2022 PLS-CADD Advanced Training and User Group

Operating System and Hardware Recommendations

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Introduction

- Update from my 2019 talk

- Operating Systems
- Hardware
- Q/A as time permits

Supported Operating Systems

- x64 editions of Windows 10 and 11
- Windows 8 x64 and newer: Supported
  - Windows 7 EOL by Microsoft January 14, 2020
  - Windows 8 EOL by Microsoft January 10, 2023
  - Windows 8 EOL by PLS when our development tools no longer support it or < 2% of users run it and MS EOL.
  - < 1.5% of users on Windows 7, but our software still runs on it last time we checked

Recommended Operating Systems

- **Windows 10 or 11 (64 bit edition)**
  - PLS software “Just works”
  - Only options that make sense

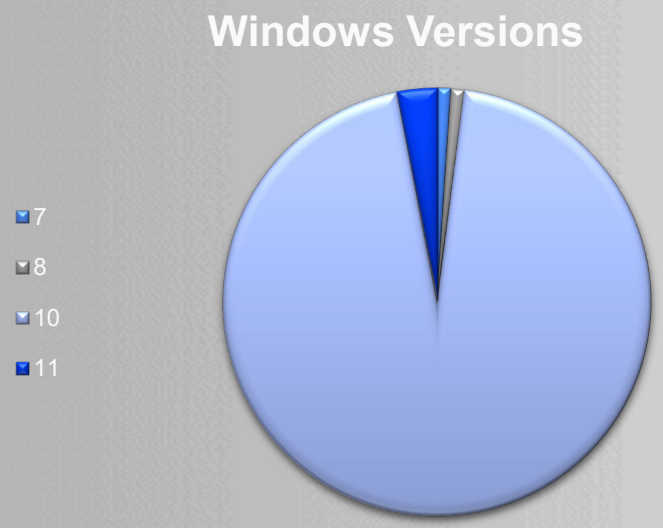
Hardware Recommendations

- PLS-CADD vs. PLS-POLE / TOWER
  - PLS-CADD: RAM most important
  - PLS-POLE/TOWER: # cores most important
    - Analysis time proportional to (Load cases) / (# cores)
- For all applications
  - PCIe NVMe SSD if files stored local
  - Gigabit or 10 Gigabit to server if files stored remote
    - If network slow then use *Compress XYZ and TIN files* setting in PLS-CADD
  - A 40” 4k or multiple smaller monitors boost productivity
  - Enhanced graphics are starting to use hardware acceleration, but spending money on RAM and cores gives a better ROI

The Average PLS-CADD Computer

- From SBL telemetry

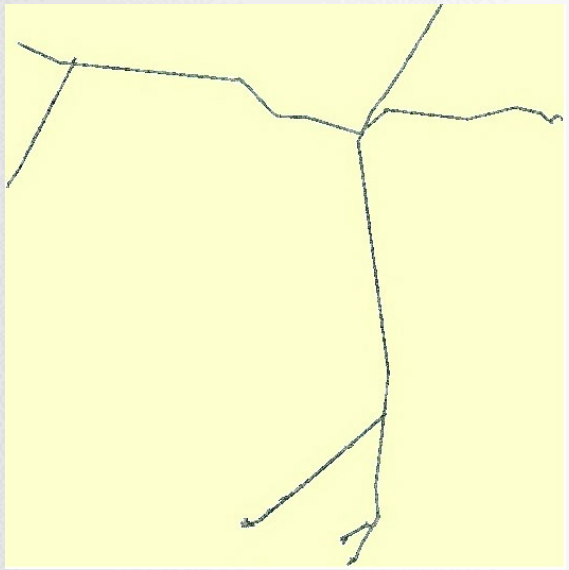
	Average	Minimum	**Maximum**
RAM (GB)	32	4	2048
Cores (Physical/Logical)	5/10	1/2	64/128



4/8 core with 32 GB of RAM running Windows 10

What pushes the limits?

- LiDAR point counts – ever growing
- 1TB image
  - No compilations!
  - Prefer 10-100 images to 1000+ or just one big image
- Family and Framing Managers
  - 17.24 TOWER Family Manager memory compression up to 8x
- 500+ Load cases
  - Really?



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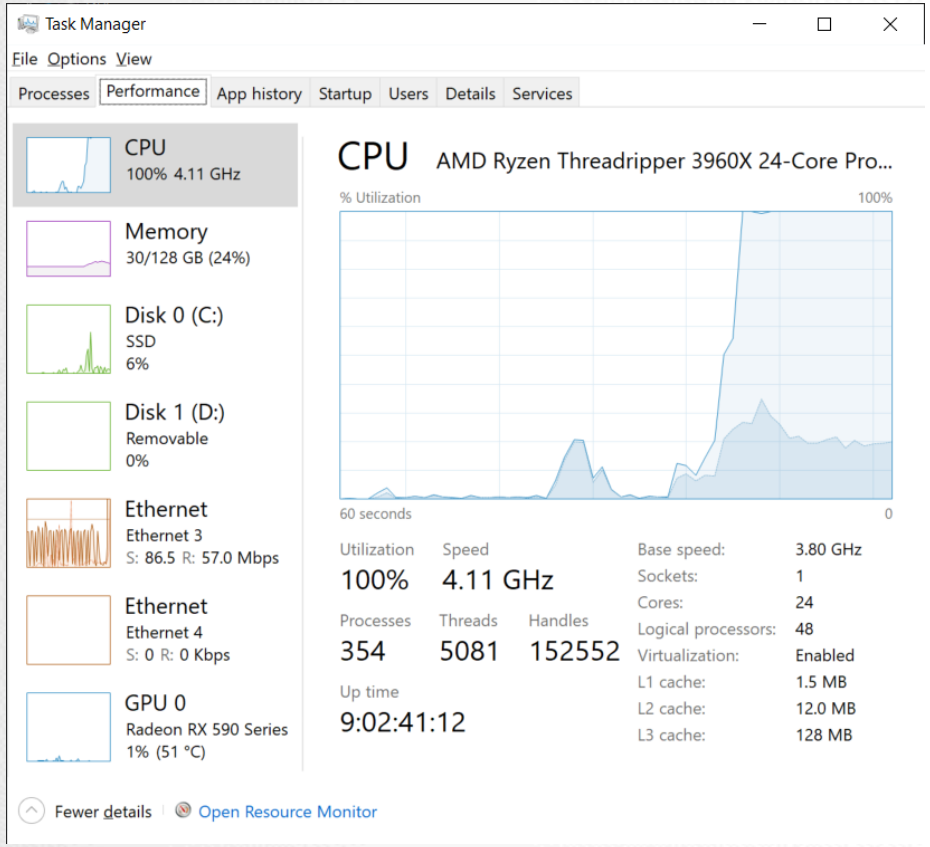
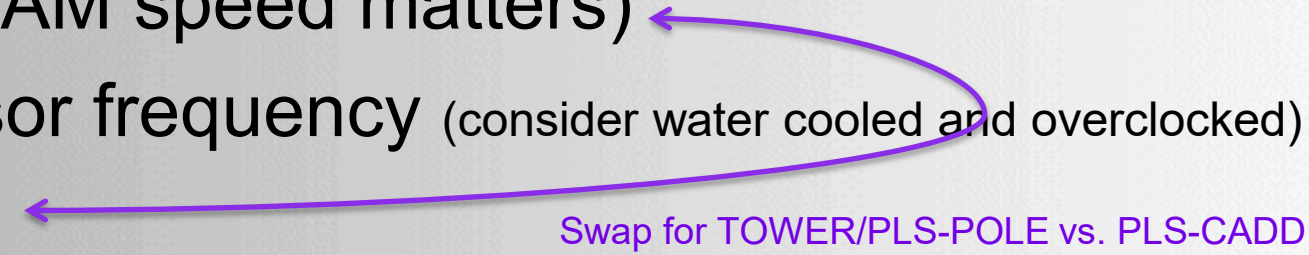
Miscellany

- Intel slightly better for PLS-CADD
  - Higher clock rate
- AMD Threadripper for TOWER and PLS-POLE
  - More cores
- Touch screens are supported



Budgeting Priorities

- Priority when budgeting
  - RAM (RAM speed matters)
  - Processor frequency (consider water cooled and overclocked)
  - # cores
  - SSD



Sample Laptop - 15” screen

- AMD R7-6800H Processor
  - 3.2 - 4.7 GHz
  - 20 MB cache
  - 8/16 cores
- 16 GB RAM
- 512 GB M.2 PCIe drive
- NVIDIA RTX 3050 (4 GB)
- Windows 11 x64

Dell G15 Ryzen Edition

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  - 20 MB cache
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- 16 GB RAM
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- NVIDIA RTX 3050 (4 GB)
- Windows 11 x64
- US$1249 (June 1, 2022)

Dell G15 Ryzen Edition

Sample Desktop

- Core i7-12700 Processor
  - 2.1 - 4.9 GHz
  - 25 MB cache
  - 12/20 cores
- 64 GB RAM
- 512 GB M.2 PCIe drive
- NVIDIA GeForce GTX 1660 (6GB)
- Windows 11 x64

Dell Inspiron Desktop at CostCo

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Dell Inspiron Desktop at CostCo

Sample Workstation

- PLS-CADD
  - i9-12900K
  - 5.2 GHz *
  - 30 MB cache
  - 16/24 cores
- 64 GB of RAM
- 1 TB M.2 PCIe drive
- Nvidia RTX 3060Ti (8 GB)
- Windows 11 x64

Origin Millenium and M-Class

TOWER

Threadripper 3970x

4.5 GHz* * = (Water cooled and overclocked)

40 MB cache

32/64 cores

Sample Workstation ($)

• PLS-CADD	TOWER
– i9-12900K	Threadripper 3970x
– 5.2 GHz *	4.5 GHz* * = (Water cooled and overclocked)
– 30 MB cache	40 MB cache
– 16/24 cores	32/64 cores
• 64 GB of RAM	
• 1 TB M.2 PCIe drive	
• Nvidia RTX 3060Ti (8 GB)	
• Windows 11 x64	
• US$3050 (June 1, 2022)	US$4726 (June 1, 2022)

Conclusion

- Windows 10 or 11 x64 is the way to go
- PLS-CADD
  - Buy RAM. Fast RAM and lots of it.
- PLS-POLE + TOWER
  - Buy cores. Many cores.
- You should have a PCIe NVMe M.2 SSD

Advanced Sag & Tension
IEC
FAC 008/009
Materials Management
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CENELEC
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IEEE
Line Ratings
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Parallelizing PLS-CADD

- Long term goal
- Progress since 2019 ATUG
  - 3D EMF Calculations
  - DXF and SHP Read
  - Available Structure List Read
  - XYZ and TIN checksums
  - PLS-GRID file operations
- Ultimate goal: FE Sag-Tension
- PLS-POLE and TOWER already completely parallelized