TRIMECH GROUP

RECOMMENDED
HARDWARE

Perfect for
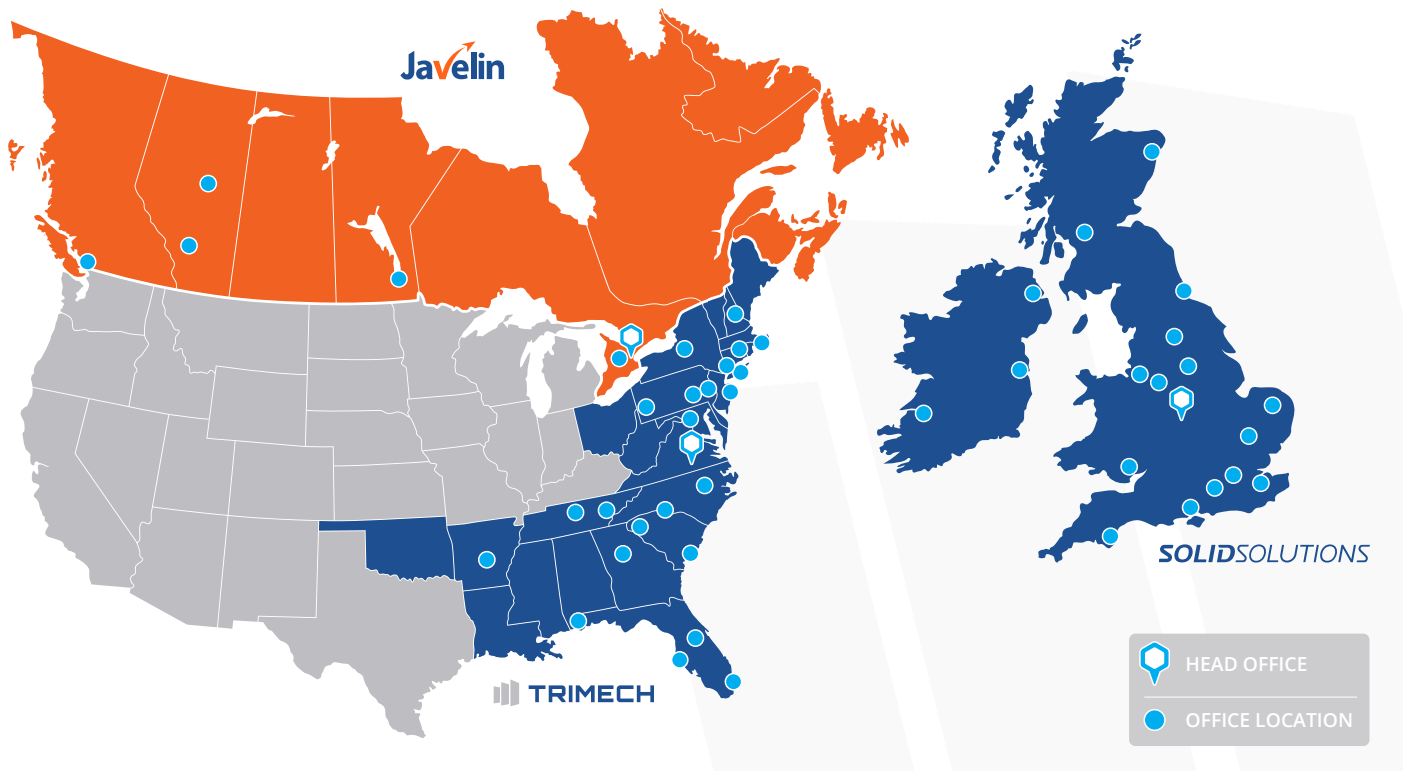SOLIDWORKS

JUN
20
24

CONTENTS

Who Are The TriMech Group?

The TriMech Group is an organisation born from a decade long journey of mergers and acquisitions. We have successfully brought together leading businesses providing design, engineering, and manufacturing solutions on a global scale. Our expertise lies indelivering cutting-edge technological software and tailored client services, our mission is to provide organisations, both large and small, with unrivalled solutions that propel them to new heights of success.

HEAD OFFICE

OFFICE LOCATION

CONTACT US

UNITED STATES	CANADA	UNITED KINGDOM	IRELAND
888.874.6324 trimech.com	877.219.6757 javelin-tech.com	01926 333777 solidsolutions.co.uk	01 297 4440 solidsolutions.ie

SOLIDWORKS Hardware Recommendations

This guide outlines the key components for an ideal SOLIDWORKS PC plus the optimal specifications of Dell precision Workstations we provide.

PROCESSOR (CPU)

The majority of calculations in CAD parts and assemblies have to be performed one at a time, one feature needs to be calculated before the next can be built. This means the maximum "turbo boost" speed of the CPU rated in GHz is more important than number of cores for CAD modelling.

Recommended CPU's

For highest performance we recommend Intel 13th and 14th Generation i7 and i9 CPU's These have the best single threaded turbo boost speeds while offering up to 24 cores for multi-threaded workflows. Choosing more expensive CPU's with more slower cores such as Intel Xeon range is not typically advised due to having lower turbo boost speeds, and therefore slower performance in single threaded performance for CAD.

> We recommend.
>
> Intel 13th /14th Gen i7/i9 CPU's

> We recommend.
>
> RTX 2000 Ada Generation and above

GRAPHICS CARD

A professional graphics cards accelerates your interaction with the model as you rotate, zoom and pan, smooth interaction is key to productivity in CAD.

We recommend an NVIDIA RTX Professional graphics card from the Ampere or Ada Lovelace generations

Best value Graphics cards for most engineering workflows are the 2000-4000 series

- NVIDIA RTX 2000 Ada Generation: CAD focused use, low thousands of components.

- NVIDIA RTX 4000 Ada Generaition or above: complex data sets, visualisation.

Higher end cards such as the desktop 32GB RTX 5000 and 48GB 6000 Ada generation graphics cards cost significantly more, these are beneficial for compute workloads such as rendering in SOLIDWORKS Visualize, Keyshot, CATIA Live Rendering, Simulia Xflow.
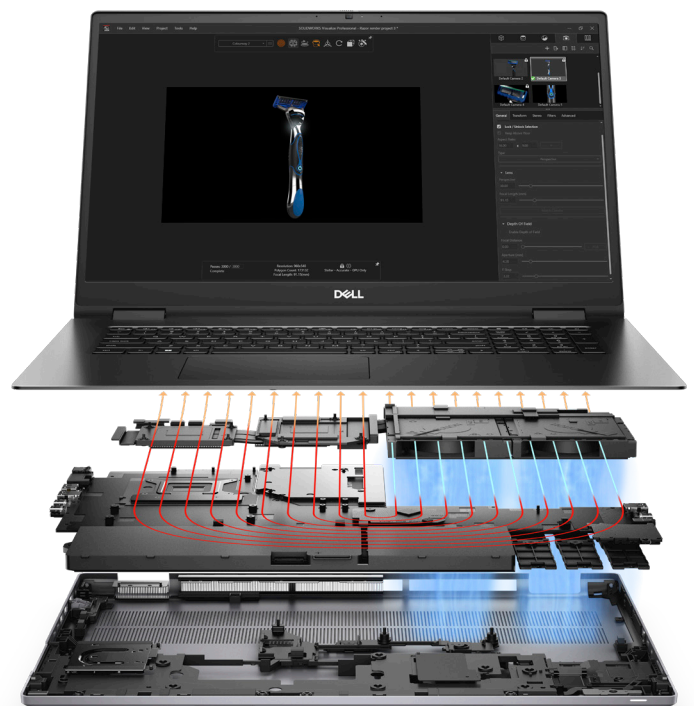
MEMORY (RAM)

With ever increasing demands from other applications we recommend 32GB for core most core CAD work and 64GB+ for complex designs and CAE workloads such as Simulation, Visualization. Error Code Correction (ECC) RAM is also recommended particularly for long running tasks where it can correct for soft errors caused by environmental factors which could otherwise lead to software or operating system instability.

We recommend.

32GB+RAM

ECC RAM for added stability

STORAGE

Ensure you are using Solid State storage for Operating system, programs and design data. We recommend at least 512GB of SSD storage for CAD, 1TB+ for Simulation and visualisation. Aim for 20%+ free storage for best performance. Data management solutions such as SOLIDWORKS PDM and 3DExperience cloud services ensure your data is cached locally for best performance avoiding slowdowns and other issues such as corrupt commonly seen when working from a network drive.

We recommend.

512GB+SSD

20% storage free

MONITOR

If buying a new monitor we recommend resolution of 1920x1080/ 1920 x 1200 for laptops or 24 inch desktop monitors. Or QHD resolutions (2560x1440) for 27 and 32 inch monitors.

4K monitors are supported better by the latest release of SOLIDWORKS however we advise you check compatibility with all applications and only consider for monitors 27 inches and larger.

We recommend.

>=24 Inch-Full HD

27 Inch+ QHD

We recommend.

Windows 11 Professional

OPPERATING SYSTEM (os)

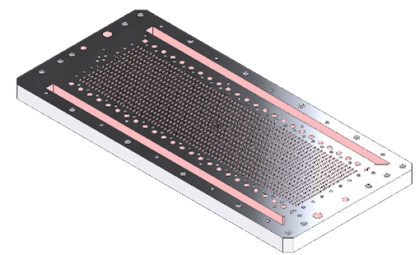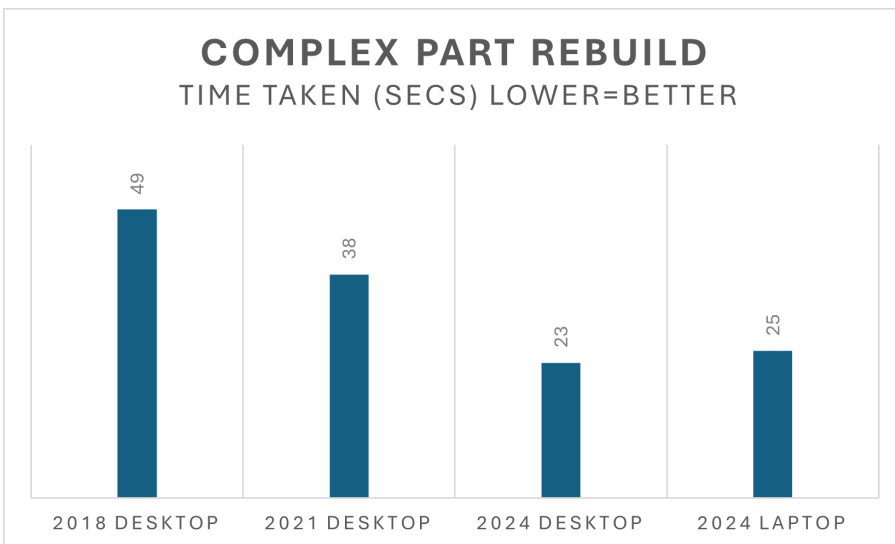SOLIDWORKS supports Windows 10 & 11 Professional and Enterprise

Microsoft support for Windows 10 ends October 2025 so plan to upgrade your workstation or operating system to ensure continued support and security updates. SOLIDWORKS 2022 SP2 or newer is required for Windows 11 support.
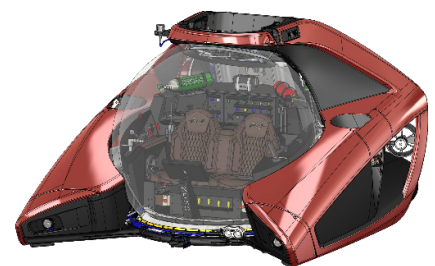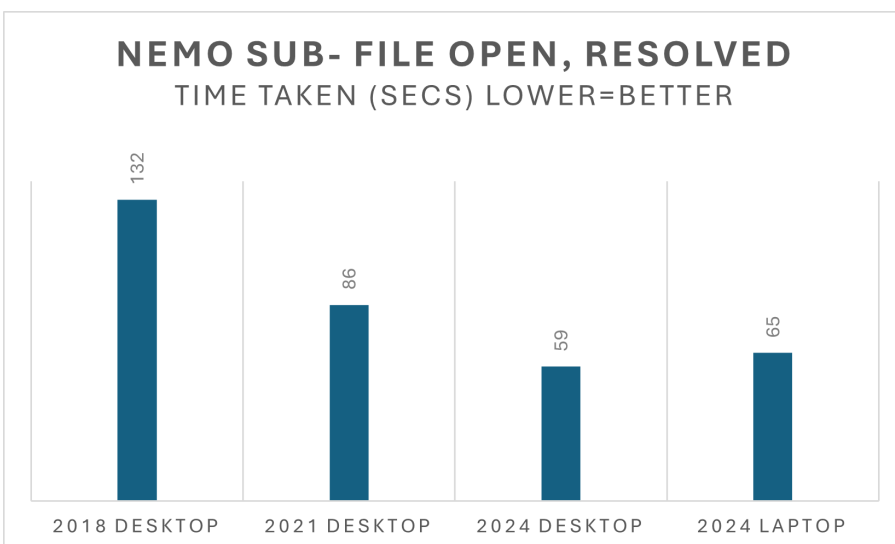
WHEN TO UPGRADE?

This is a common question with our recommended replacement cycle of 3-5 years below are the performance differences for below workstations from 2018, 2021, and 2024.

2018 DESKTOP	2021 DESKTOP	2024 DESKTOP	2024 LAPTOP
Dell Precision 3630	Dell Precision 3650	Dell Precision 3680	Dell Precision 7680
Intel i7-8700K	Intel i7-11700K	Intel i9-14900K	Intel® i7-13850HX
NVIDIA Quadro P4000	NVIDIA RTX A4000	NVIDIA RTX 4000 Ada Generation	NVIDIA RTX 4000 Ada Generation
32GB DDR 4 RAM	32GB DDR 4 RAM	64GB DDR5 ECC RAM	64GB DDR4 ECC RAM

All tests performed with SOLIDWORKS 2024 SP1, NVIDIA Driver 552.38
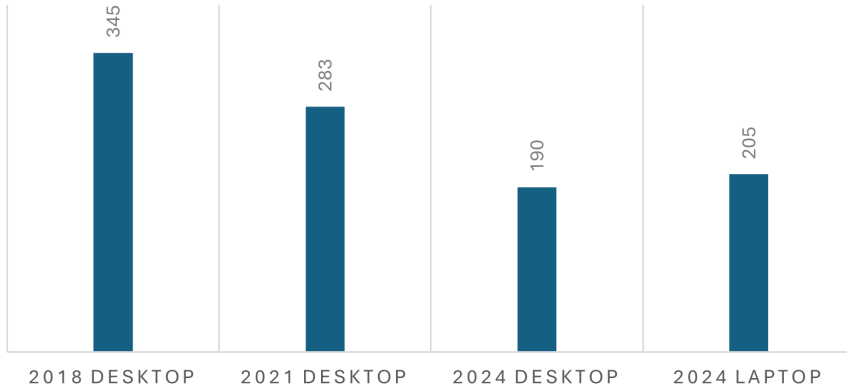
COMPLEX PART REBUILD
TIME TAKEN (SECS) LOWER=BETTER

2018 DESKTOP	2021 DESKTOP	2024 DESKTOP	2024 LAPTOP
49	38	23	25

~2x faster vs 2018

~1.5x faster vs 2021

NEMO SUB- FILE OPEN, RESOLVED
TIME TAKEN (SECS) LOWER=BETTER

2018 DESKTOP	2021 DESKTOP	2024 DESKTOP	2024 LAPTOP
132	86	59	65

2x faster vs 2018

~1.3x faster vs 2021

SIMULATION - FFEPLUS SOLVER
TIME TAKEN (SECS) LOWER=BETTER

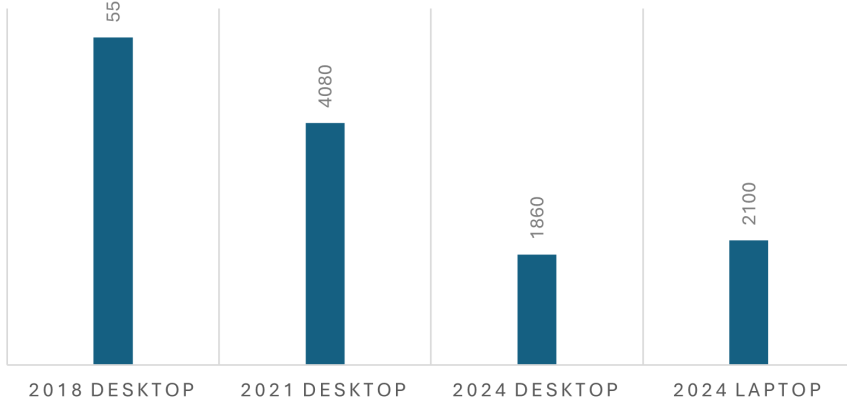| 2018 DESKTOP	2021 DESKTOP	2024 DESKTOP	2024 LAPTOP
345	283	190	205

1.8x faster vs 2018

~1.4x faster vs 2021
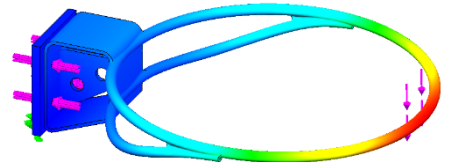
FLOW SIMULATION- MASK
TIME TAKEN (SECS) LOWER=BETTER

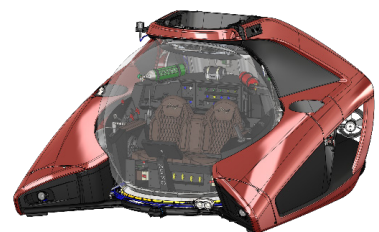| 2018 DESKTOP	2021 DESKTOP	2024 DESKTOP	2024 LAPTOP
5520	4080	1860	2100

3x faster vs 2018

~2x faster vs 2021
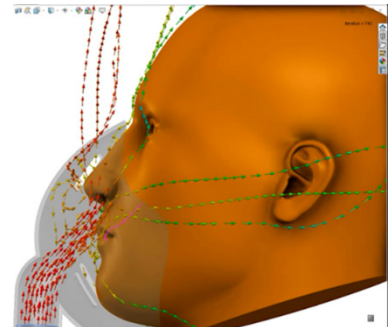
NEMO SUB ROTATION SPEED*
(FRAMES PER SECOND) HIGHER=BETTER

2018 DESKTOP	2021 DESKTOP	2024 DESKTOP	2024 LAPTOP
30	52	75	68
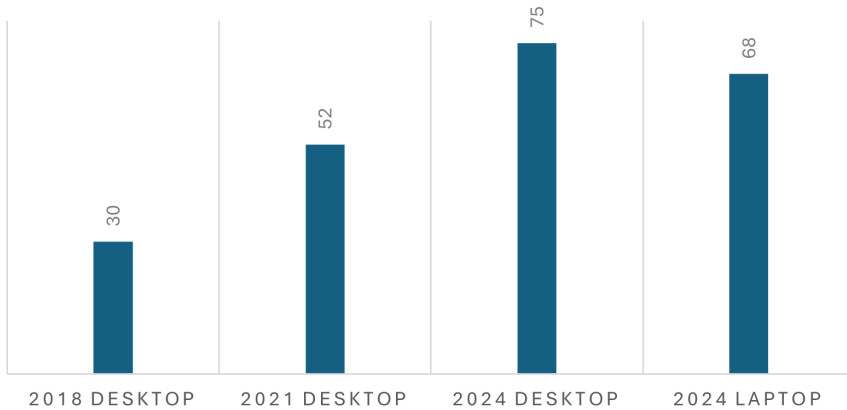
2x faster vs 2018

~1.3x faster vs 2021

*Shaded with edges mode, real view, shadows active.

SUPPORT & RECCOMENDED SPECIFICATIONS

All systems supplied by the TriMech group are certified by Dassault Systemes for compatibility.

We also only supply systems with Dell ProSupport, providing a team of highly trained technicians to troubleshoot any issues. In the event a problem cannot be solved over the phone they will typically dispatch an engineer to fix the system the next business day to replace faulty components at no cost to the customer.

Our own support team are of course also happy to help rule out software issues and work with Dell Pro Support as required.

Below are our most popular recommended specifications. for further examples see our websites or get in touch With such a

	SOLIDWORKS		SOLIDWORKS COMPOSER
	SOLIDWORKS SIMULATION		SOLIDWORKS ELECTRICAL
	SOLIDWORKS FLOW SIMULATION		CAM
	SOLIDWORKS PLASTICS		SOLIDWORKS VISUALIZE

range of products we have added a performance guideline for the most commonly used software solutions.

This is far from simple as for instance spending several times the cost of our recommended specifications could actually result in worse performance. For instance a system with more, slower cores can perform significantly worse.

We do real world testing with engineering datasets to tailor our specifications to different software and workflows.

Example

The rating on the left indicates lower performance for SOLIDWORKS, however this is relative to what tasks you/our team are carrying out.

The lower rating does not mean it is bad for SOLIDWORKS, it indicates that this specification is aimed at users dealing with relatively simple datasets. However if you are dealing with more complex datasets with many thousands of components you are advised to choose a system with a higher performance rating.
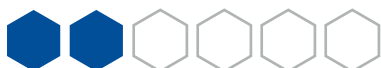
Dell Precision™ 3680 - Design Plus

- Intel i7-14700k 20 Core (8P +12E) Turbo Boost up to 5.6GHz
- Windows 11 Professional 64bit
- 32GB DDR5 Error correction code (ECC) Ram
- 16GB NVIDIA RTX 2000 Ada Generation Graphics Card
- 1TB PCIe NVMe Solid State Drive
- 1000W Chassis, Premium CPU cooler with Air Shroud
- Intel Wi-Fi 6E AX211 & Bluetooth 5.2 Wireless Card
- Dell Wired Keyboard & Mouse
- *No Display Included*
- 3Yr Dell ProSupport and Next Business Day On-Site Service

Performance guidelines
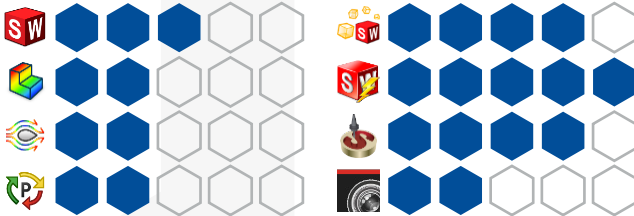
Dell Precision™ 3680 - High End

- Intel i9-14900k 24 Core (8P +16E) Turbo Boost up to 6.0GHz
- Windows 11 Professional 64bit (Windows 11 License included)
- 64GB DDR5 Error correction code (ECC) Ram
- 20GB NVIDIA RTX 4000 Ada Generation Graphics Card
- 1TB PCIe NVMe Solid State Drive
- 1000W Chassis, Premium CPU cooler with Air Shroud
- Intel Wi-Fi 6E AX211 & Bluetooth 5.2 Wireless Card
- Dell Wired Keyboard & Mouse
- *No Display Included*
- 3Yr Dell ProSupport and Next Business Day On-Site Service

Performance guidelines

Dell Precision 3591 15" Laptop Design

- Intel® Core™ Ultra 7 165H 16 Core. Turbo boost up to 5.0 GHz
- 15.6 Inch FHD, 1920x1080,with Cam and Mic
- Windows 11 Professional 64bit (Windows 11 License included)
- 32GB DDR5 RAM
- 8GB NVIDIA RTX 2000 6GB Graphics Card
- 1TB M.2 PCIe NVMe Solid State Drive
- 3Yr ProSupport and Next Business Day On-Site Service

Performance guidelines
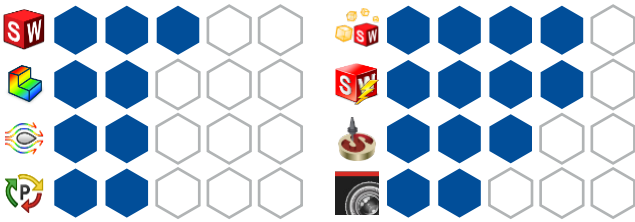
Dell Precision 7680 16" Laptop - High End

- Intel Core i7-13850HX 20 Core Turbo Boost up to 5.3GHz
- 16.0 Inch FHD+, 1920x1200,with Cam and Mic
- Windows 10 Professional 64bit (Windows 11 License included)
- 64GB DDR5 Error correction code (ECC) RAM
- 12GB NVIDIA RTX 4000 Ada Generation Graphics Card
- 1TB M.2 PCIe NVMe Solid State Drive
- 3Yr ProSupport and Next Business Day On-Site Service

Performance guidelines
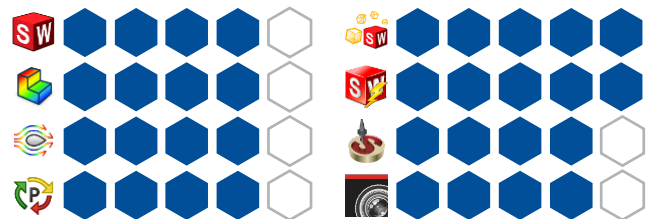
For further recommended specifications see our websites,
or contact us for tailored advice
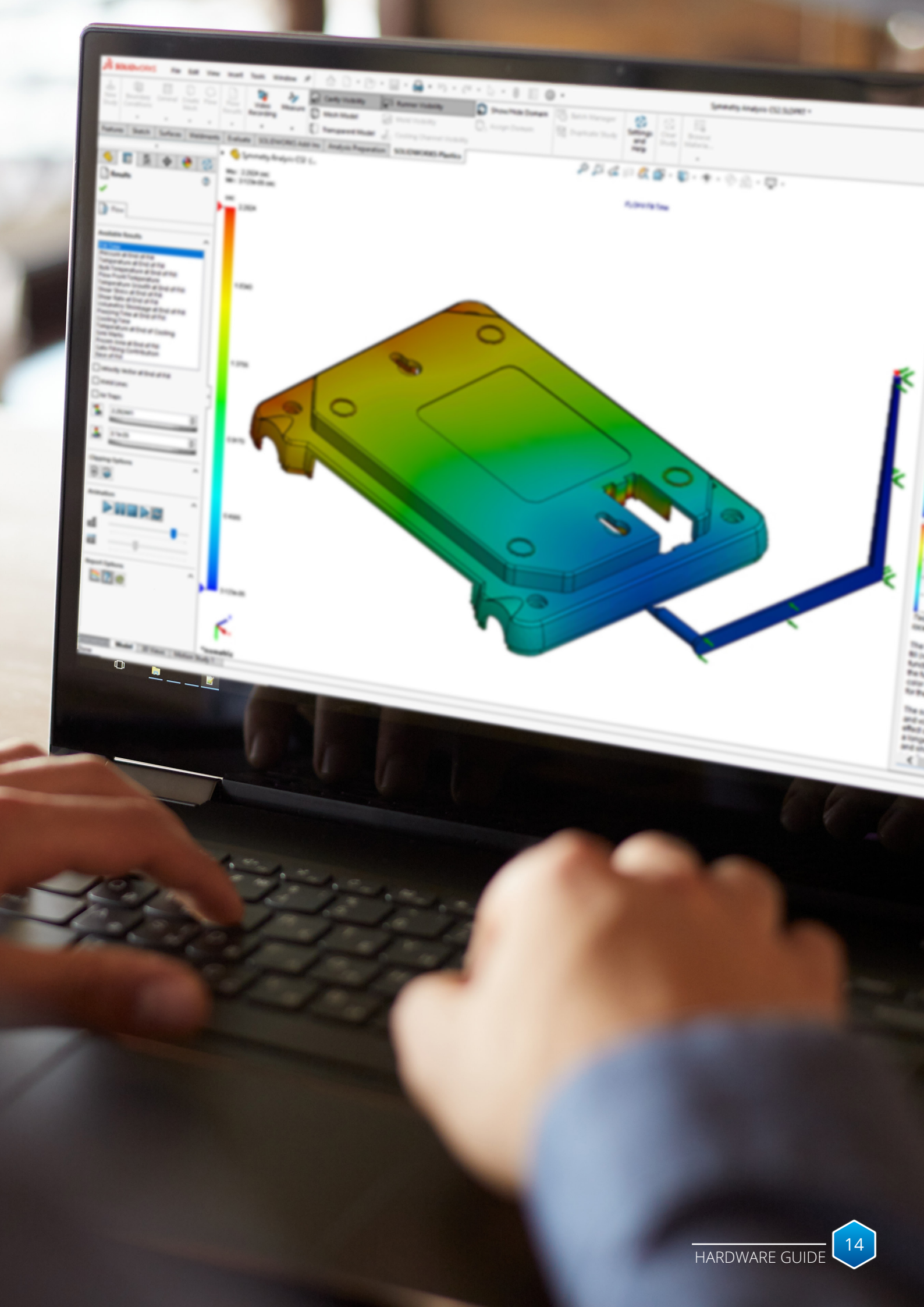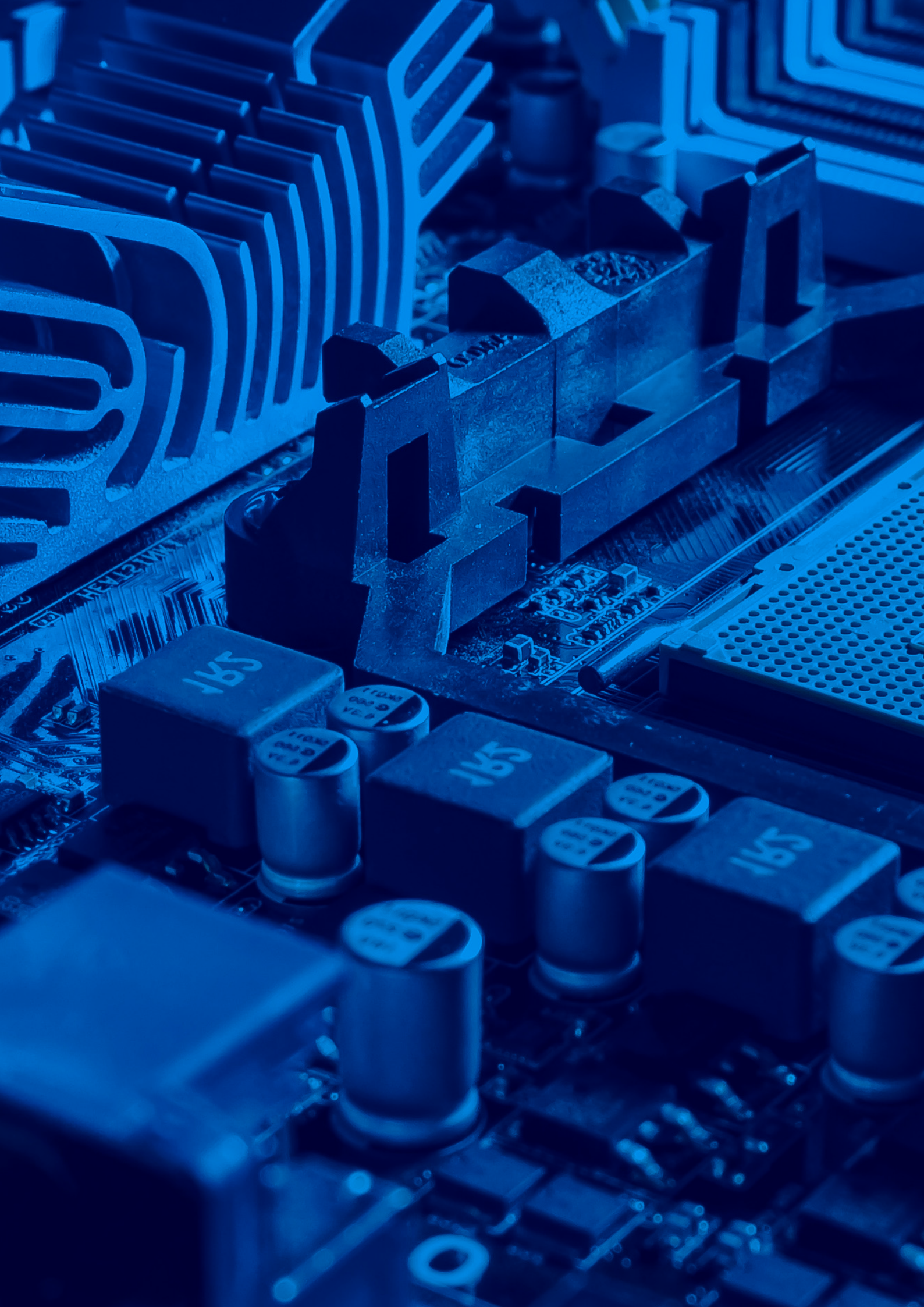
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