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ITI & Technet 9/29 F2F Presentation: External Monitors

Additional submitted attachment is included below.

Energy Efficient Desktop Feasibility Discussion (External Monitors)

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External Monitors - Short Idle impact

- Long term, short idle (screen on) system power will increase significantly
  - As resolution, color depths, and refresh rates increase
  - Efficiency @ ≥4K: exponential display/imaging pixel growth = unsustainable memory and transport BW
  - ~14Gbps for each 4K display; 4x higher at 8K
  - Increasing bits-per-pixel (e.g. HDR) means even worse than shown (e.g. 30bpp+)

Display Bandwidth Requirements, 24bpp (Uncompressed)		
Resolution	Bandwidth	Minimum DisplayPort Version
1920x1080@60Hz	3.5Gbps	1.1
2560x1440@60Hz	6.3Gbps	1.1
3840x2160@60Hz (4K)	14Gbps	1.2
7680x4320@60Hz (8K)	>50Gbps	1.3 + DSC

Source: Anandtech.com

- Impacts baseline short idle power floor
  - Critical for new form-factors, big part of regulatory power budget due to short idle contribution
- Short term we must spec test conditions for short idle
- Long term we need to invest in new I/O technologies to limit transport bandwidth
  - e.g. PSR, PSR2 for eDP are protocols that only send changed information

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