# Video Technologies

## Chapter 9

# This presentation covers:

- Troubleshooting Perspective
- Video Technologies
- Touch Screens
- Smart TV and Set Top Box Configuration
- Display Preventive Maintenance
- Monitor Energy Efficiency
- Video Adapters
- Video Memory

# Qualities of a Good Technician

"Soft skills" as they are known across many industries are essential

# Troubleshooting Perspective

- Put yourself in the mindset of the user
- Communicate with the user
- Try imagining the problem from their prospective

# Video Overview

# Types of Video Output Devices

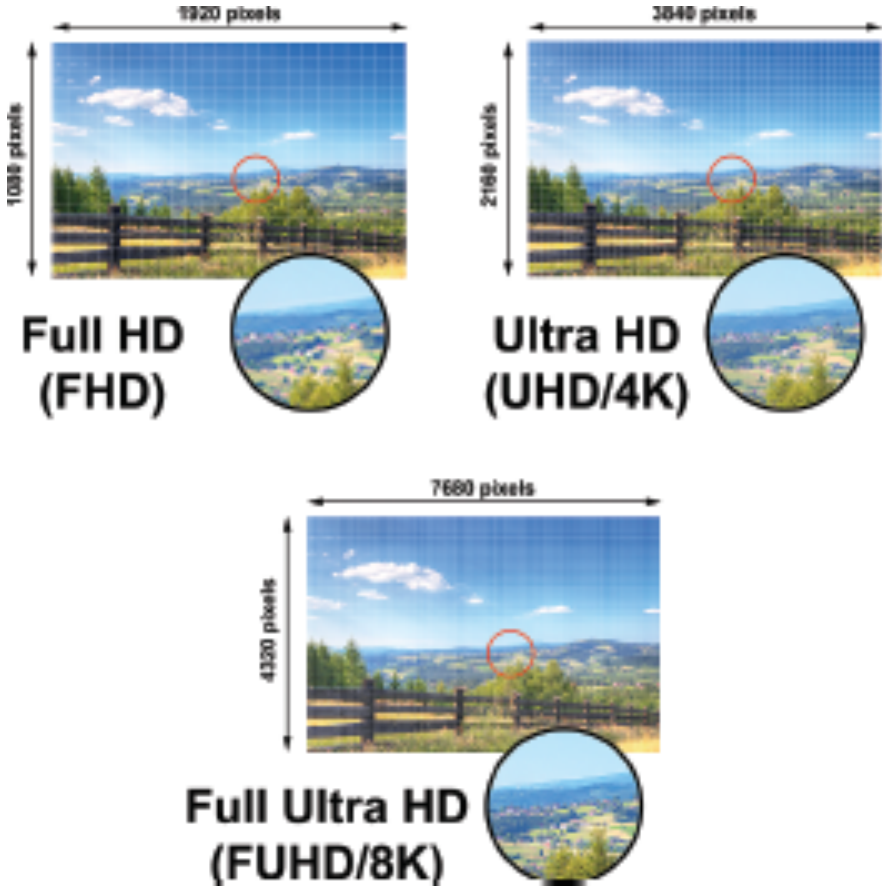
- Cathode ray tube (CRT): Older bulky monitors; hree color beams (red, green, and blue) directed at a phosphorous dot on the back of the monitor tube
- Liquid crystal display (LCD): Technology used in laptops, flat panel monitors, TVs, tablets, smartphones, and projectors
- Light-emitting diode (LED): Low-power, low-heat, long -lasting electronic device used in various technologies such as calculators, auto lighting, and fiber optics
- Organic LED (OLED): Does not require a backlight like LCDs but has a film of organic compounds placed in rows and columns that can emit light

# Types of Video Output Devices, cont'd

- Digital Light Processing (DLP): A Texas Instrument technology used in projectors and rear projection TVs
- Plasma: Displays that work similarly to LCDs except that they have plasma gas in little chambers
- Projector: Used to take input from a device such as a computer, laptop, camera, etc., and send that image onto a screen or wall.

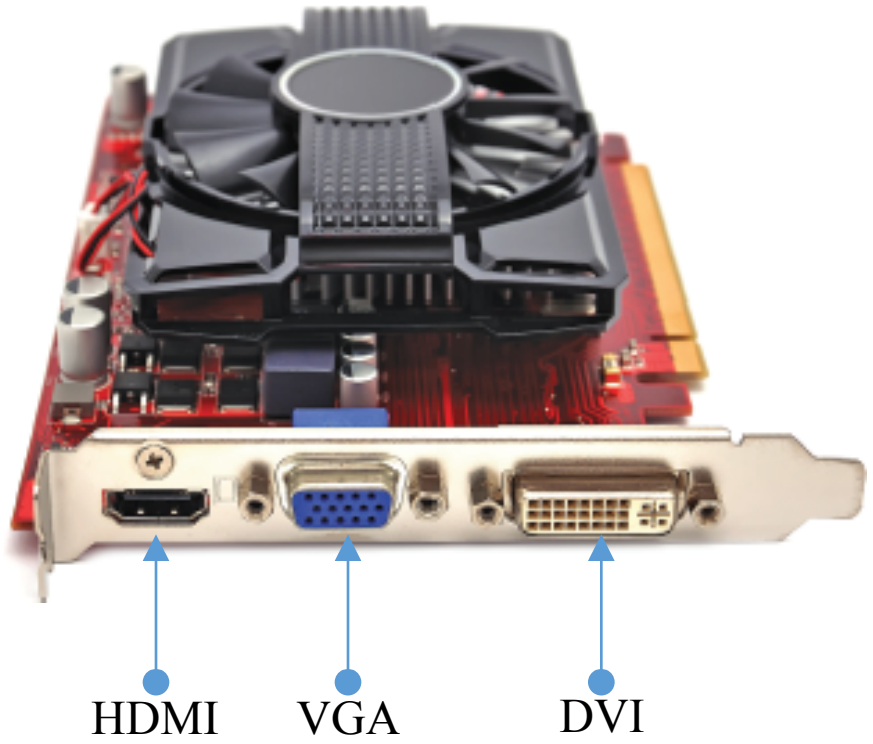
# Resolution

- A monitor's resolution is the maximum number of pixels on the monitor
- Two numbers separated by an × (meaning by) describe a monitor's resolution, such as 1024×768 (1024 "by" 768)
- The resolution in Windows Vista/7/8, is accessed through the Display Control Panel



# Video Ports and Cables

- VGA cables are older technology and not recommended for use with flat panel digital monitors
- Some monitors and TVs provide USB connectivity
- Some LCDs have a USB cable from the computer to the monitor
- Many monitors act as a USB hub and provide multiple USB ports
- Flat panel monitors need an AGP or PCIe adapter that has a digital video/visual interface (DVI) or high-definition multimedia interface (HDMI) port



# Touch Screens

- Respond to contact rather than keyboard/ mouse input
- Two types
  - Resistive (can wear gloves with)
  - Capacitive (more durable and common)
- Technologies
  - Accelerometer – detects screen orientation and adapts what is shown based on that orientation
  - Gyroscope – measures and maintains orientation

# Smart TV and Set Top Box Configuration

- A set top box (STB), set top unit (STU), or receiver is an electronic device bought/leased from a cable/satellite TV provider
- The device connects to the provider network and it can be either wired to a TV or wirelessly paired with the TV

# Smart TV and Set Top Box Configuration

- The device can have some of the following features
  - Channel selection
  - Volume control
  - Parental controls
  - Video recording
  - Timer
  - Favorites
  - Number of screens to be shown and what channels are within those screens
  - Closed captioning

# Display Preventive Maintenance

- Use anti-static cleaning wipes
- Use LCDs wipes specifically designed for LCDs
- A soft cloth dampened with water or a mixture of isopropyl alcohol and water can also be used to wipe an LCD
- Do not use glass cleaner to clean LCDs
- Never apply liquid directly to a monitor of any type

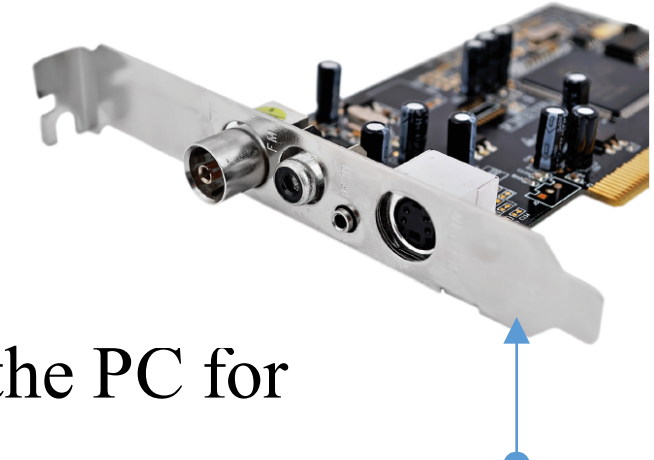
# Monitor Energy Efficiency

- A monitor's life span is normally 40,000 to 60,000 hours
- Heat generated inside a display can reduce the life span
- Three things contribute to display power utilization:
  - Size—The larger the screen, the more power used
  - Technology—LCDs require less power than plasma displays
  - Settings—Settings include brightness (brighter settings require more power) and power saver modes

# Video Adapters

- A video adapter controls most of the display output
- Video  adapters use the AGP or PCIe interface
- On the motherboard, the processor and the chipset are responsible for how quickly data travels to and from the video adapter
- Video adapters have their own processor called the graphics processing unit (GPU)
  - Also known as video processor, video coprocessor, or video accelerator
- The GPU assists in video communication between the video adapter and the system processor

# Specialized Video Adapters



TV tuner adapter

- TV tuner card – allows TV signals to be input into the PC for viewing
- Video capture card – allows video to be input from external sources such as a camera, tape, VCR, DVR, game console, live audio or video, recorder, or optical media
- Thunderbolt card – an adapter that has one or more Thunderbolt ports
- NVIDIA's SLI/AMD's CrossFire and CrossFireX – links two or more PCIe video cards for sharing of resources

# Video Memory

- One of the most important functions of a video processor is to transfer data to and from a video adapter's memory
- Memory chips on the video adapter can be regular SDRAM chips
  - DDR2, DDR3, and DDR4
  - Graphics double rate [GDDR] modules: GDDR2, GDDR3, GDDR4, and GDDR5

# Troubleshooting Video

- Incorrect color patterns or distorted images – examine the cable ends
- Oversized images/icons – check resolution
- Dead pixels – standard even on new displays
- Bright spots – pixel is stuck in the on position; replace display
- Flickers – check video cable and refresh rate
- Geometric distortion – Check video cables and/or reset to factory defaults

# Computer Terms

**Refer to the glossary terms at the end of the textbook chapter. Review Chapter 9 and become familiar with the terms.**

This PPT deck was developed to support instruction of

**The Complete CompTIA A+ Guide to IT Hardware and Software 7th Ed.**



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