

Lab Report: 14.1 Build a Computer From Scratch

Your Performance

Your Score: 8 of 8 (100%)

Elapsed Time: 25 minutes 5 seconds

Pass Status: Pass

Required Score: 100%

Task Summary

Actions you were required to perform:

☐ Install the **Motherboard, Socket 1151** [Hide Details](#)

- ☐ Install the motherboard in the case
- ☐ Connect the system panel connectors
- ☐ Connect the front and rear case fans to the motherboard
- ☐ Connect the front panel USB and Audio

☐ Install the **Power Supply, ATX, 20+4 pin, PCIe** [Hide Details](#)

- ☐ Install the power supply in the case
- ☐ Connect the 24 pin motherboard power connector
- ☐ Connect the 8 pin CPU power connector
- ☐ Connect the power supply to a power outlet
- ☐ Flip the power switch to the ON position

☐ Install the **i5-8600K, 3.60 GHz processor** [Hide Details](#)

- ☐ Install the processor onto the motherboard
- ☐ Install the CPU heatsink/fan

☐ Install **DDR4 memory for dual channel mode**

☐ Install the SATA hard drives [Hide Details](#)

- ☐ Install the SSD drive
 - ☐ Install the drive in the case
 - ☐ Connect it to the power supply
 - ☐ Connect the data connection to the motherboard
- ☐ Install the SATA hard drive
 - ☐ Install the drive in the case
 - ☐ Connect it to the power supply
 - ☐ Connect the data connection to the motherboard

☐ Install the CD/DVD drive with SATA connections [Hide Details](#)

- ☐ Install the CD/DVD drive in the case

☐ Connect the CD/DVD drive to the power supply

- ☐ Connect the monitor, keyboard, and mouse
- ☐ Boot into BIOS

Explanation

In this lab, your task is to complete the following:

- Add the computer case to the Workspace.
- Install the motherboard. Build the computer using the single motherboard and correct hardware on the Shelf. The motherboard will determine which processor, power supply, and hard drives to install.
- Connect the front panel connectors to the motherboard.
- Install a power supply.
- Install the processor.
- Install the memory so it will function in dual channel mode.
- Install the hard drives.
- Install the optical drive.
- Connect a monitor, mouse, and keyboard.
- Boot into the BIOS configuration utility to verify that you have installed the hardware correctly.

Complete this lab as follows:

1. Install the motherboard as follows:
 - a. On the Shelf, expand **System Case**.
 - b. Drag the **system case** from the Shelf to the Workspace.
 - c. Above the computer, select **Motherboard** to switch to the motherboard view.
2. Install the motherboard as follows:
 - a. On the Shelf, expand **Motherboards**.
 - b. Drag the **motherboard** from the Shelf to the motherboard plate in the system case.
3. Connect the front panel connectors to the motherboard as follows:
 - a. Under Selected Component, select **Details** to identify the location of the motherboard connectors.
 - b. Select the **Specifications** tab.
 - c. Read the **documentation** to identify the location for the following connectors:
 - Power switch
 - Power LED
 - Case speaker
 - HDD LED
 - Front fan
 - Rear fan
 - USB
 - USB 3.0
 - Front panel audio
 - Main motherboard power
 - CPU power
 - d. Select the **system case**. The available connectors are shown in the Selected Component window.
 - e. Under Selected Component, drag a **connector** to the port location on the motherboard to connect system case connectors. If necessary, zoom in to get a closer view of the motherboard.
 - f. Repeat step 1g until all the case and front panel connectors are connected to the motherboard.

How many pins does the main motherboard power supply require?

How many pins does the CPU power require?

4. Install the power supply as follows:
 - a. On the Shelf, expand **Power Supplies**.
 - b. Select a **power supply**.
 - c. Under Selected Component, examine the **power connectors** looking for all of the connectors required for this scenario.
 - d. Drag the **Power Supply ATX 20+4-pin PCIe** from the Shelf and to the area below the motherboard.
 - e. Under Selected Components, drag the **20+4 pin connector** to the motherboard connector to connect the motherboard main power connector.
 - f. Under Selected Components, drag the **8-pin CPU connector** to the motherboard connector to connect the CPU power.
 - g. Above the computer, select **Back** to switch to the back view of the computer to plug the computer into the wall outlet.
 - h. On the Shelf, expand **Cables**.
 - i. Select the **AC Power Cable**.
 - j. Under Selected Component, drag the **AC power connector (Female)** to the power supply port on the computer.
 - k. Under Selected Component, drag the **AC power connector (Male)** to an AC outlet on the wall plate.
 - l. On the power supply, click the **power supply switch** to the on position.
5. Install the processor, heat sink, and fan as follows:
 - a. Above the computer, select **Motherboard** to switch to the motherboard view.
 - b. Select the **motherboard** to identify the socket type of the motherboard.
 - c. Under Selected Component, select **Details**.
 - d. Select the **Specifications** tab.
 - e. Read the **motherboard documentation** to identify the socket type, additional requirements for the CPU, and the location of the CPU fan connector.
 - f. On the Shelf, expand **Processors**.
 - g. Read the **description** for each processor.
 - h. Drag the **i5-8600K, 3.60 GHz processor** from the Shelf to the processor socket on the motherboard.
 - i. On the Shelf, expand **Fans**.
 - j. Drag the **Heat Sink and Fan, Socket 1151** to the motherboard location.
 - k. Under Selected Component, drag the **fan power connector** to the motherboard location.
6. Install the memory as follows:
 - a. Select the **motherboard** to identify the memory supported by the motherboard.
 - b. Under Selected Component, select **Details**.
 - c. Select the **Specifications** tab.
 - d. Read the **documentation** to identify supported memory and installation procedures for dual channel mode.
 - e. On the Shelf, expand **Memory Modules**.
 - f. Read the **descriptions** for the available memory on the Shelf.
 - g. Drag a **DDR4 memory module** to the memory slot on the motherboard to configure dual channel mode.
 - h. Repeat step 5f to install additional modules.
7. Install the hard drives as follows:
 - a. Select the **motherboard** to identify the hard drives supported by the motherboard.
 - b. Under Selected Component, select **Details**.
 - c. Select the **Specifications** tab.
 - d. Read the **documentation** to identify the location of the SATA ports.

- e. On the Shelf, expand **Hard Drives**.
 - f. Drag the **SSD drive** from the Shelf to top 2.5" drive slot at the top of the hard drive tower.
 - g. On the Shelf, expand **Cables**.
 - h. Select the **SATA cable**.
 - i. Under Selected Component, drag a **SATA connector** to the SSD drive.
 - j. Under Selected Component, drag the unconnected **SATA connector** to a SATA port on the motherboard.
 - k. Under Partial Connections for the computer, select the **power supply**.
 - l. Under Selected Component, drag a **SATA power connector** to the SSD drive.
 - m. On the Shelf, expand **Hard Drives**.
 - n. Drag the **SATA hard drive** to a 3.5" drive slot.
 - o. On the Shelf, expand **Cables**.
 - p. Select the **SATA cable**.
 - q. Under Selected Component, drag a **SATA connector** to the hard drive.
 - r. Under Selected Component, drag the unconnected **SATA connector** to a SATA port on the motherboard.
 - s. Under Partial Connections for the computer, select the **power supply**.
 - t. Under Selected Component, drag a **SATA power connector** to the hard drive.
8. Install the CD/DVD drive as follows:
- a. Select the **motherboard** to identify the CD/DVD drive supported by the motherboard.
 - b. Under Selected Component, select **Details**.
 - c. Select the **Specifications** tab.
 - d. Read the **documentation** to identify the CD/DVD drive supported by the motherboard.
 - e. Above the computer, select **Drive Bays** to install the CD/DVD drive.
 - f. On the Shelf, expand **CD/DVD Drives**.
 - g. Drag a **CD-DVD Drive, Internal, SATA** from the Shelf to an open 5.25" drive bay.
 - h. On the Shelf, expand **Cables**.
 - i. Select the **SATA cable**.
 - j. Under Selected Component, drag a **SATA connector** to the CD/DVD drive.
 - k. Above the computer, select **Motherboard** to switch to the motherboard view.
 - l. Under Selected Component, drag the unconnected **SATA connector** to a SATA port on the motherboard.
 - m. Above the computer, select **Drive Bays** to connect power to the CD/DVD drive.
 - n. Under Partial Connections for the computer, select the **power supply**.
 - o. Under Selected Component, drag a **SATA power connector** to the CD/DVD drive.
9. Connect the monitor, keyboard, and mouse as follows:
- a. On the Shelf, expand **Monitors**.
 - b. Drag the **monitor** from the Shelf to the Workspace.
 - c. Above the monitor, select **Back** to switch to the back view of the monitor.
 - d. Above the computer, select **Back** to connect the computer to the monitor.
 - e. On the Shelf, expand **Cables**.
 - f. Select the **HDMI cable**.
 - g. Under Selected Component, drag a **HDMI connector** to the HDMI port on the computer.
 - h. Under Selected Component, drag the other **HDMI connector** to the HDMI port on the monitor.
 - i. Select the **AC Power Cable**.
 - j. Under Selected Component, drag the **AC power connector (Female)** to the monitor.
 - k. Under Selected Component, drag the **AC power connector (Male)** to an outlet on the wall.
 - l. On the Shelf, expand **Input devices**.
 - m. Drag the **Keyboard, USB** from the Shelf to the Workspace.

- n. Drag the **Mouse, USB** from the Shelf to the Workspace.
 - o. Select the **keyboard**.
 - p. Under Selected Component, drag the **USB connector** to a USB port on the back of the computer.
 - q. Select the **mouse**.
 - r. Under Selected Component, drag the **USB connector** to a USB port on the back of the computer.
10. Boot into BIOS and verify the installation of the hardware as follows:
- a. Above the monitor, select **Front** to switch to the front view of the monitor.
 - b. Click the **power** button on the monitor.
 - c. Above the computer, select **Front** to switch to the front view of the computer.
 - d. Click the **power** button on the computer.
 - e. As the BIOS loads, press the **Delete** key to enter the setup program.
 - f. Under System Information, verify that all memory is recognized and that it is operating in dual channel mode.