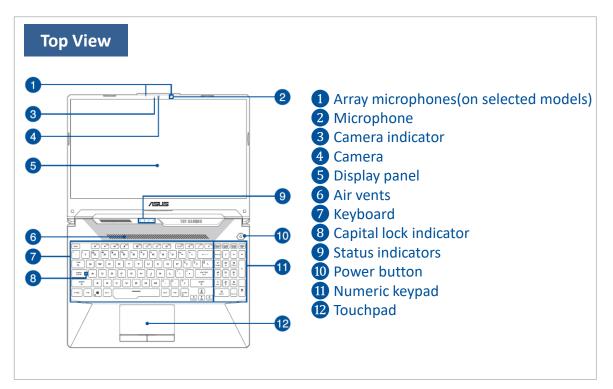
## **Service Overview**

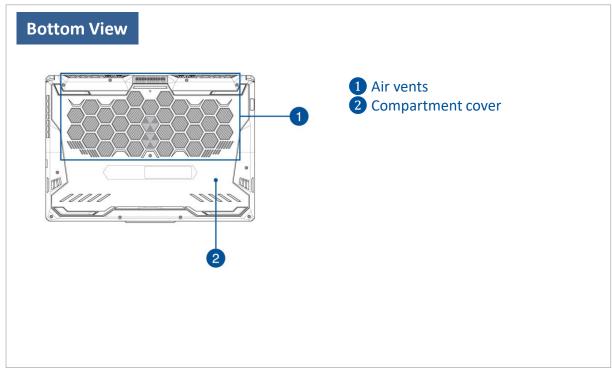
- Carefully read through this Service Guide for a look at various components of the device before performing any service and repairs.
- To provide the best service, we have provided the below information for technicians from distributors and resellers to perform the complete device disassembly and assembly. Before performing the procedures, please be sure to read through the overview in this service guide for component overview to avoid any unwarranted damages to the device hardware.
- The following contents include all part numbers mentioned in the service guide are used for reference only, if you need the exact part number for
  ordering, please refer to the OrderBook.
- Due to sales policy difference, the components might have different specifications on the same series product, please refer to E-manual by model.

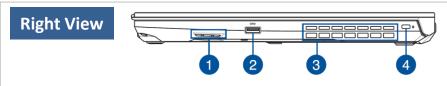
Due to sales policy difference, the components may have different specifications on the same model. If you have any operational issues, please contact the service hotline.



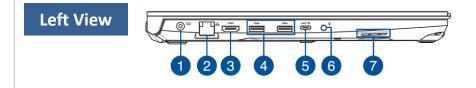
## ASUS TUF Gaming A15 (FA506I/Q) series Overview







- 1 Audio speakers
- 2 USB 3.2 Gen 1 port
- 3 Air vents
- 4 Kensington® security slot



- 1 Power (DC) input port
- 2 LAN Port
- 3 HDMI port
- 4 USB 3.2 Gen 1 port

- 5 USB 3.2 Gen 2 Type-C<sup>®</sup> /DisplayPort combo port
- 6 headphone/Headset/Microphone jack
- 7 Audio speakers



## **Components Top View**

♦ LCD COVER MODULE



♦ LCD BEZEL



♦ 15.6' LCD



**♦** BASE CASE



♦ KEYBOARD MODULE



♦ BEZEL COSMETIC MYLAR



**♦** MAIN BOARD



♦ LED BOARD



**♦** USB BOARD



**♦** WIFI CARD



**♦** BATTERY



**♦** CAMERA



**♦ THERMAL MODULE ASSY** 



♦ GPU FAN



♦ DDR



**♦** MB RAM ABSORBER



**♦ DIMM COVER MYLAR** 



♦ SSD



♦ SSD MYLAR



♦ SSD AL FOIL





♦ DC JACK CABLE 8PIN



♦ TP-MB FFC



♦ USB-MB FFC



♦ LED-MB FFC



♦ HINGE (For FA506IV-1A)



**♦** HINGE



**♦** SSD GASKET







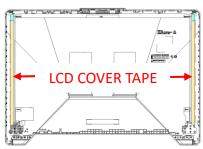
**♦** BASE BATTERY GASKET





## **Components Bottom View**

#### ♦ LCD COVER MODULE



♦ LCD BEZEL



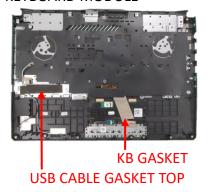
♦ LCD Panel



♦ LED BOARD



#### ♦ KEYBOARD MODULE



♦ BASE CASE



**♦** MAIN BOARD



♦ USB BOARD



♦ THERMAL MODULE ASSY





## **Repair Overview**

This chapter describes disassembly and assembly (Assemble document please look up from the last page), please follow the information provided in this section to perform the complete disassembly procedure.

#### **♦** Precautions:

Before you perform any service or repair on the notebook, please pay special attention to the cautions prevent any damages to the notebook.

- 1. Be sure that the notebook is powered down.
- 2. Before disassembling any part, please disconnect all power source. ex: AC plug/Battery connector/Power protect screw etc.
- 3. Remove all rings, watches and any other metal objects from your hands.





- 4. Always wear a ground strap on your hand to protect the notebook from static discharge.
- 5. Please refer to "ANSI ESD S20.20" about ESD protection measure.
- 6. Put the disassembled parts in the functional PE BAG to avoid any damages of the A/B/C/D part.





- 7. The maintenance environment temperature is 20-30 °C and humidity is 40% 70%.
- 8. To avoid scratching on the surface of machine; please use anti-static and soft materials to put on desk in repair environment as below photo.

9. Screw Appearance Criteria:

If the screws have the following damaged appearance, please do not use.

- a. Shape deformed.
- b. Damaged head unable to drive in or the stripped screw.
- c. Damaged unable to securely tighten.
- d. Paint scratched off.
- e. Rusty











- 10. The following chapter includes all part numbers mentioned in service guide are used for reference only, actual part name depends on different SKU, if you need the exact part number for ordering, please refer to the Orderbook.
- 11. Due to sales policy difference, the components may have different specifications on the same model. Please note that all pictures and components shown on Service Guide are for disassembly/assembly description purpose only, so please refer to the actual product for disassemble/assemble.



## **Appropriate Tools**

Please prepare and select the appropriate tools to disassemble/assemble for the ASUS TUF Gaming A15 (FA506I/Q) series notebook.

#### **♦** Screwdriver

Please accord to different screw specification to choose different screwdriver and head.



#### **♦ Plastic Blade**

#### **♦ Plastic Tweezers**

Use a pair of tweezers to remove/insert/tidy up cables.



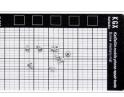
#### **♦** Thickness Gauge

Thickness compass specification 0.05mm-1.5mm. Use it to measure the gap.



#### **♦** Magnetism Board

Suggest local buy magnetism board to place screw, avoid mix different type screw to cause assembly damage.



#### ♦ Alcohol 95



#### **♦** Glove



#### **♦** Dust-free Cloth



### **♦** Thermal Pad



#### ♦ PLASTIC CARD T=0.35mm





♦ NB LCD MYLAR \*6pcs

Use it to align panel position.



#### **♦** FCR-AS Thermal Grease







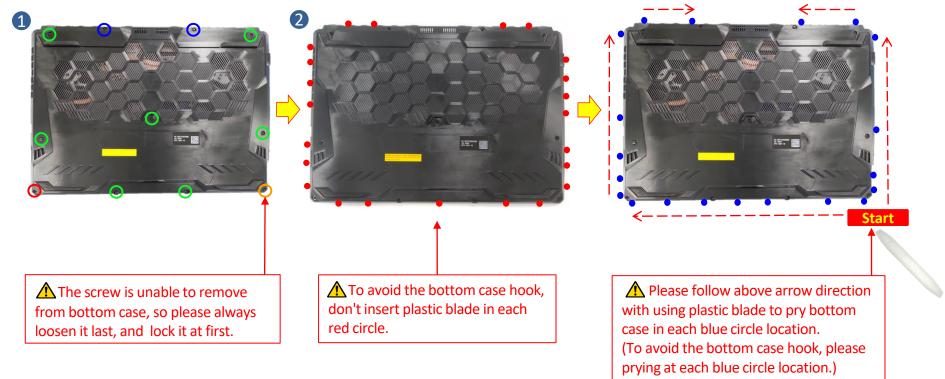
## **BOTTOM CASE**

## **Disassembly Notice**

Step 1 : Remove screws \*10pcs.

Step 2: Use plastic blade to pry the bottom case.

Screws	QTY	Spec	Torque (kgf-cm)
	2	M2.5*14L	2.5
10	1	M2.5*5.5L	2.5
10	7	M2.5*11L	2.5
TO	1	M2.5*2.5L+3.5 (4.5,0.8)	2.5









## **BATTERY**

## **Disassembly Notice**

Please be sure to pull out adapter and disconnect the battery.

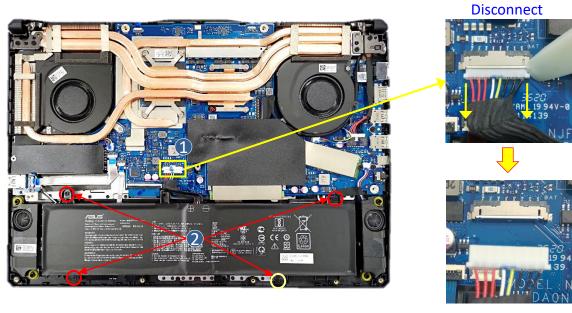


Before disassembly battery connector, please be sure to pull out adapter and disconnect the battery more than ten seconds in order to IC damage.

Step 1 : Disconnect the battery connector.

Step 2: Remove screws \*4pcs.

Step 3: Remove BATTERY.



Screws	QTY	Spec	Torque(kgf-cm)
10	3	M2.5*5.5L	2.5
	1	M2.5*4.5L	2.0~2.2











## SSD (FOR FA506QM\_QR\_IM\_IR)

### **Disassembly Notice**

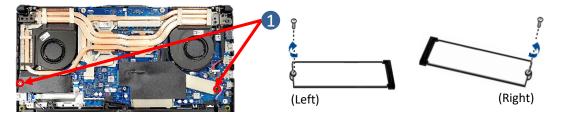
Please be sure to pull out adapter and disconnect the battery.

Step 1: Remove the screws \*2pcs.

Step 2: Remove SSD Mylar and AL Foil at left side, and remove SSD.

Step 3: Remove SSD at right side. Step 4: Tear off ABSORBER from SSD.

Screv	ws	QTY	Spec	Torque (kgf-cm)
T	0	2	M2*3L	2.0











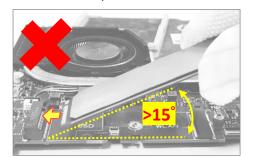


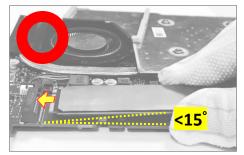
### **Assembly Notice**

⚠ Please make sure to paste ABSORBER before assembling SSD.

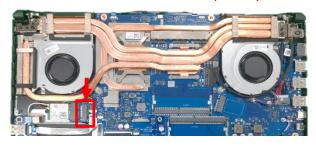


Mhen installing the SSD, please keep the SSD less then 15 degrees with motherboard, and then insert the SSD.





⚠ Please use this SSD slot as first priority.



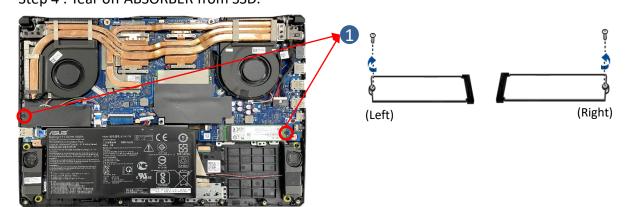


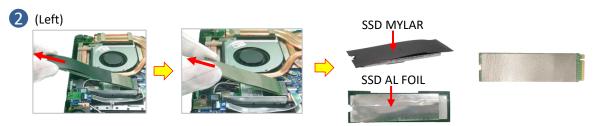
## SSD (FOR FA506QC/QE/IHR/IC/IE)

### **Disassembly Notice**

Please be sure to pull out adapter and disconnect the battery.

- Step 1: Remove the screws \*2pcs.
- Step 2: Remove SSD Mylar and AL Foil at left side, and remove SSD.
- Step 3: Remove SSD at right side. Step 4: Tear off ABSORBER from SSD.





(Right)





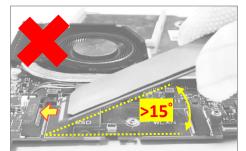
Screws	QTY	Spec	Torque (kgf-cm)
TO	2	M2*3L	2.0

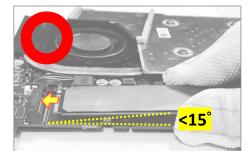
### **Assembly Notice**

Please make sure to paste ABSORBER before assembling on the left side SSD.



When installing the SSD, please keep the SSD less then 15 degrees with motherboard, and then insert the SSD.





ı 🔨

Please use this SSD slot as first priority.





## **DDR**

## **Disassembly Notice**

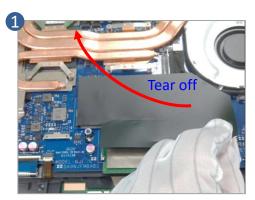
Please be sure to pull out adapter and disconnect the battery.

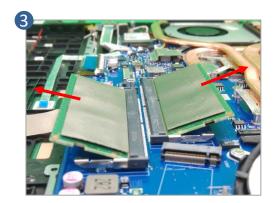


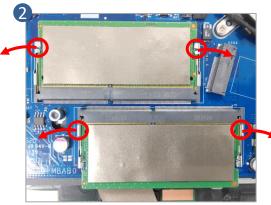
Step 1 : Remove the Mylar.

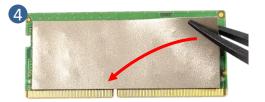
Step 2 : Unlock DDR. Step 3: Remove DDR.

Step 4: Tear off ABSORBER on the front and back of DDR.

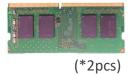


















## **WIFI CARD**

## **Disassembly Notice**

Please be sure to pull out adapter and disconnect the battery.



Step 1 : Disconnect the RF CABLE connector \*2pcs.

Step 2 : Remove the screw \*1pcs.

Step 3: Remove WIFI CARD.

Screws	QTY	Spec	Torque (kgf-cm)
TO	1	M2*3L	2.0















## **SPEAKER**

## **Disassembly Notice**

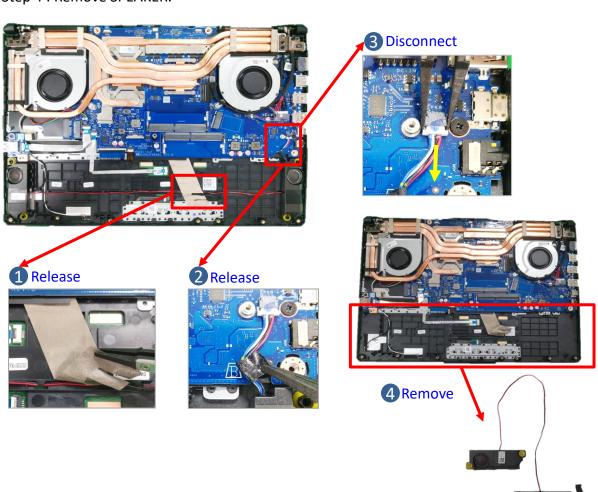
Please be sure to pull out adapter and disconnect the battery.



Step 1: Release the tape. Step 2: Release the tape.

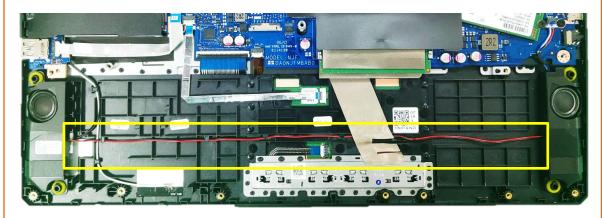
Step 3: Disconnect the SPEAKER connector.

Step 4 : Remove SPEAKER.



### **Assembly Notice**

For Speaker assembly, please follow the mark below to tidy cable.





## **USB BOARD**

## **Disassembly Notice**

Please be sure to pull out adapter and disconnect the battery.

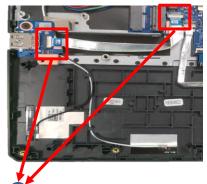


Step 1: Disconnect the FFC connector.

Step 2: Remove USB-MB FFC.

Step 3: Remove screw \*1pcs and remove USB BOARD.

Screws	QTY	Spec	Torque (kgf-cm)
TO	1	M2*3L	2.0





















## **Assembly Notice**

If FFC is damage during disassembly, please replace new one. Here are some samples of FFC damage:











## **FAN (with THERMAL MODULE and MAIN BOARD)**

### **Disassembly Notice**

Please be sure to pull out adapter and disconnect the battery.



Step 1 : Disconnect (yellow mark) connector \*9pcs.

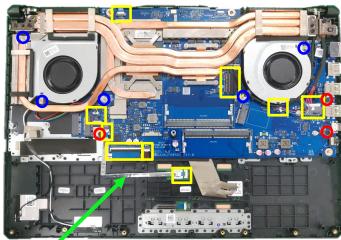
Step 2 : Remove TP-MB FFC. Step 3 : Remove screws \*8pcs.

Step 4: Remove MB and Thermal and FAN module.

Step 5 : Remove FAN \*2pcs.

Screws	QTY	Spec	Torque (kgf-cm)
TO	3	M2*3L	2.0
	5	M2*4L	2.0

### 1 Disconnect (Yellow mark)



2 Remove

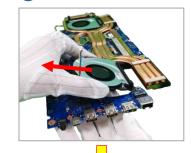
Remove (Red and blue mark)







### **5** Remove FAN







### **Assembly Notice**

If FFC is damage during disassembly, please replace new one. Here are some samples of FFC damage:









Please use the correct technique to take fans off to avoid getting out of shape.







## THERMAL MODULE

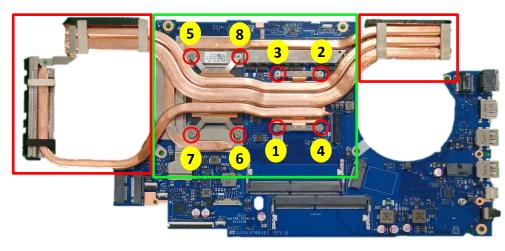
### **Disassembly Notice**

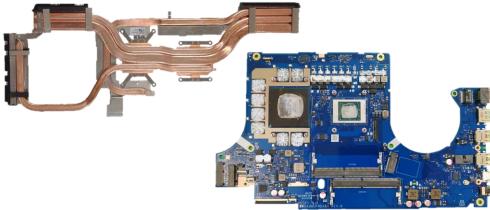
Please be sure to pull out adapter and disconnect the battery.

Step 1: Please follow the reverse screws numbers to remove screws \*8pcs.

Step 2: Remove the THERMAL MODULE from MB.

Recommend that the force point is at green block, and pull up thermal module to take it out. Do not pull up at red block and also notice the thermal pipe should not have deformation.





Screws	QTY	Spec	Torque (kgf-cm)
	8	M2*4L	2.0

### Assembly Notice /



#### Step-1

Please refer **Repair Notice SOP** for thermal material rework when reassemble thermal module before.

 THERMAL MODULE Location:[VRAM/CHOKE/MOS] Material: FCR-AS Grease

MB Location:[GPU/CPU] Material: TH PAD PTM7958)

#### Step-2

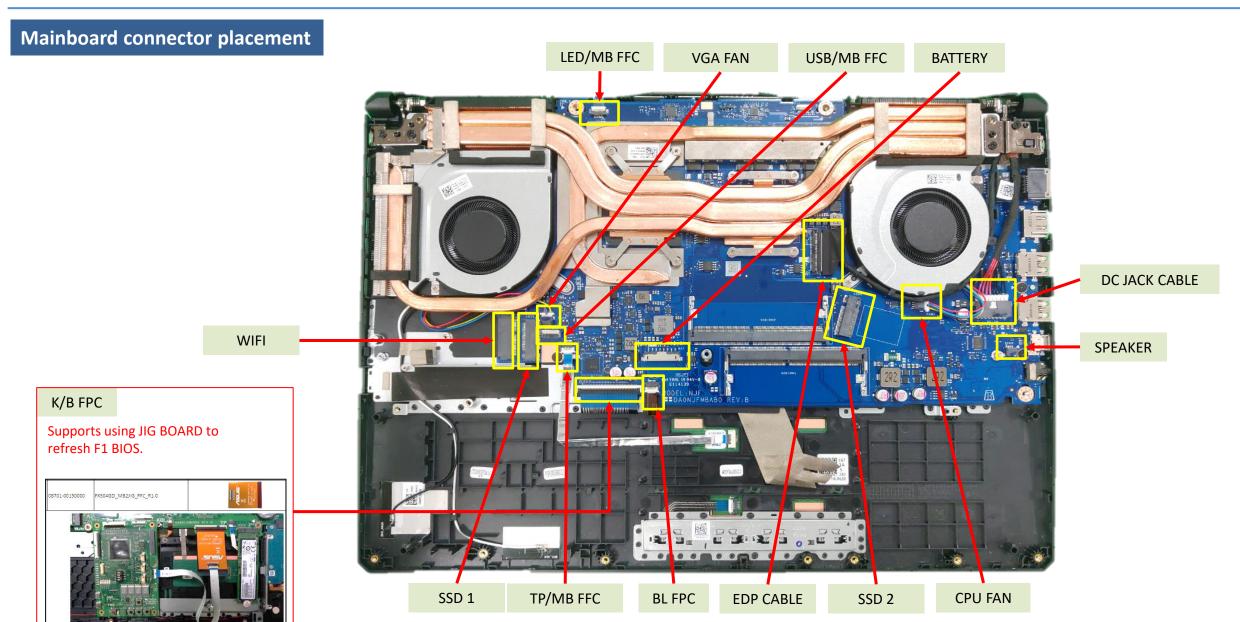
Please follow the screws numbers to lock screws \*8pcs.

**IMPORTANT!** Thermal paste, thermal pads, liquid metal, or other thermal interface materials must be thoroughly removed and replaced if this component is removed. Ensure that replacement materials are available before proceeding, or contact an authorized service center for assistance.

WARNING! The heat sink contains liquid metal and should only be removed by authorized service personnel. Significant damage may occur to motherboard components if the heat sink is improperly removed.



## **MAIN BOARD**



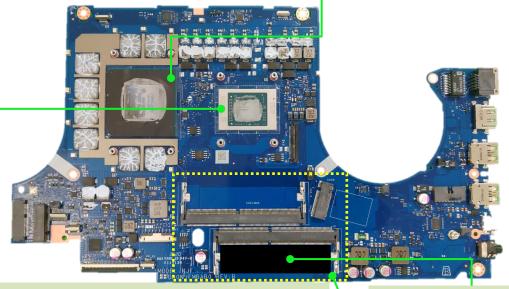


## **MAIN BOARD**

### Materials on mainboard

Parts marked in yellow can be ordered/replaced separately at L2 repair level. When L3/L4 repair finished, no need to paste new one if shortage of this material on the MB.

Chose the Mylar according to GPU model FA506QM N18E G20 GPU MYLAR FA506IV N18P GPU MYLAR FA506QM N18E G20 GPU MYLAR-E3 FA506IV N18E G0 GPU MYLAR FA506IV N18E G1 GPU MYLAR



Chose the Mylar according to AMD CPU model (Cezanne FA506QM APU KAPTON FILM) (Renoir FA506IV AMD APU MYLAR)

Renoir



#### Cezanne

FA506IV DIMM COVER MYLAR (For FA506IV\_II\_IU) FA506QM DIMM COVER MYLAR (For FA506QM) FA506QE DIMM MYLAR (For FA506IC\_IE\_IHR\_QE)



**FX507ZE RAM UNDERSIDE MYLAR** 

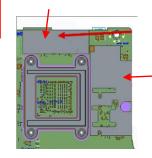
FA506IV N18E CPU UP ABSORBER FA5

FA506IV N18E CPU ABSORBER

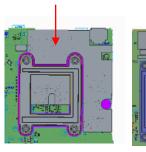
FA506IV N18E GPU ABSORBER

FA506IV MB TOP MYLAR

FA506QM MB G20 GPU TOP ABSORBER



FA506IV N18E CPU DOWN ABSORBER





- FA506QM GPU BKT-AMD ASSY (For FA506QM\_QR)
- FX505GE GPU BKT ASSY
  (For FA506IC\_IE\_IH\_IHR\_II\_IU\_IV\_QE)

FASO6IV IO SPONGE

FASO6IV IO SPONGE

FA506QM MB G20 GPU TOP DOWN ABSORBER

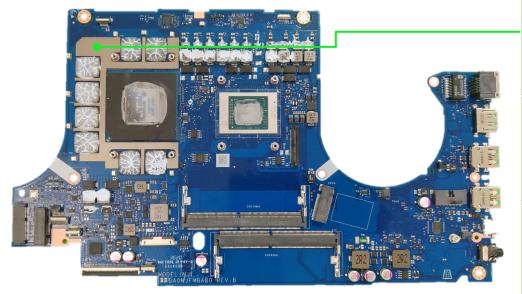
FA506QC MB G20 GPU TOP ABSORBER

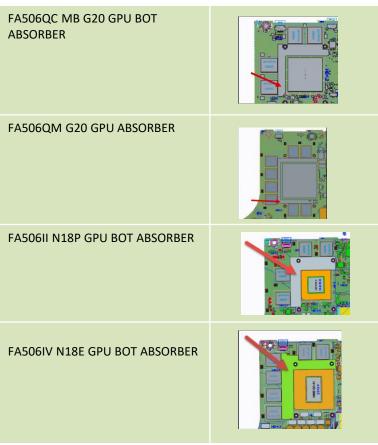


## **MAIN BOARD**

## Materials on mainboard

Parts marked in yellow can be ordered/replaced separately at L2 repair level. When L3/L4 repair finished, no need to paste new one if shortage of this material on the MB.







## **KEYBOARD MODULE**

### **Disassembly Notice**

Please be sure to pull out adapter and disconnect the battery.



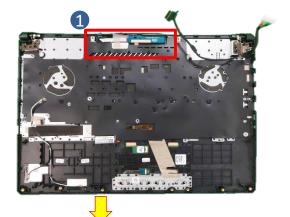
Step 1: Remove the LED BD and FFC.

Step 2: Remove screws \*4pcs.

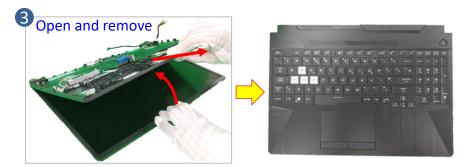
Step 3: Remove the KEYBOARD MODULE.

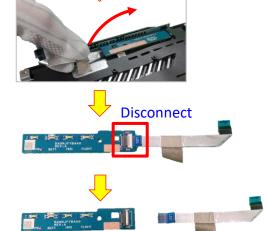
Step 4: Remove the DC JACK CABLE.

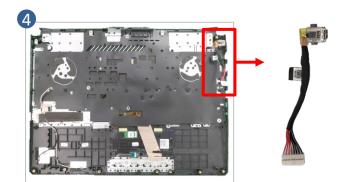
Screws	QTY	Spec	Torque (kgf-cm)
TO	4	M2.5*5.5L	2.5











### **Assembly Notice**

Please refer below picture to organize EDP cable while repair device, it's to keep device safety.

- P1. EDP cable need to following yellow dotted line to organize EDP cable, DO NOT pass through hinge.
- P2. After assemble hinge as picture.





## **LCD BEZEL**

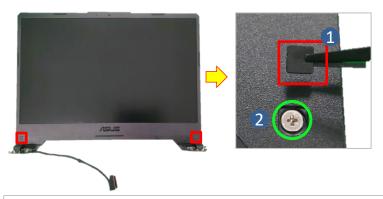
### **Disassembly Notice**

## Please be sure to pull out adapter and disconnect the battery.

Step 1: Remove BEZEL COSMETIC MYLAR \*2pcs.

Step 2: Remove screws \*2pcs. Step 3: Remove LCD BEZEL.

Screws	QTY	Spec	Torque (kgf-cm)
	2	M2.5*3.5L	2.5



Due to some tapes behind the lower edge of bezel, please using plastic blade to teardown the bezel.

Please follow the direction shown in the red arrow, to move plastic blade from left to right and peel the bezel away slowly. While peeling, please move the blade in the parallel direction to the panel and pressing the black Mylar downward (As circled in green) to ensure the black Mylar and the tape behind the bezel are well separated.

Please move blade slowly to separate the bezel away, and must press the black Mylar downward with panel parallel direction..

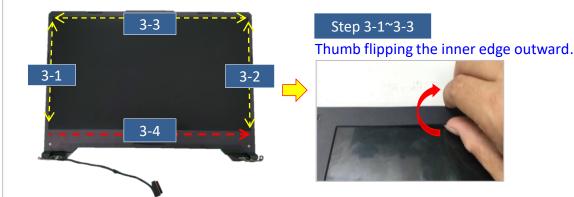






3

Step 3-1~3-3, Start from the middle area of each side of bezel, Using the forefinger to hold the outer edge firmly and the thumb flipping the bezel inner edge outward to release the hooks as indicated in the diagram shown. (It can be helpful, if holding the bezel outer edge firmly with forefinger.)



### **Assembly Notice**



#### When reuse the LCD BEZEL:

Please paste new LCD BEZEL ADHESIVE before assembly BEZEL.

(New LCD BEZEL already contains LCD BEZEL ADHESIVE \*1pcs)





## **LCD PANEL**

## **Disassembly Notice**

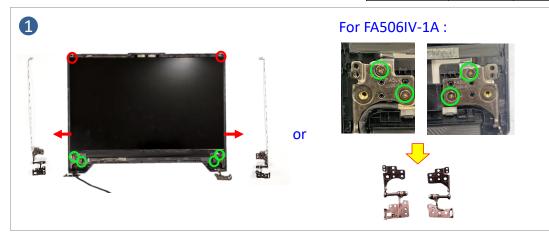
Please be sure to pull out adapter and disconnect the battery.

Step 1: Remove screws \*6pcs, and remove hinges \*2pcs.

Step 2 : Pull out LCD adhesive \*2pcs.

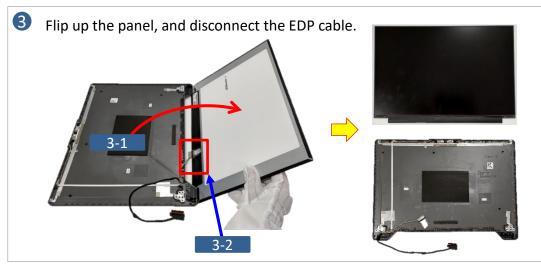
Step 3: Remove LCD PANEL.

Sc	crews	QTY	Spec	Torque (kgf-cm)
The state of the s	0	8	M2.5L*3	2.5
7	ГО	2	M1.6*2.5L	1.6





Please pull the adhesive up about 30 degree slowly, and don't pull out the tape in vertical direction!







## **LCD PANEL**

Assembly Notice Please be sure to pull out adapter and disconnect the battery.



When reuse the LCD PANEL:

Please use the fingertip to clean the residual glue on PANEL or BEZEL.



When reuse the LCD COVER:

Please paste new PANEL ADHESIVE \*2pcs. (New LCD COVER already contains PANEL ADHESIVE \*2pcs)



Please follow the green mark to tidy EDP cable.



When assembly the LCD PANEL: (The following is an operation example)

Step 1~2: Paste 16TT0-R0042000 NB LCD MYLAR \*4pcs on LCD COVER. (Positions are as below)



Step 3: Remove release paper of LCD Adhesive \*2pcs.

Step 4: Assembly and align the LCD to the upper side of the LCD Cover.

Step 5: Remove Mylar \*4pcs and complete the Panel assembly.

