





## Asus ROG Zephyrus Duo16 GX650P Series Service Manual



1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18

19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45

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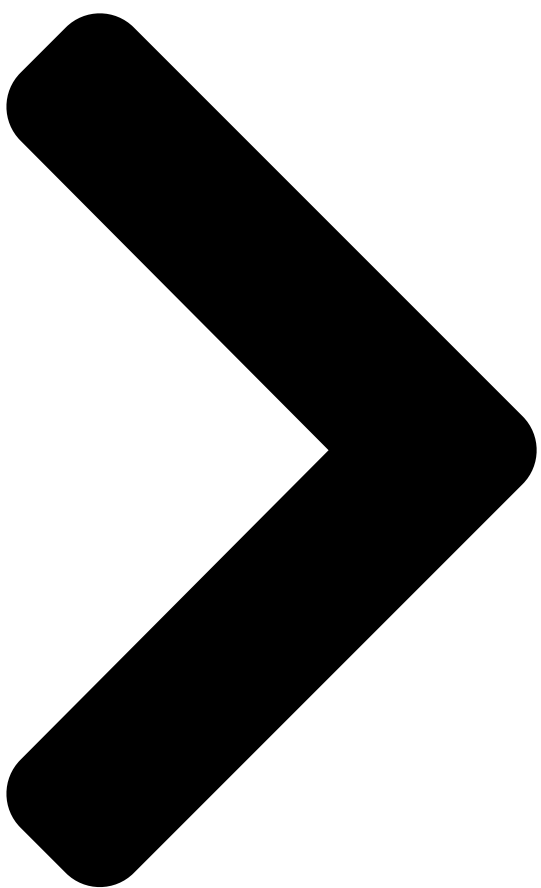
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# ASUS ROG Zephyrus Duo16 (GX650P) series

## Service Guide

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[Next Page](#)

1  
2  
3  
4  
5

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(15 pages)

### [Laptop Asus ROG Zephyrus Duo16 GX650 Series Service Manual](#)

(41 pages)

## Summary of Contents for Asus ROG Zephyrus Duo16 GX650P Series

[Page 1](#) ROG Zephyrus Duo16 (GX650P) series Service Guide...

[Page 2](#) LIMITATION OF LIABILITY Circumstances may arise where because of a default on ASUS' part or other liability, you are entitled to recover damages from ASUS. In each such instance, regardless of the basis on which you are entitled to claim damages from ASUS, ASUS is liable for no more than damages for bodily injury (including death) and damage to real property and tangible personal property;...

[Page 3](#) 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.

[Page 4](#) Table of Contents • Service Overview • ROG Zephyrus Duo16 (GX650P) series Overview • Components Top View • Components Bottom View • Repair Overview • Appropriate Tools • Keyparts and Related Parts • Disassembly steps : • BOTTOM CASE • DISCONNECT BATTERY CONNECTOR •...

[Page 5](#) 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.

[Page 6](#) ROG Zephyrus Duo16 (GX650P) series Overview Top View Bottom View ❶ Air vents ❶ Array microphones ❷ Audio speakers ❷ Camera/IR Camera ❸ Bottom cover ❸ Camera indicator ❹ Display panel ❹ Companion display panel Touch screen panel ❺ Keyboard ❺...

[Page 7](#) Components Top View LCD COVER MODULE KEYBOARD MODULE SSD ABSORBER WIFI CARD WOOFER THERMAL MODULE ASSY 14' UHD TOUCH PANEL KB BL FFC 20P MAIN HINGE ASSY LCD BEZEL BATTERY SSD THERMAL PAD GX550LXS CABLE TAPE MAIN BOARD CPU FAN GPU FAN SUB HINGE KB HOLDER ASSY...

[Page 8](#) Components Bottom View BASE CASE KEYBOARD MODULE LCD ADHESIVE LCD COVER MODULE MIC\_FPC HOLDER RUBBER THERMAL MODULE ASSY A1&A2 ANTENNA 16.0' LCD Panel MAIN BOARD TOUCH PAD 14' TOUCH PANEL CONDUCTIVE CLOTH Back...

[Page 9](#) 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.

[Page 10](#) Appropriate Tools Please prepare and select the appropriate tools to disassemble/assemble for the ROG Zephyrus Duo16 (GX650P) series notebook. Screwdriver Alcohol 95% Glove Dust-free Cloth Please accord to different screw specification to choose different screwdriver and head. Plastic Blade PLASTIC CARD T=0.35mm PLASTIC PICK T=0.5mm Thermal Pad PTM7958 Plastic Tweezers...

[Page 11](#) Appropriate Tools Please prepare and select the appropriate tools to disassemble/assemble for the ROG Zephyrus Duo16 (GX650P) series notebook. ❶ ❷ ❷ ❸ ❸ ❹ ❹ [This series use the New second-generation liquid metal]. Please distinguish (first generation/second generation) liquid metal materials according to the announcement to avoid using errors to affect notebook performance.

[Page 12](#) BOTTOM CASE The device has an Ambient Light Sensor (ALS) for power-off protection Function. Disassembly Notice Step 1 : Use T6 Screwdriver to remove screws\*12pcs. Ambient Light Sensor (ALS): Step 2 : Use the non-conductive pry tool to pry the bottom case. 1.

[Page 13](#) DISCONNECT BATTERY CONNECTOR The device has an Ambient Light Sensor (ALS) for power-off protection Function. Disassembly Notice 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 : Use the non-conductive pry tool to push iron sheet.

[Page 14](#) The device has an Ambient Light Sensor (ALS) for power-off protection Function. Disassembly Notice Step 1 : Remove the (red mark) screws\*2pcs and both of M.2 cards (SSD)\*2pcs. Screws Spec Torque (kgf-cm) Step 2 : Remove the THERMAL PAD and ABSORBER on the front of both of M.2 card (SSD). M2\*2L (4.5,0.6) (K) #1 2.0±0.2 \*Notice : Please keep these parts, it will be reused for new SSD installation.

[Page 15](#) The device has an Ambient Light Sensor (ALS) for power-off protection Function. Disassembly Notice Step 3 : Peel back the SSD LABEL from the ABSORBER carefully. Step 4 :

Paste the SSD LABEL on M.2 card (SSD). Step 5 : Remove the THERMAL PAD from mainboard in the yellow marks. \*Notice : Please keep these parts, it will be reused for new SSD installation.

[Page 16](#) The device has an Ambient Light Sensor (ALS) for power-off protection Function. Assembly Notice If using a single M.2 card (SSD), please use the left-SSD slot as the first priority. Paste the ABSORBER\*1pc on the front of both of M.2 cards (SSD). SSD1 Paste the SSD THERMAL PAD on the front of both of M.2 cards (SSD).

[Page 17](#) The device has an Ambient Light Sensor (ALS) for power-off protection Function. Assembly Notice Align and insert the SSD into the SSD slot, then secure the SSD in place by fastening the screw. Left (2pcs) (Front) (Rear) Right Left Right Back...

[Page 18](#) The device has an Ambient Light Sensor (ALS) for power-off protection Function. Disassembly Notice Step 1 : Unlock and remove the RAM module. Step 2 : Tear off the DIMM ABSORBER and DIMM MYLAR from each RAM front side. \*Notice : Please keep these parts, as that will be reused when installing the new RAM module. (Front) (Rear) DIMM ABSORBER...

[Page 19](#) The device has an Ambient Light Sensor (ALS) for power-off protection Function. Assembly Notice Please paste ABSORBERS on the RAM front side before installing the Memory Module. Step 1 : Paste DIMM MYLAR and ABSORBER \*1pc for each new RAM front side. Step 2 : Align and insert the new RAM module at 30°...

[Page 20](#) BATTERY The device has an Ambient Light Sensor (ALS) for power-off protection Function. Disassembly Notice 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 : Remove the (red mark) screws\*5pcs. Screws Spec Torque(kgf-cm)

[Page 21](#) BATTERY & WOOFER The device has an Ambient Light Sensor (ALS) for power-off protection Function. Assembly Notice Please note that the battery connector should not be connected to the mainboard until all parts are assembled. Once the battery is assembled, tidy up the WOOFER cable as marked below. Please follow the below illustration to assemble BATTERY.

[Page 22](#) WIFI CARD Disassembly Notice Please be sure to pull out adapter and disconnect the battery. Step 1 : Tear off the CABLE TAPE and WIFI ABSORBER on WIFI module. Screws Spec Torque (kgf-cm) Step 2 : Disconnect the (yellow mark) RF CABLES\*2pcs. M2\*2L (4.5,0.6) (K) #1 2.0±0.2 Step 3 : Remove the (red mark) screw\*1pc.

[Page 23](#) WIFI CARD The device has an Ambient Light Sensor (ALS) for power-off protection Function. Assembly Notice Please paste ABSORBERS on the RAM front side before installing the Memory Module. Please assemble RF CABLES as illustrated. Main Paste WIFI ABSORBER and CABLE TAPE on WIFI Module as illustrated. WIFI ABSORBER CABLE TAPE...

[Page 24](#) WOOFER The device has an Ambient Light Sensor (ALS) for power-off protection Function. Disassembly Notice Step 1 : Disconnect the connector\*1pc. Step 2 : Remove the WOOFER. Assembly Notice It is recommended to install the battery first and then assemble the WOOFER. (Please refer to Page Disconnect...

[Page 25](#) FAN (with THERMAL MODULE and MAIN BOARD) The device has an Ambient Light Sensor (ALS) for power-off protection Function. Disassembly Notice Step 1 : Remove (orange mark) THERMAL SPONGE ATN(L) & THERMAL SPONGE EDP(R) . Screws Spec Torque (kgf-cm) Step 2 : Disconnect (yellow mark) connectors\*8pcs. M2\*4L D4.6 (K) W-NI NY 2.0±0.2 Step 3 : Remove (red mark) screws\*7pcs.

[Page 26](#) THERMAL MODULE & FAN The device has an Ambient Light Sensor (ALS) for power-off protection Function. Disassembly Notice Step 1 : Please follow the reverse screws numbers to remove screws\*8pcs. Screws Spec Torque (kgf-cm) Step 2 : Release the tapes on both fans then remove the THERMAL MODULE.. M2\*4L D4.6 (K) W-NI NY 2.0±0.2 Step 3 : Disconnect (yellow mark) connectors\*2pcs then remove fans\*2pcs.

[Page 27](#) THERMAL MODULE & FAN The device has an Ambient Light Sensor (ALS) for power-off protection Function. Assembly Notice Please use the correct technique to take fans off to avoid getting out of shape. 1. Please follow the screws numbers to lock screws\*8pcs. (The following is an operation example) Please refer Repair Notice SOP...

[Page 28](#) MAIN BOARD The device has an Ambient Light Sensor (ALS) for power-off protection Function. Assembly Notice Put the Antenna cables under the hinge and align white line, then paste tape to fix cable. Slide the ports on the mainboard into the slots on the computer base(blue line), and align the screw holes on the mainboard and alignment posts (green mark) on the computer base.

[Page 29](#) MAIN BOARD The device has an Ambient Light Sensor (ALS) for power-off protection Function. Assembly Notice Please ensure ANTENNA cables and tweeter cable are all connected properly then Please paste TOUCH FPC KAPTON\*1pc on the TP connector as illustrated. paste THERMAL SPONGE EDP and THERMAL SPONGE ATN in the White alignment line on the mainboard.

[Page 30](#) MAIN BOARD Mainboard connector placement SSD2 Tweeter VGA FAN CPU FAN WLAN EDP CABLE SSD1 TOUCHPAD FFC WOOFER Supports using JIG BOARD to refresh F1 BIOS. KB BL FFC KB FPC BATTERY Back...

[Page 31](#) MAIN BOARD Materials on mainboard GX550LXS THERMAL WASHER ASSY GX551QS USB ABSORBER GX650PY EMI LAN ABSORBER Model Part Name GX650PY CPU FL1 ABSORBER UP GX650PI GA503QE GN20-P GPU ABSORBER GX650PI GX650PY GN21-X6 GPU ABSORBER GX650PY AMD CPU FL1 GX650PV GX650PY GN21-X4 GPU ABSORBER KAPTON DR...

[Page 32](#) MAIN BOARD Materials on mainboard GX650PY/PZ: GX650PI/PV/PU: GA401QM GPU BACK ABSORBER GA503QE GN20-P GPU ABSORBER GX650PY MB TOP MYLAR UP GX650PY CPU BACK ABSORBER GX650PY/PZ: GA401QM GN20 GPU BKT ASSY GX650PI/PV/PU: GV301QE GPU BKT ASSY GX650PY CPU BACK BKT ASSY NR2202RX DIFFUSION FILM NR2202RX DIFFUSION FILM NR2202RX LED SPONGE R...

[Page 33](#) MAIN BOARD Materials on mainboard Repair notice : Step1: Remove (blue mark) GX550LXS THERMAL WASHER ASSY THERMAL WASHER ASSY Step2: Turn over the MB TOP MYLAR DOWN, paste THERMAL-WASHER and MB-POWER-MYLAR. GX650PY-MB-POWER-MYLAR GX650PY-THERMAL-WASHER-PC Back...

[Page 34](#) 14' UHD TOUCH PANEL Disassembly Notice Step 1 : Remove (yellow mark) 2nd Holder Rubber (R) & (L). Torque (kgf-cm) Screws Spec Step 2: Remove (red, blue mark) screws\*6pcs and 2nd Holder (R) & (L). Step 3 : Remove the (orange mark) SPEAKER HOLDER. M2\*3L (K) B-ZN,NY #1 2.0±0.2 Step 4 : Tear the FPC\*2pcs upwards.

[Page 35](#) 14' TOUCH PANEL The device has an Ambient Light Sensor (ALS) for power-off protection Function. Assembly Notice Before assembling the 2nd PANEL, please note the alignment posts/holes as illustrated. Back...

[Page 36](#) 14' UHD TOUCH PANEL Assembly Notice Please follow the illustrations to assemble the 14' TOUCH PANEL. Pass FPC & FFC through the hole Open Back...

[Page 37](#) 14' TOUCH PANEL The device has an Ambient Light Sensor (ALS) for power-off protection Function. Assembly Notice Please turn over the Keyboard module and refer to the below illustrations to fixed LCD FPC & LCD FPC. Step 1 : Paste and align the LCD FPC & LCD FPC with the white alignment lines. Step 2 : Paste FFC SPONGE\*1pc on LCD FPC.

[Page 38](#) KEYBOARD MODULE The device has an Ambient Light Sensor (ALS) for power-off protection Function. Disassembly Notice Step 1 : Disconnect and remove the KB BL FFC. (yellow mark) Torque (kgf-cm) Screws Spec Step 2 : Disconnect and remove the CLICK FFC. (yellow mark) Step 3 : Remove (blue and green marks) screws\*5pcs M2\*2.5L D4.5(K)B-ZN,NY#1 2.0±0.2...

[Page 39](#) TWEETER The device has an Ambient Light Sensor (ALS) for power-off protection Function. Disassembly Notice Step 1 : Remove (red marks) screws\*4pcs Torque (kgf-cm) Screws Spec Step 2 : Tear off (yellow mark) EDP tape. Step 3 : Remove TWEETER\*1pc. M1.6\*3L (3.5,0.5) (K) #0 1.0±1.2 Assembly Notice...

[Page 40](#) KEYBOARD MODULE The device has an Ambient Light Sensor (ALS) for power-off protection Function. Assembly Notice When replace the keyboard module, please be sure to paste GX550 2ND Do not forget to install SPEAKER HOLDER in red mark after assembling the

PANEL HINGE LEFT and RIGHT LABEL.

[Page 41](#) LCD BEZEL The device has an Ambient Light Sensor (ALS) for power-off protection Function. Disassembly Notice Step 1 : Remove LCD BEZEL. 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.

[Page 42](#) LCD PANEL The device has an Ambient Light Sensor (ALS) for power-off protection Function. Disassembly Notice Step 1 : Remove screws\*6pcs. Screws Spec Torque (kgf-cm) Step 2 : Remove hinges\*2pcs and hinge cases. M2.5\*3.2L (5.0,0.8) (K) #1 2.5±0.2 Step 3 : Pull out LCD adhesive\*2pcs. Step 4 : Remove LCD PANEL.

[Page 43](#) LCD COVER The device has an Ambient Light Sensor (ALS) for power-off protection Function. Disassembly Notice Step 1 : Release tapes and disconnect EDP cable. Step 2 : Disconnect and remove the CAMERA. Step 3 : Remove MIC RUBBER\*2pcs. Disconnect MIC RUBBER Release Transparent tape Release EDP TAPE...

[Page 44](#) LCD COVER The device has an Ambient Light Sensor (ALS) for power-off protection Function. Assembly Notice When replacing a new LCD COVER, please paste a new GX650PY A1&A2 ANTENNA (yellow mark) and MIC\_FPC (blue mark) as illustrated. Please follow the red marks to tidy up the EDP CABLE. The white cable must be assembled under the copper foil.

[Page 45](#) LCD PANEL and LCD Cover The device has an Ambient Light Sensor (ALS) for power-off protection Function. Assembly Notice When assembly the LCD PANEL: (The following is an operation example) When reuse the LCD PANEL: (The following is an operation example) Please use the fingertip to clean the residual glue on PANEL or BEZEL.