Tech Update 2023 – Communications
Accounting Technology
Seminar Series

Randy Johnston

What About Randy?

- 40+ years of technology experience, top-rated speaker for almost 40 years
- Top 25 Thought Leaders in Accounting 2011-2023
- 2004-2022 Accounting Today 100 Most Influential in Accounting for nineteen years
- Inducted Accounting Hall of Fame, Feb 2011
- Monthly columns on technology in CPAPractice Advisor
- Published author of six books, From Hutchinson, KS
- randy@k2e.com or randyj@nmgi.com
- 620-664-6000 x 112

COMMUNICATIONS AND COLLABORATION

New And Improved Standards

- More routers with >1 GB ethernet
    - 2.5 Gb ethernet is a short-term solution, avoid
    - 10 Gb is coming soon to support 8K
- HDMI 3 – 80 Gbps
    - Standard not yet ratified, but manufacturers/chipmakers already gearing up for this new standard
- Wi-Fi 7: What's New
- DOCSIS 4: The 10 Gb future

Wi-Fi 7: What's New

- Newest Wi-Fi standard now out (802.11be)
- Speeds up to 46 Gbps
  - Unless using for mesh, need ethernet speeds above 1 Gbps
- Uses same frequencies as Wi-Fi 6E, but allows for channels of up to 320 Mhz vs. 160 Mhz for 6/6E
- All three standards use WPA 3, which encrypts all data between the access point and devices
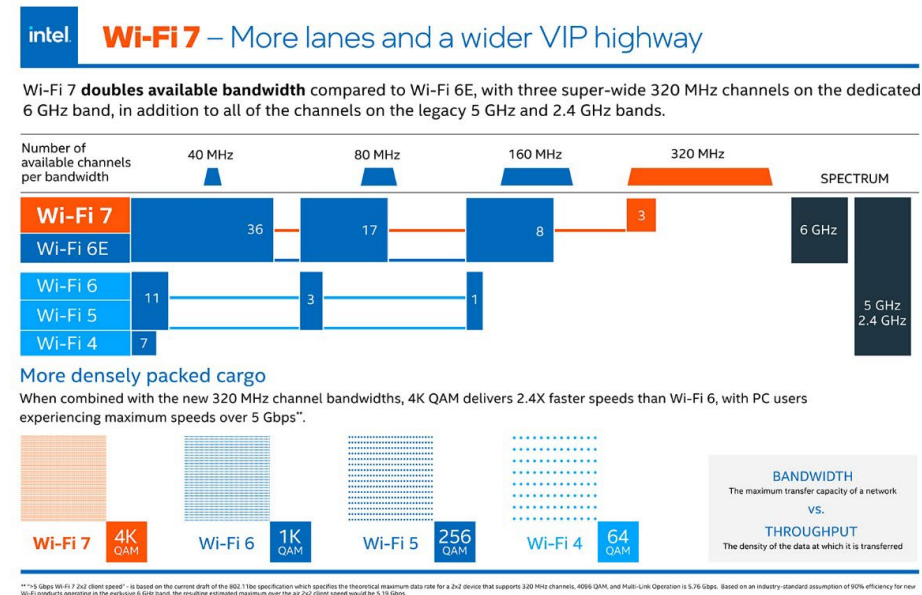- The first devices are available from TP-Link now

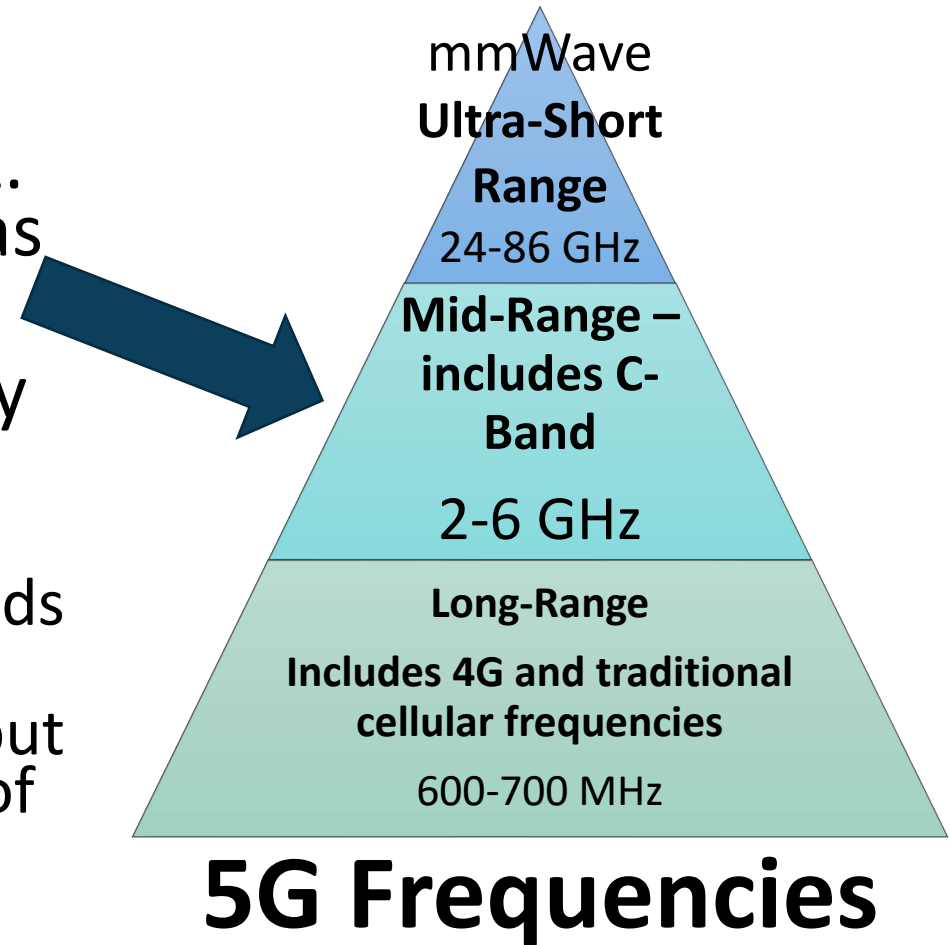|	Wi-Fi 6	Wi-Fi 6E	Wi-Fi 7
IEEE Standard	802.11ax	802.11ax	**802.11be**
Frequencies used (GHz)	2.4, 5	2.4, 5, **6**	2.4, 5, 6
MIMO Streams	8	8	**16**
Channel Width	20, 40, 80, 80+80, 160MHz	20, 40 , 80, 80+80, 160MHz	20, 40 , 80, 80+80, 160, 320MHz
Max speed	9.6 Gbps	9.6 Gbps	**46 Gbps**
WPA Standard	WPA 3	WPA 3	WPA 3

Wi-Fi 7: Technical Considerations

- Wi-Fi 7 includes 320 MHz Channels & 4K QAM (**Quadrature Amplitude Modulation**), providing more densely packed channels and more data density.

- The benefit of a typical Wi-Fi 7 laptop is a potential maximum data rate of almost 5.8 Gbps. This is 2.4X faster than the 2.4 Gbps possible with Wi-Fi 6/6E and could easily enable high-quality 8K video streaming. In addition, it could reduce the time for a 15 GB file download to roughly 25 seconds vs. the one minute it would take with the best legacy Wi-Fi technology.

- With MLO (**Multi-Link Operation**), Wi-Fi 7 devices can simultaneously connect on two bands. This enables faster speeds through aggregation. Or, both bands can be used concurrently to share redundant/unique data for improved reliability with ultra-low and precise latencies.

5G Works, So What Is C-Band?

- It's a set of radio airwaves operating at a frequency range between 3.7 and 3.98GHz. That frequency falls under what is known as midband spectrum
- AT&T and Verizon have deployed 5G mainly on low-band spectrum or high-band millimeter wave
  - Low-band has excellent coverage, but its speeds are often equivalent to those of 4G LTE
  - Millimeter-wave has excellent performance, but its coverage is often limited to just a handful of blocks in certain cities or in parts of an arena, stadium or airport

mmWave
Ultra-Short Range
24-86 GHz

Mid-Range – includes C-Band
2-6 GHz

Long-Range
Includes 4G and traditional cellular frequencies
600-700 MHz

5G Frequencies

COMPUTE AND PHONE

Hardware Choices

- Desktop vs. laptop
- Large monitors 27-49"
- Workgroup scanners

- Smartphone
- Tablet?
- Docking station?
- External keyboard & mice

Computer Recommendations

PC Buyer

- Windows 11, Microsoft 365
- Intel Core i5-i9, AMD Ryzen 5-9
- Dedicated GPU (ARC, Radeon)
- 16-32GB of RAM, DDR5
- PCIe Gen 4 128GB-1TB of NVM Express Solid-State drive (NVMe)
- Thunderbolt 4, for HDMI/USB

Mac Buyer

- MacOS, Microsoft 365
- M2 PRO/MAX ARM
- Dedicated ProRes graphics
- 8-64GB of RAM (DDR5 Unified)
- PCIe Gen 4 128GB-2TB of NVM Express Solid-State drive (NVMe)
- Thunderbolt 4, for HDMI/USB

HP Dragonfly G4 Specifications

- CPU - 13th Gen Intel Core processor
- GPU - Intel integrated
- RAM - Up to 32 GB
- Storage - Up to 2 TB
- Display - 13.5-inch, 3:2, 3K2K OLED
- Camera - 5MP
- Audio - Bang & Olufsen, dual mics
- Ports - 2x Thunderbolt 4 with USB C, 2x SuperSpeed USB Type-A, HDMI 2.0, Nano-SIM, Audio jack
- Connectivity - Wi-Fi 6E, Bluetooth 5.3, 4G LTE or 5G (optional)
- Dimensions - 12.39 in x 8.78 in x 0.72 in
- Weight - Starting at 2.98 lbs.

Apple MacBook Pro Specifications

- **CPU – M2 Pro or Max**
- **GPU – 16, 19, 30, or 38 Cores, 16-core Neural Engine**
- **RAM - Up to 96 GB**
- **Magic Keyboard with Touch ID, Force Touch trackpad**
- **Storage - Up to 8 TB**
- **Display – 13, 14, 16" Liquid Retina XDR display[2]**
- **Camera - 1080p FaceTime HD camera**
- **Audio - High-fidelity six-speaker sound system with force-cancelling woofers**
- **Ports - Three Thunderbolt 4 ports, HDMI port, SDXC card slot, headphone jack, MagSafe 3 port**
- **Connectivity - Wi-Fi 6E, Bluetooth 5.3**
- **Dimensions - 12.31 in x 8.71 in x 0.61 in**
- **Weight - Starting at 3.6 lbs.**

Lenovo Yoga Book 9i Specifications

- CPU – 13th Gen Intel Core i7-U15

- GPU – Intel Iris® X e

- RAM - Up to 16 GB

- Storage - PCle SSD Gen4: 512G/1T

- Display – two 13.3-inch 2.8K OLED PureSight displays with 100% DCI-P3 color accuracy and Dolby Vision® HDR

- Camera - FHD IR+RGB (5M USB) Webcam with Privacy Shutter

- Audio - 360° sound bar and Bowers and Wilkins speakers

- Ports - 3 x USB Type-C (all full function and Thunderbolt™4.0)

- Connectivity - Wi-Fi 6E, HW Support Bluetooth 5.2, OS Just support Bluetooth 5.1

- Dimensions - 11.78 in x 8.03 in x 0.63 in

- Weight - Starting at 3.04 lbs.

Kensington Docking Station

- **SD5700T Thunderbolt™ 4 Dual 4K Docking Station with 90W PD**

- **Βackward compatibility with Thunderbolt™ 3, USB4, and USB-C devices running Windows 10 or later, or macOS 11 or later.**

- **Thunderbolt™ 4 Technology can connect up to three additional Thunderbolt devices directly (up to five in total) while providing transfer speeds up to 40Gbps, up to Dual 4K video output, and audio**

- **Single 8K or Dual 4K Video Output for Thunderbolt™ 4-Enabled Devices**

- **90W Power Delivery**

- **11-Ports of connectivity**

- **$369.99**

Apple iPhone 15, Plus, Pro, & Max

- **Pro/Max - A17 3nm Bionic chipset - 6-core CPU with 2 performance and 4 efficiency cores, 5-core GPU, 16-core Neural Engine, 10% faster than A16, 2x on Neural engine**

- **15/Plus A16 Bionic chipset - 6-core CPU with 2P & 4E cores, 5-core GPU, 16-core Neural Engine**

- **Black, Blue, Green, Yellow, Pink**

- **Action button – ring/silent, 8 other functions**

- **New camera technology, Dual 48MP cameras, Periscope tetraprism 5x zoom, can shoot spatial video for Vision Pro**

- **6.1 & 6.7-inch Super Retina XDR display, resolution of 2796-by-1290-pixel resolution at 460 ppi**

- **8GB RAM, 128GB/ 256GB/ 512GB of storage**

- **Dynamic Island for all models**

- **Qualcomm modem chip, Dual eSIM (two active eSIMs; stores eight or more eSIMs)**

- **USB-C, not Lightning connector! Must buy USB3 cable**

Apple Watch Series 9 & Ultra 2

- **The Apple Watch Series 9 packs a swifter S9 chipset than the Series 8's S8 silicon**

- **Apple U2 chip (Ultra-wideband)**

- **4-core Neural Engine**

- **The S9 chipset also includes a neural engine that powers several smart features of the Series 9. The Series 8 does not have this feature**

- **Apple also brings a new pink color to the Watch Series 9.**

- **The Apple Watch Series 9 has a brighter display, peaking at 2,000 nits**

- **With Double Tap, users can "click" their watch hand's index finger and thumb twice to interact with apps on the Series 9**

- **$399-699**

Apple Vision Pro "Spatial Computing"

- M2 and brand new R1 chips for the sensor inputs, 12ms

- Twin 4K displays inside the headset for HDR picture quality. For glasses you'll need custom ZEISS inserts

- EyeSight uses a front display to show others that you are engaging with them or are immersed in the headset

- visionOS allows for 3D experiences native to the Vision Pro. iOS and iPadOS apps will be available in a Vision Pro App Store along with visionOS apps

- The crown on the top of the headset allows you to control how immersed in the headset you are, from augmented reality to virtual reality.

- No controllers needed — the headset relies on eye and hand tracking in addition to voice commands

- $3,499, costing $1,509 to build
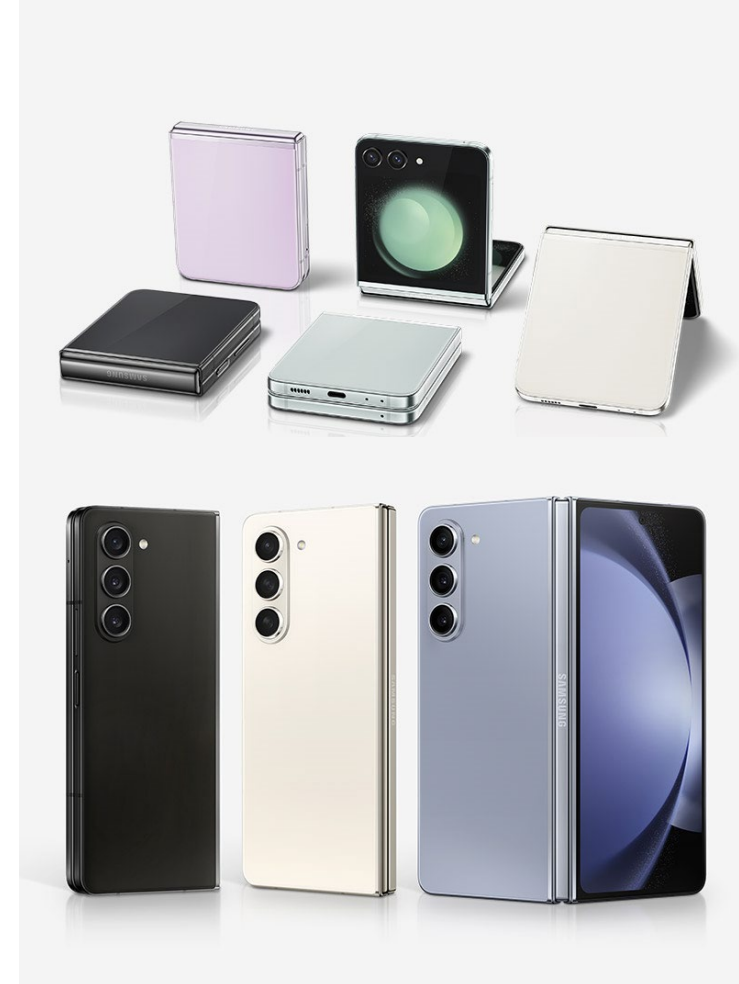
- Early 2024

Google Pixel 8 Rumored Specs

- **ARMV8.5+ or ARMV9 CPUs using Advanced Memory Protection with Memory Tagging Extension (MTE)**

- **Tensor G3 "Zuma"**

- **50MP Isocell GN2 using staggered HDR technology**

- **Pixel 8 will have a 2,268 x 1,080 display while the Pixel 8 Pro will pack a 2,822 x 1,344 screen**

- **5,000mAh energy cell**

- **162.6 x 76.5 x 8.7mm – very close to Pixel 7**

- **October 2023**

K2 Enterprises

Samsung Galaxy Z Flip 5 & Z Fold 5

- **Qualcomm Snapdragon 8 Gen 2 processor**

- **128GB, 256Gb, and 512GB storage**

- **6.7-inch and 7.6-inch main screens**

- **Flip 5 is built with a 3.4-inch cover screen that allows it to be used folded in half in 8 colors**
  - **New widgets from the Flex Window, including a multi-widget view for more at once**
  - **Run apps on the cover display**

- **Fold 5 IPX8 water resistant at 13.5mm thick in 5 colors**

- **$999-1,119 (Flip), $1,799-2,159 (Fold)**

- **Announced July 26, 2023, along with Galaxy Watch 6 ($300-400), Tab S9 Ultra ($1,200)**

Galaxy S24/S24 Plus Rumored Specs

- **50MP wide angle and a 12MP ultrawide angle**

- **The phones may also feature a 10MP short lens**

- **128GB, 256Gb, and 512GB storage**

- **AMOLED displays, higher refresh rate**

- **4,700mAh energy cell**

- **January 2024**

Review Question

Which of the following help with business and personal activities?

    a) Smartphone

    b) Personal computing

    c) Web search

    d) All the above

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Summary

- Hardware and software options continue to expand at an ever-increasing pace

- Communications speed and reliability are improving

- Lines continue to blur with technologies that can be used in both business and personal life

- Emerging technologies that seemed futuristic like artificial intelligence and machine learning will affect the accounting profession in the near term, providing leverage for people