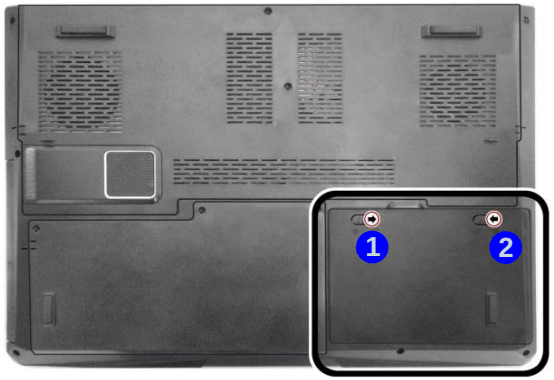
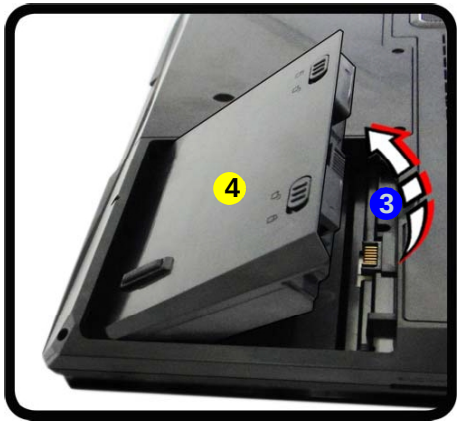
# Removing the Battery

1. Turn the computer **off**, and turn it over.
2. Slide the latch 1 in the direction of the arrow (***Figure 1a***).
3. Slide the latch 2 in the direction of the arrow, and hold it in place (***Figure 1a***).
4. Lift the battery up toward the direction of the arrow 3.
5. Lift the battery 4 out of the compartment (***Figure 1c***).

**a.**




**b.**




**c.**


*Figure 1*
**Battery Removal**

a. Slide the latch and hold in place.
b. Lift the battery up toward the direction of the arrow.
c. Lift the battery out.

4. Battery

*Figure 10*
**RAM Module Removal**

a. Remove the screws. Slide the bottom cover until the cover and case indicators are aligned.

# Removing the Primary System Memory (RAM)

The computer has **four** memory sockets for 204 pin Small Outline Dual In-line (SO-DIMM) **DDR 3L** type memory modules. The total memory size is automatically detected by the POST routine once you turn on your computer.

Note that **four SO-DIMMs are only supported by Quad-Core CPUs**; **Dual-Core CPUs support two SO-DIMMs maximum.**

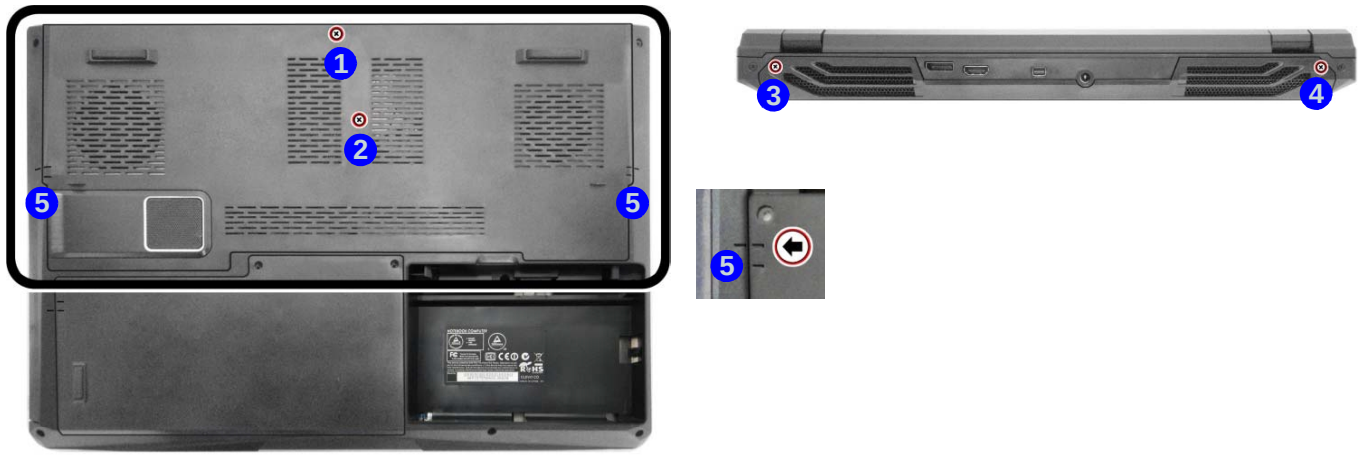
**Two primary memory sockets are located under component bay cover (the bottom case cover), and two secondary memory sockets are located under the keyboard (not user upgradable). If you are installing only two RAM modules then they should be installed in the primary memory sockets under the component bay cover.**

Note that the RAM located under the keyboard is not user upgradable.

## Memory Upgrade Process

1. Turn **off** the computer, and turn it over, remove the battery (***page 2 - 5***).
2. Remove screws 1 - 2 from the bottom and screws 3 - 4 from the rear. Slide the bottom cover until the cover and case indicators 5 are aligned (***Figure 10a***).

**a.**



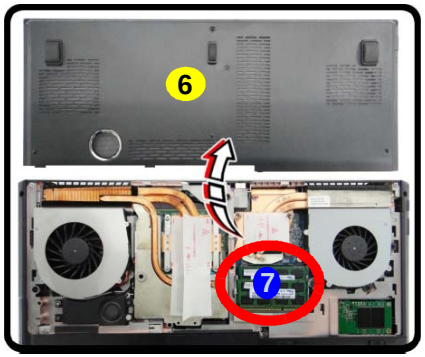

- 4 Screws

3. Lift the component bay cover 6 off the computer case. The modules will be visible at point 7 (*Figure 11c*).
4. Gently pull the two release latches (8 & 9) on the sides of the memory socket(s) in the direction indicated below (*Figure 11d*).
5. The RAM module 10 will pop-up, and you can remove it (*Figure 11e*).
6. Pull the latches to release the second module if necessary.
7. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
8. The module's pin alignment will allow it to only fit one way. Make sure the module is seated as far into the slot as it will go. DO NOT FORCE the module; it should fit without much pressure.
9. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
10. Replace the bay cover and screws.
11. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

*Figure 11*
**RAM Module Removal (cont'd.)**

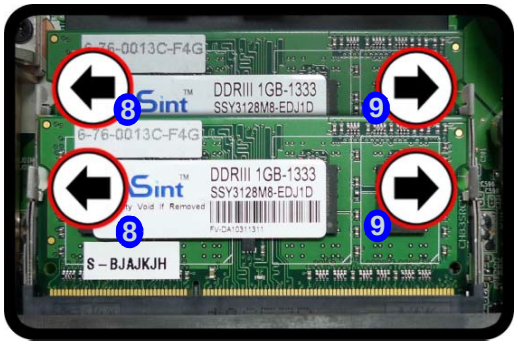
c. Lift the component bay cover off the computer case. The modules will be visible at point 7.
d. Gently pull the two release latches on the sides of the memory socket(s) in the direction indicated below.
e. The RAM module will pop-up, and you can remove it.

**c.**




**e.**


**d.**




**Contact Warning**

Be careful not to touch the metal pins on the module's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.

6. Component Bay Cover
10. RAM Module

*Figure 12*
**Keyboard Removal**

a. Pull up the top cover module.
b. Remove the top cover module.
c. Remove the screws.

# Removing the System Memory (RAM) from Under the Keyboard

The computer has **four** memory sockets for 204 pin Small Outline Dual In-line (SO-DIMM) **DDR 3L** type memory modules. The total memory size is automatically detected by the POST routine once you turn on your computer.

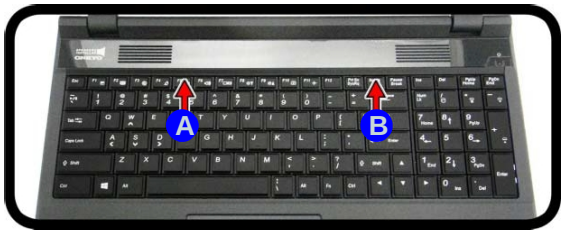
Note that **four SO-DIMMs are only supported by Quad-Core CPUs**; **Dual-Core CPUs support two SO-DIMMs maximum.**

**Two primary memory sockets are located under component bay cover (the bottom case cover), and two secondary memory sockets are located under the keyboard. If you are installing only two RAM modules then they should be installed in the primary memory sockets under the component bay cover.**

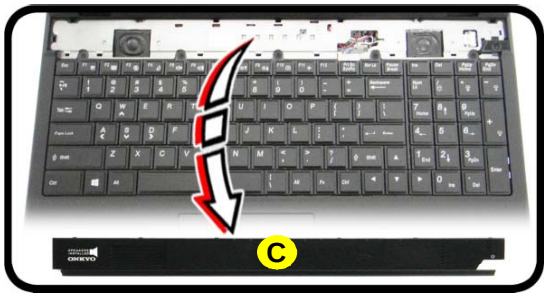
## Memory Upgrade Process

1. Turn **off** the computer, and turn it over, remove the battery (***page 2 - 5***).
2. Turn the computer over . Use the small tool provided to carefully pull out the top cover module at points A & B.
3. Remove the top cover module C (***Figure 12b***).
4. Remove screws 1 - 5 from the keyboard (***Figure 12c***).

**a.**




**b.**




**c.**


C. Top Cover Module

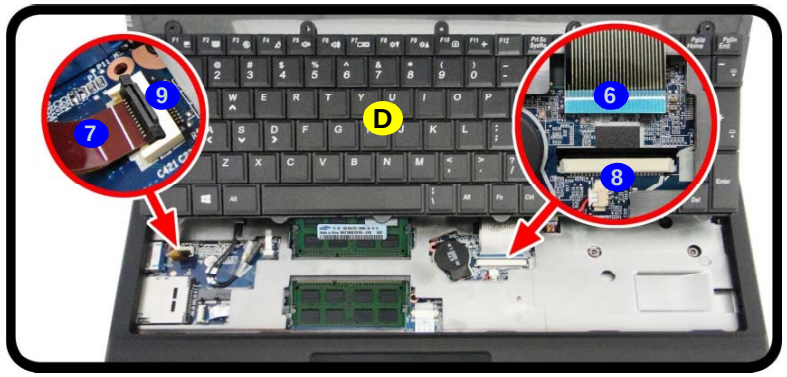
- 5 Screws

5. Lift the keyboard (D) up, being careful not to bend the keyboard ribbon cable (6) and LED ribbon cable (7).
6. Disconnect the keyboard ribbon cable (6) and LED ribbon cable (7) from their corresponding locking collar socket (8) & (9). (*Figure 13d*).
7. Remove the keyboard and the memory sockets (10) & (11) will be visible.
8. Gently pull the two release latches ((12) & (13)) on the sides of the memory socket(s) in the direction indicated below.
9. The RAM module (14) will pop-up, and you can remove it.
10. Pull the latches to release the second module if necessary.
11. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
12. The module's pin alignment will allow it to only fit one way. Make sure the module is seated as far into the slot as it will go. DO NOT FORCE the module; it should fit without much pressure.
13. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
14. Replace the bay cover and screws.
15. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

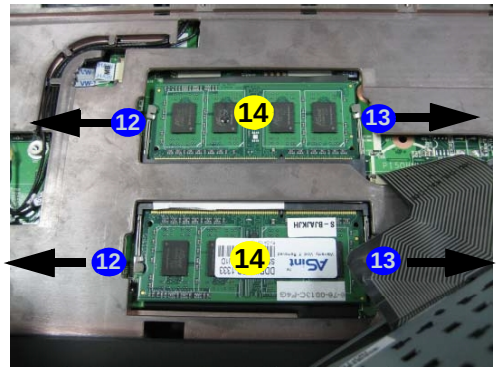
*Figure 13*
**RAM Module Removal**

d. Disconnect the keyboard ribbon cable and LED ribbon cable from their corresponding locking collar sockets.
e. Remove the keyboard and the memory sockets will be visible.
f. Gently pull the two release latches on the sides of the memory socket(s) in the direction indicated below.

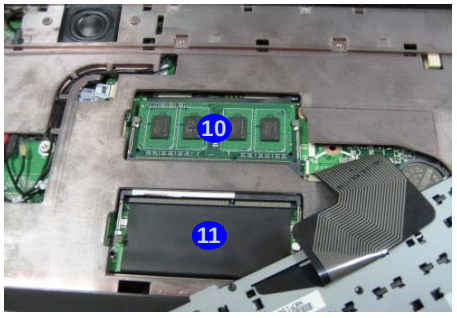
**d.**




**f.**




**e.**




**Contact Warning**

Be careful not to touch the metal pins on the module's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.

D. Keyboard
14. RAM Modules

*Figure 19*
**Video Card Removal Procedure**

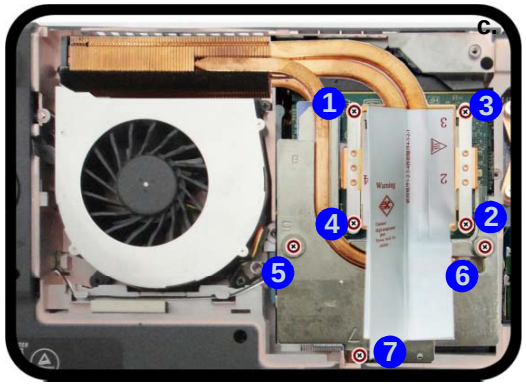
a. Remove the screws in the correct order.
b. Carefully remove the heat sink units.
c. Remove the video card screws. The video card will pop up.
d. Remove the video card.

# Removing and Installing the Video Card

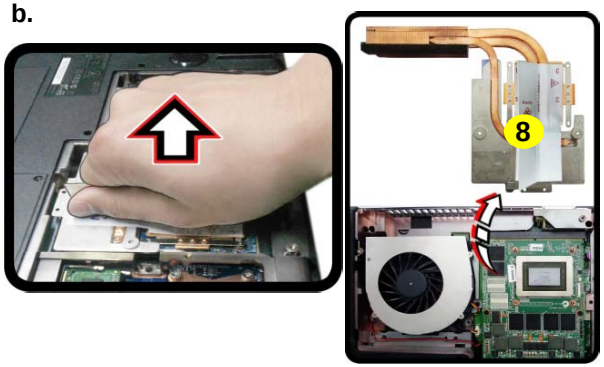
## Video Card Removal Procedure

1. Turn **off** the computer, turn it over and remove the battery (*page 2 - 5*) and component cover (*page 2 - 14*).
2. Remove screws 1 - 7 from the heat sink unit in the order indicated on the label (i.e screw **7** first through to screw **1** last) (*Figure 19a*).
3. Carefully (**it may be hot**) remove the heat sink unit 8 (*Figure 19b*).
4. Remove screws 9 & 10 from the video card. The video card 11 will pop up (*Figure 19c*).
5. Remove the video card 11 (*Figure 19d*).

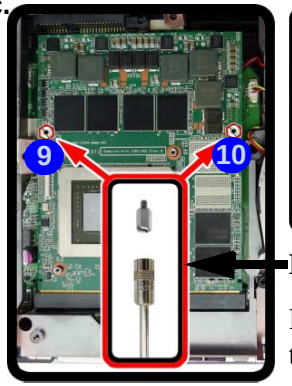
**a.**

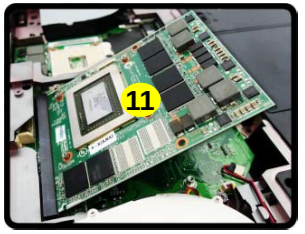



**b.**




**c.**

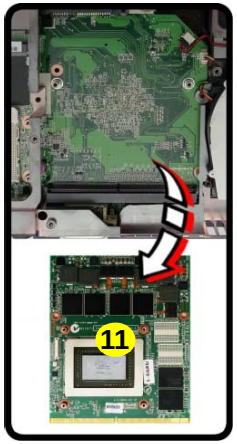



**Note**:

Please use a hexagonal screwdriver to remove screws 9 & 10.

**d.**




**Caution**

The heat sink, and video card area in general, contains parts which are subject to high temperatures. Allow the area time to cool before removing these parts.

8. Heat Sink Unit
11. Video Card

- 9 Screws

**Heat Sink Screw Removal and Insertion**

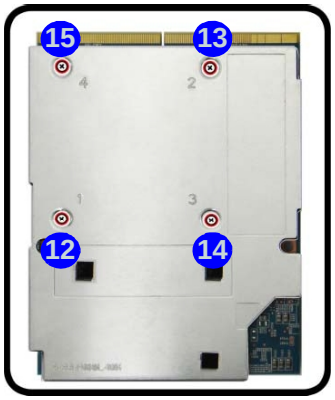
Remove the screws from the heat sink in the order indicated here: 7-**6-5-4-3-2-1**.

When tightening the screws, make sure that they are tightened in the order: **1-2-3-4-5-6-7**.

## For video card (N15E-GX) additional removal procedure

6. Remove screws 12 - 15 from the video card assembly (***Figure 20e***).
7. Separate the shielding plate 16 from the video card 11 (***Figure 19d***).

**e.**




**f.**

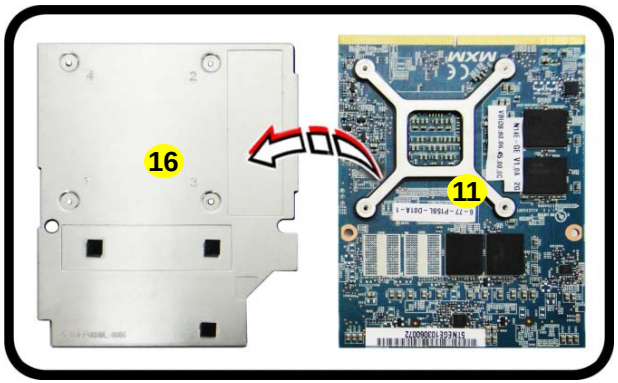



*Figure 20*
**Video Card Removal Procedure (cont'd.)**

e. Remove the screws.
f. Separate shielding plate and video card.

11. Video Card
16. Shielding Plate

- 4 Screws

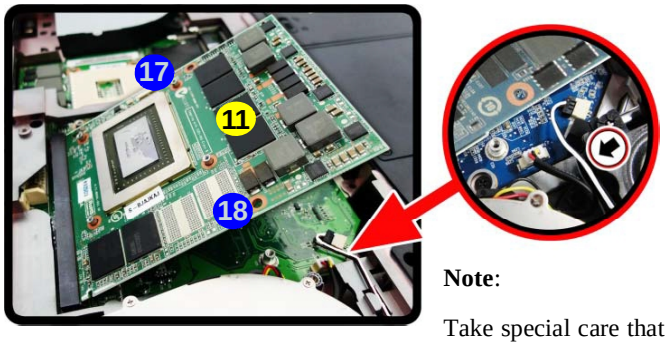
*Figure 21*
**Installing a New Video Card**

e. Insert the video card at a 30 degree angle.
f. Fit the connectors straight and even, and secure the card with screws 17 & 18 .

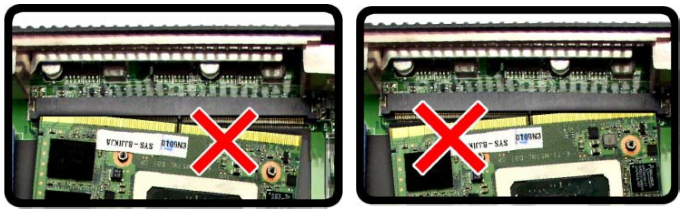
## Installing a New Video Card

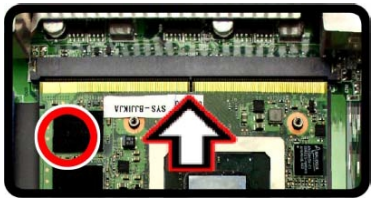
1. Prepare to fit the video card 11 into the slot by holding it at about a 30° angle (***Figure 21e***).
2. The card needs to be fully into the slot, and the video card and socket have a guide-key and pin which align to allow the card to fit securely (***Figure 21f***).
3. Fit the connectors firmly into the socket, straight and evenly.

**e.**




**f.**





**Note**:

Take special care that the speaker cable is not hindering the video card during installation.

**Caution**

The heat sink, and video card area in general, contains parts which are subject to high temperatures. Allow the area time to cool before removing these parts.

4. DO NOT attempt to push one end of the card in ahead of the other.
5. The card's pin alignment will allow it to only fit one way. **Make sure the module is seated as far into the socket as it will go** (none of the gold colored contact should be showing). DO NOT FORCE the card; it should fit without much pressure.
6. Secure the card with screws 17 & 18 (***Figure 19 on page 2 - 24***).
7. Place the heat sink back on the card, and secure the screws in the order indicated in ***Figure 19 on page 2 - 24***.
8. Attach the video card fan and secure with the screws as indicated in ***Figure 19 on page 2 - 24***.
9. Reinsert the component bay cover, and secure with the screws as indicated in ***Figure 12 on page 2 - 16***.

11. Video Card

- 2 Screws