**SPECIAL PROGRAM IN TECHNICAL VOCATIONAL EDUCATION (SPTVE)
COMPUTER SYSTEMS SERVICING 8 Q3–W3**

I.   Topic: **EXPANSION CARDS**

II. Objectives:
1. Identify components to be measured, types of expansion card and appropriate interface to connect cards in the computer system.
2. Write the appropriate expansion card specification and arrange the steps in configuring expansion cards in the computer system.
3. Value the importance of expansion cards in the computer system and the use of OHS when performing configuration.

III. Brief Introduction of the Lesson

Expansion card is a PCB that fits into an expansion slot on a desktop computer. It is used to give additional capabilities such as enhanced video performance, graphics, audio or for the connection of computer in a network.

Types of Expansion Cards

▪ Video card is responsible with the graphics displayed in the display devices like monitor. It may be connected to an Accelerated Graphics Port (AGP) or Peripheral Component Interconnect Express (PCIe) slot. Components of video card are graphic processing unit (GPU), video BIOS, video memory, random access memory digital to analog converter (RAMDAC) and output interface. Output Interface includes Video Graphic Array(VGA), Digital Visual Interface(DVI), S-Video and High Definition Multimedia Interface(HDMI).

▪ Sound/Audio card allows the sounds/audio to be input and output to a computer. It may be connected to a Peripheral Component Interconnect (PCI) or PCIe slot. Components of sound card are digital signal processor (DSP), coder/decoder chip (CODEC), memory and input/output connection. In the input/output connection it includes jack port in pink, blue and green color that connects sound devices for the input and output of audio signal like microphone, speaker and headset.

▪ MODEM (Modulator/Demodulator) is a hardware component that allows a computer or another device, such as a router or switch, to connect to the Internet. It converts or "modulates" an analog signal from a telephone or cable wire to digital data that a computer can recognize. It also converts digital data from a computer or other device into an analog signal that can be sent over standard telephone lines. It consists of a modem port where you connect the Category 1 UTP cable (*also known as telephone wire*) with an RJ-11 connector as a medium used to transmit signals. There are 2 types of MODEM named as internal and external MODEM. Internal MODEM is commonly connected inside the system unit using a PCI or PCIe interface while external MODEM is a separate device that is connected outside the computer that has lights which indicate the processing status of it.

▪ Network Interface Card is a computer hardware component that allows a computer to connect to a network. NICs may be in a form of wired and wireless connection. Also known as network adapter, LAN card, Ethernet card. NIC has a port named as network port, LAN

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port or Ethernet port. The port of modem and network adapter has the same physical appearance but with different size. Modem port is smaller than network port.

There are 2 type of NIC named as internal and external NIC. Internal NIC is connected either in PCI or PCIe slot while external NIC is a separate device that is connected outside the system unit using a USB(Universal Serial Bus) interface.

Writing of Specification: Brand, Model, Serial Number, Output Interface, Connection Interface, Type of expansion card, Transmission Speed (for NIC), Form Factor

Example:

Specification indicated in the picture at the side:
Brand: TP-Link
Transmission Speed:
    300Mbps
Interface: PCI
Type: Wireless
Model: TL-WN851N
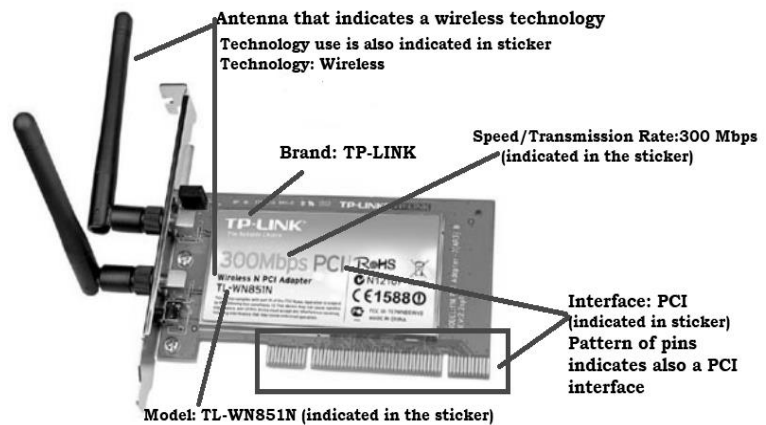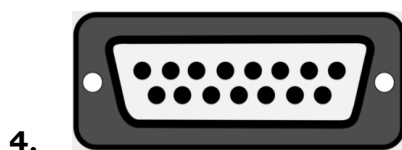**Form Factor:**
    Internal NIC

Antenna that indicates a wireless technology
Technology use is also indicated in sticker
Technology: Wireless

Brand: TP-LINK

Speed/Transmission Rate:300 Mbps (indicated in the sticker)

Interface: PCI (indicated in sticker)
Pattern of pins indicates also a PCI interface

Model: TL-WN851N (indicated in the sticker)
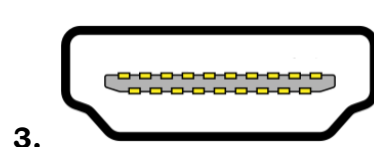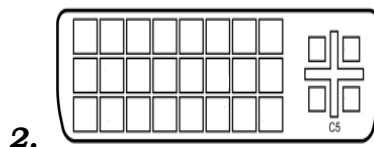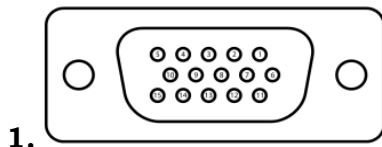
*Image Source: **https://tinyurl.com/y37ratow** on 01/11/21*

IV.   Activities:

Activity 1
Expansion Cards Interface

Part I. *Directions:* Identify the output interface illustrated below by choosing your answer in the box. Write the chosen answer on a separate sheet of paper.

Jack port	HDMI port	DVI port	Modem port
VGA port	Game port	LAN port	USB port

1.

2.

3.

4.

5.

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Part I. *Directions:* Match column A with those in column B (Connection Interface). Write your answer in a separate sheet of paper.

Column A	Column B
6. Modem Card	**A.** AGP
7. Video Card	**B.** PCI
8. Internal Network Adapter	**C.** PCIe
9. External Network Adapter	**D.** USB
10. Sound card	

Activity 2
Writing of Specification

Directions: Listed inside the box are examples of specification. Select the appropriate specification of the identified expansion card. *Write your answer on a separate sheet of paper.*

1. Video Card	2. Sound Card	3. Network Card
AGP slot, S-Video, VGA, PCI slot, 10Mbps, wired, nVidia, SN:1672938A3H	Compatible with Windows 8, Asus, PCI slot, 1Gbps, 3.5mm jacks, TP-Link, SN:2J466S2257A	Asus, PCIe slot, 1Gbps, wireless, TP-Link, HDMI, Gigabit Ethernet, 2.8Ghz 2.5mm jacks

Activity 3
Detaching and Attaching Expansion Card

Set A. *Directions:* Listed below are steps in disassembling and assembling CPU chip on CPU socket, arrange the letters/blocks to show the proper steps in doing the activity for items number 1 to 6.

A. Remove expansion card by moving it side by side while lifting it out of the case.	B. Close the system unit by connecting the system cover on it.	C. Use anti-static wrist strap while working on system unit to discharge yourself.
D. Apply pressure to completely connect the card on the slot.	E. Shutdown and unplug computer then open computer case.	F. Match and line-up the pins & notch of the expansion card on the expansion slot.

Set B. *Directions:* Answer the following questions briefly.

7-10. What will be the danger if you do not follow the OHS listed below when configuring expansion card in the system unit?

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- Discharge yourself before touching anything inside the system unit.
- Do not use excessive force if things don't quite slip into place.
- Hold card on the edge and do not touch gold pins on it.

V. Assessment:

Directions: Choose and write only the letter of the correct answer on a separate sheet of paper.

1. The following are examples of expansion card that can be connected to PCI slot **EXCEPT:**

A. MODEM   B. NIC   C. Sound card   D. Video card

2. Which of the following expansion card allows the connection of telephone line to a computer for communication?

A. MODEM   B. NIC   C. Sound card   D. Video card

3. An expansion card responsible in display the image in the projector is known as ____.

A. MODEM   B. NIC   C. Sound card   D. Video card

4. What form factor of NIC uses USB interface to connect in the computer?

A. external NIC   B. internal NIC   C. wired NIC   D. wireless NIC

5. The following output interface are the appropriate specification for a video card **EXCEPT:**

A. DVI   B. HDMI   C. Jacks   D. VGA

VI. Reflection:

Directions: Answer the following questions briefly on a separate sheet of paper.

1. What is the most interesting or important things you have learned today and why?
2. What will be the benefits of this lesson in your daily life or in the future?
3. What do you want to learn more about expansion cards and why?
4. What problems did you encounter in answering the activities?

References:

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