

ASUS TUF Gaming F15 (FX506H) 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.

/15U5

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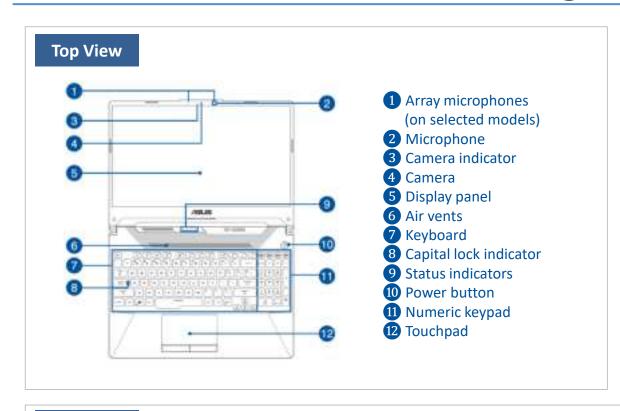
Service Overview

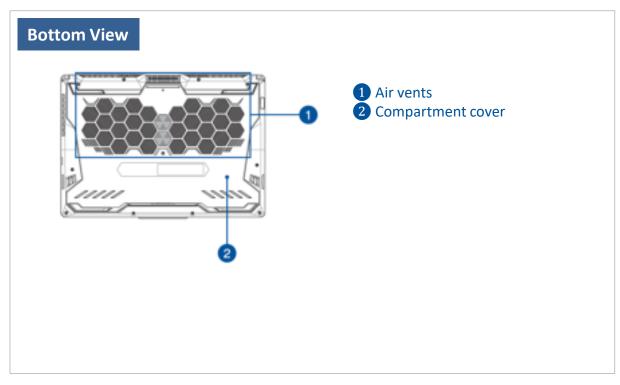
- Carefully read through this Service Guide for a look at various components of the device before performing any service and repairs.
- To provide the best service, we have provided the below information for technicians from distributors and resellers to perform the complete device disassembly and assembly. 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.

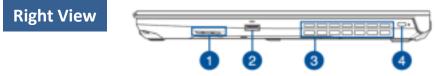
Due to sales policy difference, the components may have different specifications on the same model. If you have any operational issues, please contact the service hotline.



ASUS TUF Gaming F15 (FX506H) series Overview

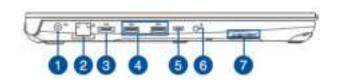






- 1 Audio speakers
- 2 USB 3.2 Gen 1 port
- 3 Air vents
- 4 Kensington® security slot

Left View



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

- 5 Thunderbolt 34 port
- 6 Headphone/Headset/Microphone jack
- 7 Audio speakers



Components Top View

+ LCD COVER MODULE



♠ KEYBOARD MODULE

SSD MYLAR

♦ MB RAM ABSORBER

MAIN BOARD

♦ TP-MB FFC

BATTERY AL FOIL

♦ HIHGE









+ LCD BEZEL



SSD AL FOIL

WIFI CARD

† THERMAL MODULE ASSY

♠ LED-MB FFC

+ CAMERA

BASE BATTERY GASKET





+ SSD



♦ DDR



USB BOARD



♦ CPU FAN **♦** GPU FAN



♦ LED BD



♦ 15.6' LCD



♦ BASE CASE







♦ DIMM COVER MYLAR









SPEAKER







BEZEL COSMETIC MYLAR





* SSD GASKET





Components Bottom View

♦ LCD COVER MODULE



♦ KEYBOARD MODULE



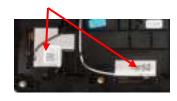
♦ BASE CASE



‡ EDP CABLE



♦ WIFI ANTENNA



USB BOARD



THERMAL MODULE ASSY



♦ LCD BEZEL



MAIN BOARD



♦ LED BD





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 F15 (FX506H) 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.





♦ Glove



♦ Dust-free Cloth



♦ Thermal Pad



NB LCD MYLAR *6pcs

♦ PLASTIC CARD T=0.35mm



PLASTIC PICK T=0.5mm





♦ FCR-AS Thermal Grease



Use it to align panel position.



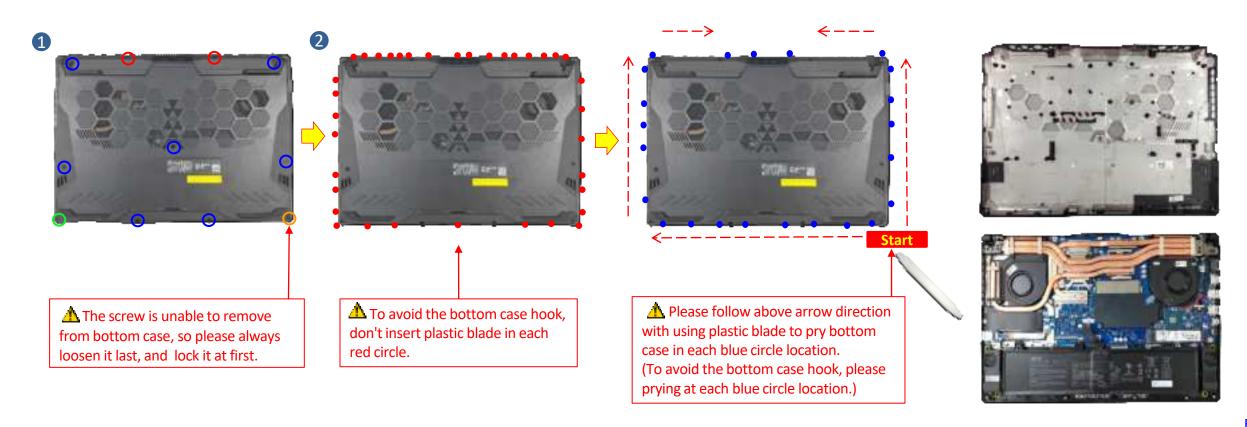
BOTTOM CASE

Disassembly Notice

Step 1 : Remove screws *10pcs.

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

Screws	QTY	Spec	Torque (kgf-cm)
IO	2	M2.5*14L(4.5,0.8) (K) #1	2.5
1 0	1	M2.5*5.5L(4.5,0.8) (K)#1	2.5
TO	7	M2.5*11L(4.5,0.8) (K) #1	2.5
7 🔾	1	M2.5*2.5L+3.5 (4.5,0.8) (K) #1	2.5





BATTERY

Disassembly Notice

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

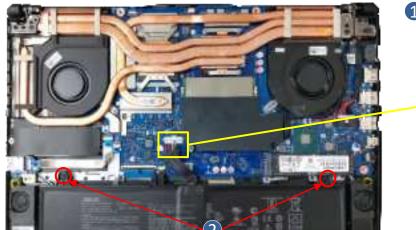


A Before disassembly battery connector, please be sure to pull out adapter and disconnect the battery more than ten seconds in order to IC damage.

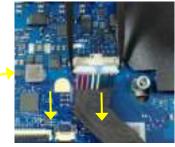
Step 1 : Disconnect the battery connector.

Step 2: Remove screws *4pcs.

Step 3: Remove BATTERY.













For replacing the 48W Battery notice.

Please paste FA706QE BASE BATTERY GASKET on the 48W Battery as illustrated.





SSD

Disassembly Notice

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

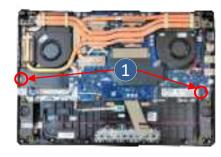


Step 1 : Remove the screws *2pcs.

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

Step 3 : Remove SSD at right side. Step 4: Remove ABSORBER on SSD.

Screws	QTY	Spec	Torque (kgf-cm)
10	1	M2*3L (5.6,0.8) (K) #1	2.0







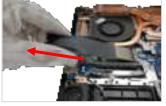




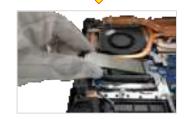


(*2pcs)







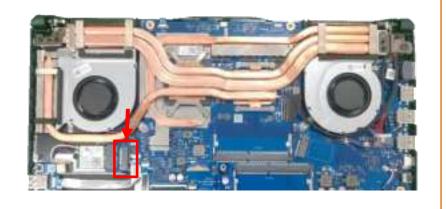




⚠ Please make sure to paste ABSORBER before assembling on the left side SSD.



A Please use this SSD slot as first priority.





DDR

Disassembly Notice

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

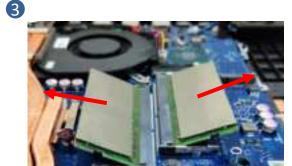


Step 1: Tear off the SODIMM ABSORBER MYLAR.

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

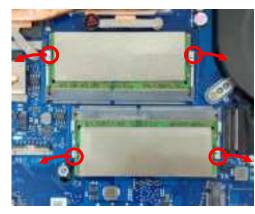












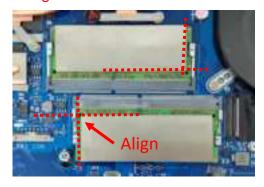






Assembly Notice

▲ First, please paste ABSORBER on the front and backside of DDR before inserting it into the slot.



▲ For FX506HM: Paste the SODIMM ABSORBER MYLAR*1 pcs on the DDR Module as illustrated.





Choose by GPU/VGA CHIP Model

FX506HM NVIDIA GN20-E3 FA506QE DIMM MYLAR FX506H



WIFI CARD

Disassembly Notice

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



Step 1: Remove THERMAL SSD PAD.

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

Step 3: Remove the screw *1pcs.

Step 4: Remove WIFI CARD.

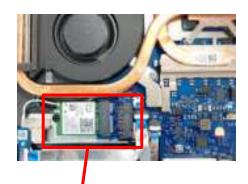
Screws	QTY	Spec	Torque (kgf-cm)
	1	M2*3L (5.6,0.8) (K) #1	2.0



















Assembly Notice

A Please according to below image to assemble RF cable and RF cable tape.









SPEAKER

Disassembly Notice

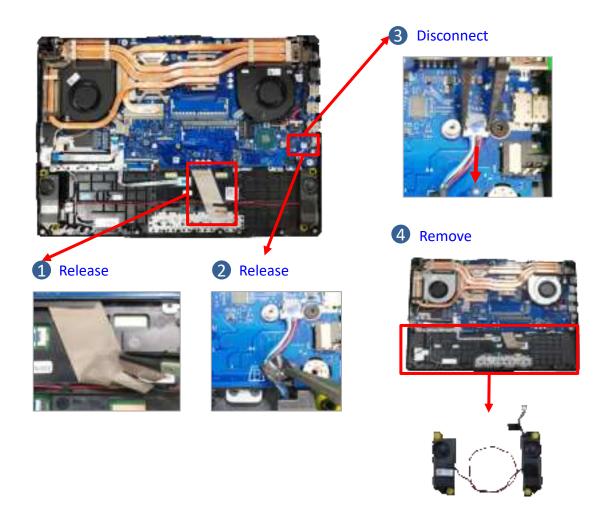
Please be sure to pull out adapter and disconnect the battery.



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

Step 3: Disconnect the SPEAKER connector.

Step 4 : Remove SPEAKER.



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



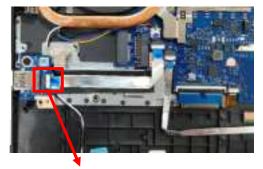
USB BOARD

Disassembly Notice

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



Step 2: Remove screw *1pcs and remove USB BOARD.







Remove



Screws	QTY	Spec	Torque (kgf-cm)
	1	M2*3L (5.6,0.8) (K) #1	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.



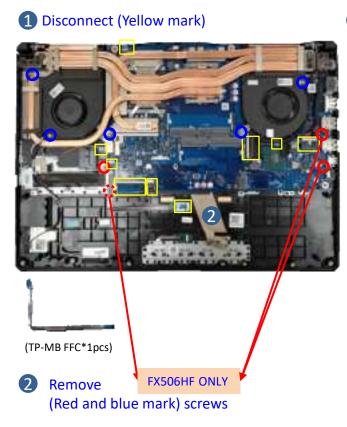
Step 1 : Disconnect (yellow mark) connec	ctors *9pcs then remove TP-MB FFC*1pcs.
--	---

Step 2: Remove(Red and blue mark) screws *8pcs.

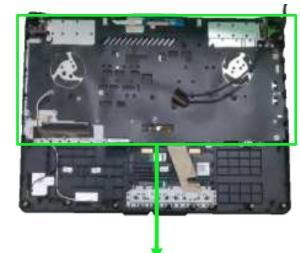
Step 3: Remove MB with Thermal and FAN module.

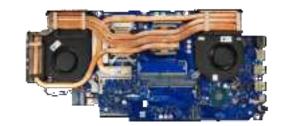
Step 4: Remove FAN *2pcs.

Screws	QTY	Spec	Torque (kgf-cm)
	3	M2.5*5.5L(4.5,0.8) (K)#1	2.0
0	5	M2*4L (4.3,0.5) (K) W-NI	2.0

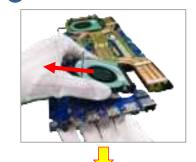


Remove module (MB+Thermal+FAN)





4 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

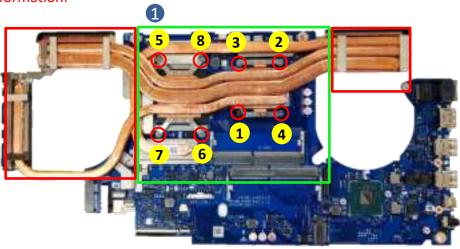
Disassembly Notice

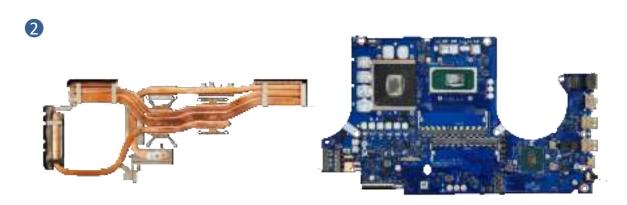
Please be sure to pull out adapter and disconnect the battery.

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 (4.3,0.5) (K) W-NI	2.0

Assembly Notice



Step-1

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.



FX506HF THERMAL MODULE

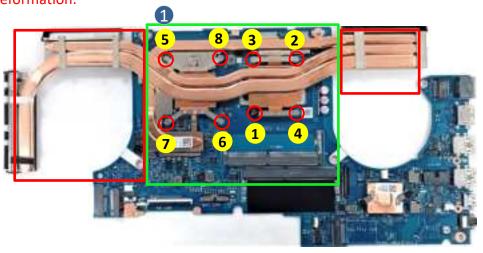
Disassembly Notice

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 (4.3,0.5) (K) W-NI	2.0

Assembly Notice /



Step-1

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

Mainboard connector placement

VGA FAN

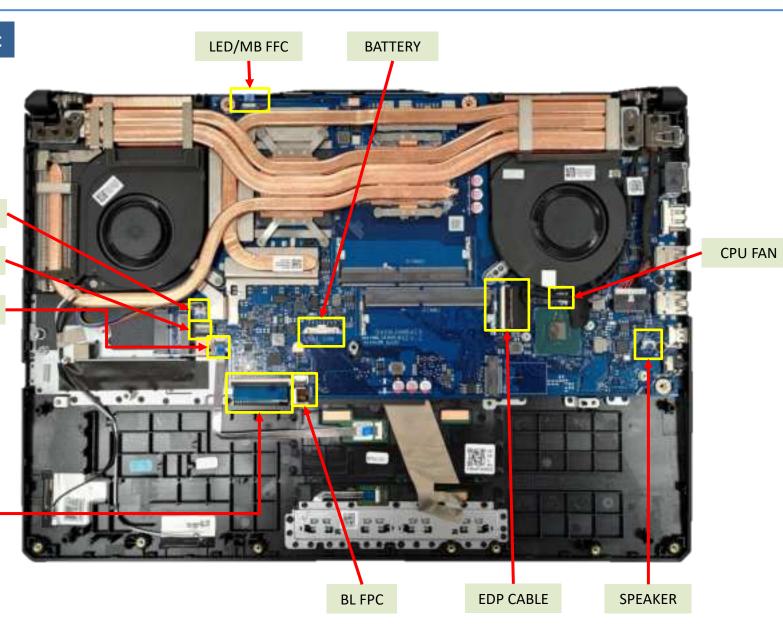
USB/MB FFC

TP/MB FFC

K/B FPC

Supports using JIG BOARD to refresh F1 BIOS.





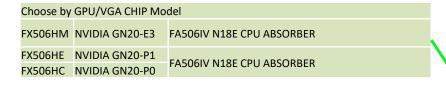


MAIN BOARD

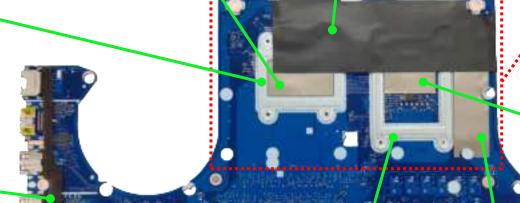
Materials on mainboard

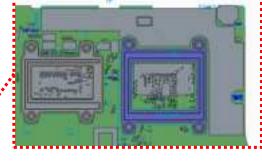
FX505GE CPU BKT ASSY

A 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.



FA506IV MB TOP MYLAR





Choose by GPU/VGA CHIP Model		
FX506HM	NVIDIA GN20-E3	FA506IV N18E GPU ABSORBER
FX506HE	NVIDIA GN20-P1	FAFOCIVANARE COLLARSONDED
FX506HC	NVIDIA GN20-P0	A506IV N18E CPU ABSORBER

FA506IV IO SPONGE

Choose by GPU/VGA CHIP Model				
FX506HC	NVIDIA GN20-P0	FX506HM GPU BKT ASSY		
FX506HE	NVIDIA GN20-P1			
FX506HM	NVIDIA GN20-E3	FA506QM GPU BKT-AMD ASSY		

hoose by G	noose by GPU/VGA CHIP Model				
Х506НС	NVIDIA GN20-P0	EVZOCIJE AMD C20 CDU TOD ADCORDED			
X506HE	NVIDIA GN20-P1	FX706HC MB G20 GPU TOP ABSORBER			



MAIN BOARD

Materials on mainboard

A 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.

Choose by GPU/VGA CHIP Model

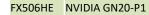
FX506HM NVIDIA GN20-E3 F

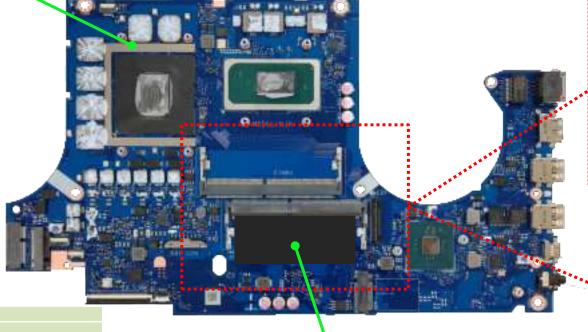
FA506QM G20 GPU ABSORBER

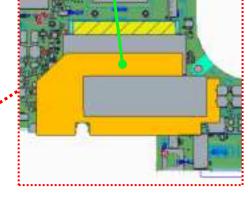
Choose by GPU/VGA CHIP Model

FX506HC NVIDIA GN20-P0

FA506QE DIMM MYLAR









Choose by GPU/VGA CHIP Mo	del
---------------------------	-----

FX506HM NVIDIA GN20-E3 FA506QM N18E G20 GPU MYLAR-E3

FX506HC NVIDIA GN20-P0 NVIDIA GN20-P1

FA506IV N18P GPU MYLAR

Choose by GPU/VGA CHIP Model

FX506HC NVIDIA GN20-P0

FX506HE NVIDIA GN20-P1 FX507ZE RAM UNDERSIDE MYLAR

FX506HM NVIDIA GN20-E3

Choose by GPU/VGA CHIP Model

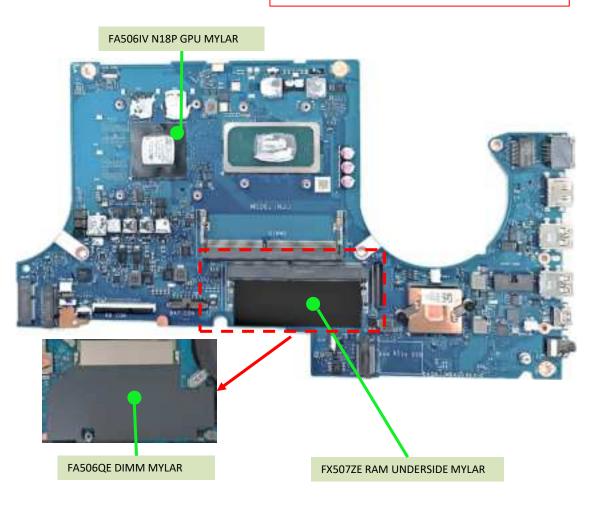
FX506HM NVIDIA GN20-E3 FA506IV DIMM COVER MYLAR

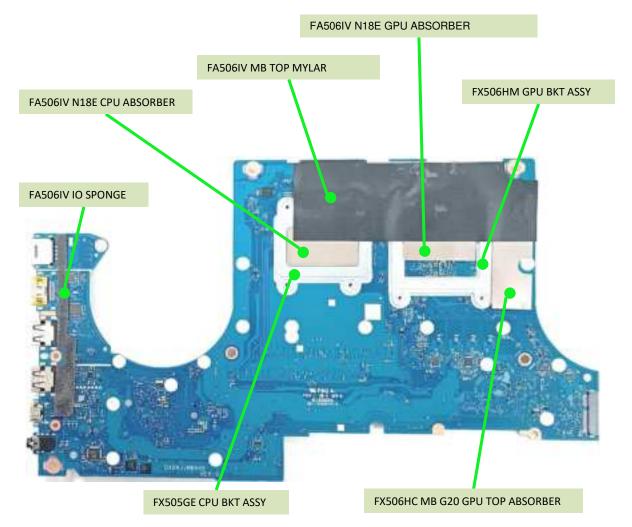


FX506HF MAIN BOARD

Materials on mainboard

A 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.



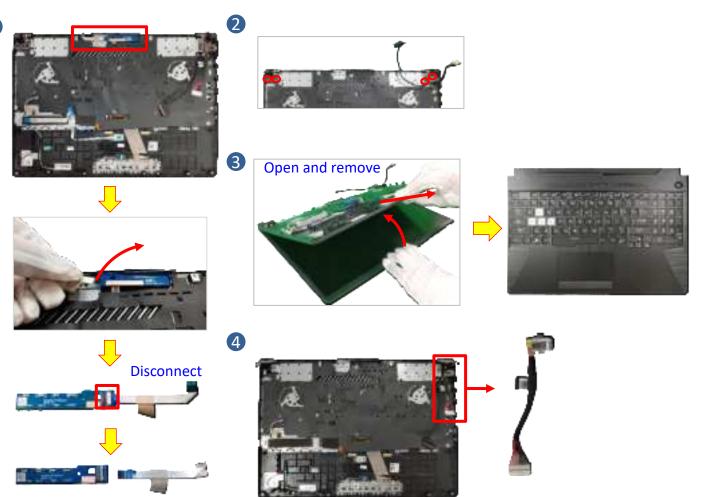
Step 1: Remove the LED BD and FFC.

Step 2: Remove screws *4pcs.

Step 3: Remove the KEYBOARD MODULE.

Step 4: Remove the DC JACK CABLE.

Screws	QTY	Spec	Torque (kgf-cm)
10	4	M2.5*5.5L(4.5,0.8) (K)#1	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.



The TOP LED SPONGE and LED BD AL FOIL are not reusable after disassembly LED BOARD, before assembly LED BOARD Module, please follow the steps below to paste the new TOP LED SPONGE and LED BD AL FOIL.



Step1:

Paste TOP LED SPONGE

*1pc

Step3:

Assembly LED BD with FFC





Step2: Paste LED BD AL FOIL *1pc





LCD BEZEL

Disassembly Notice

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

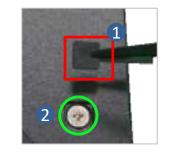


Step 1 : Remove	BEZEL	COSMETIC	MYLAR	*2pcs.
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Step 2: Remove screws *2pcs.

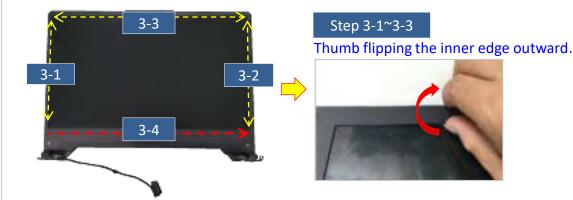
Step 3: Remove LCD BEZEL.







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.)



Screws	QTY	Spec	Torque (kgf-cm)
TO O	2	M2.5*3.5L(4.5,0.5) (K)#1	2.5

Step 3-4 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..







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

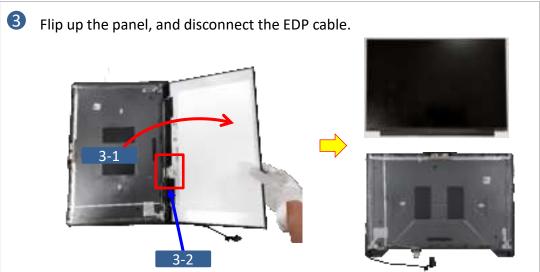
Please be sure to pull out adapter and disconnect the battery.



Step 2: Pull out LCD adhesive *2pcs.

Step 3: Remove LCD PANEL.





Screws	QTY	Spec	Torque (kgf-cm)
	4	M2.5*3.5L(4.5,0.5) (K)#1	2.5
TO	2	M1.6*2.5L(3.5,0.4)(K) #0	1.6

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





LCD COVER

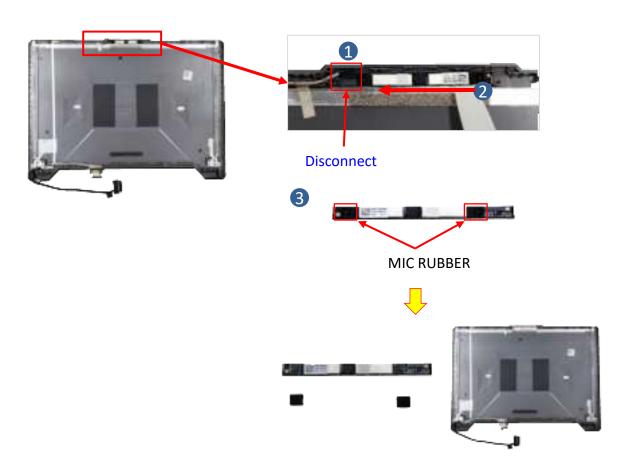
Disassembly Notice Please be sure to pull out adapter and disconnect the battery.



Step 1 : Disconnect Camera connector.

Step 2 : Remove the CAMERA.

Step 3: Remove MIC RUBBER *2pcs.







LCD PANEL and LCD Cover

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





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



When replace the LCD:

Please paste new LCD COVER TAPE *2pcs.



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

Step 1: Remove release paper of LCD Adhesive *2pcs.

Step 2: Assembly and align the LCD to the upper side of the LCD Cover.

