PROCESSO ADMINISTRATIVO N° 23348.004817/2024-15

Pregão Eletrônico SRP Nº 90088/2024

DECISÃO DO RECURSO ADMINISTRATIVO

O Agente de Contratação, no exercício das suas atribuições designadas pela Portaria Nº 7/2024 - PROAD/IFC, de 08 de Fevereiro de 2024, com fundamento no inciso LX do art. 6º e parágrafo 1º do Art. 8º da Lei nº 14.133 de 01 de abril de 2001, apresenta, para os fins administrativos a que se destinam, suas considerações e decisão acerca do Recurso interposto pela Empresa MICROTÉCNICA INFORMÁTICA LTDA, CNPJ 01.590.728/0009-30, no Pregão Eletrônico SRP Nº 90088/2024.

1) DO REGISTRO DA MANIFESTAÇÃO DE INTENÇÃO DE RECURSO NO SISTEMA COMPRASNET

Foi registrada no Sistema Comprasnet intenção de recurso pela Empresa MICROTÉCNICA INFORMÁTICA LTDA, em 11 de dezembro de 2024.

2) DO REGISTRO DAS RAZÕES DE RECURSO

A recorrente manifestou a intenção de recurso via sistema, de imediato, conforme art. 165, § 1º, inciso I, da Lei 14.133/2021 e encaminhou no prazo de 3 (três) dias úteis confirme inciso I art. 165 da mesma Lei, portanto, preencheu os requisitos de aceitação e merece ter o mérito analisado.

3) DAS RAZÕES DO RECURSO

A íntegra do recurso pode ser consultada na plataforma gov.br/compras e segue em anexo à presente manifestação disponível na seção de licitações e contratos do site: https://ifc.edu.br/.

4) DAS CONTRARRAZÕES DO RECURSO

A íntegra da contrarrazão apresentada pela recorrida pode ser consultada na plataforma gov.br/compras e segue em anexo à presente manifestação disponível na seção de licitações e contratos do site: https://ifc.edu.br/.

5) DA ANÁLISE DAS ALEGAÇÕES DA RECORRENTE E DA RECORRIDA

Quanto as alegações da recorrente

A recorrente alega que o equipamento apresentado para o item 53 está em desacordo com o edital nos seguintes pontos:

1 - A fonte de alimentação ofertada pela recorrida de 500W insuficiente para suportar o produto ofertado, considerando que a placa de vídeo requer 550W o processador até 219W sem considerar os demais componentes.

2 - Alegação de vício insanável da proposta da recorrida, considerando que o edital limita o consumo da placa de vídeo até 50W. Apresenta a resposta aos pedido de esclarecimento que indicava possibilidade de apresentação de produto com desempenho comprovadamente superior, apesar do maior consumo (110W).

3 - Indica a necessidade de exigir comprovação de que os itens são pertencentes a linha corporativa, não sendo aceitos equipamentos da linha doméstica. Indica que a placa de vídeo é dedicada a público gamer e não para uso corporativo. Faz referência ao ETP para indicar que o uso é para uso científico e tecnológico.

4 - Indica que as interfaces USB são inferiores ao exigido.

Faz referência ao art. 5º da Lei 14.133/21 para reforçar a necessidade de observar a vinculação ao instrumento convocatório e ao julgamento objetivo. Apresenta julgados na mesma linha. Cita o item 7.7.2 do edital para apontar que a proposta deve ser desclassificada quando “não obedecer às especificações técnicas contidas no Termo de Referência.

Por fim, pede a desclassificação da proposta da recorrida para que sejam convocados os demais licitantes na ordem de classificação, ou caso tenha entendimento diverso, faça subir o Recurso Administrativo à Autoridade Superior.

Quanto as alegações da recorrida

Defende que os argumentos da recorrente não merecem prosperar pois o equipamento ofertado atende aos requisitos do edital:

Indica que no catálogo apresentado pela recorrida é possível validar que a placa Nvidia RTX 4060 traz de fato um consumo de 115W, no entanto, o componente é ofertado junto com a fonte de alto desempenho e eficiência.

Defende que o equipamento ofertado possui alta eficiência energética, comprovado através da documentação apresentada e no consumo da Fonte de 500W. Complementa com links e imagens das especificações.

Quanto às interfaces USB, argumenta que são superiores ao exigido pelo edital, conforme itens 4 e 5 do catálogo. Apresenta imagens com especificações.

Destaca que “o equipamento Dell Precision 3680 Tower faz parte da linha corporativa de

equipamentos Dell, conforme declaração anexada à proposta – da pasta “Documentos técnicos.zip” sob o arquivo denominado “Declaração Técnica - IFC - PE 90088.2024 – HT”.

Por fim, pede em referência ao princípio do julgamento objetivo, da isonomia e publicidade que a decisão que a sagrou vencedora seja mantida.

Manifestação do agente de contratação:

Por se tratar de alegações técnicas relacionadas às especificações dos documentos, o setor técnico do IFC foi consultado e emitiu manifestação no sentido de que os argumentos do recurso não procedem. Se manifesta nos seguintes pontos:

“Em relação ao item 3, da fonte de 500W, o Datasheet do Fabricante da placa de vídeo coloca uma observação que: [apresenta imagem comprobatória, disponibilizada na seção de licitações e contratos do site: https://ifc.edu.br/]. Ou seja, a configuração de energia pode variar de acordo com o conjunto de recursos do equipamento.

“Em relação ao item 5 do questionamento, o TDP, foi apresentado o desempenho máximo em modo turbo, o consumo básico do processador é de 65W, pode ser evidenciado inclusive na própria imagem anexada ao recurso. A configuração do equipamento para uso do Instituto Federal Catarinense entra nesse modelo de uso.”

“Em relação ao questionamento número 6, ao solicitar o consumo de 110W está claro que é referente ao consumo médio, inclusive com resposta do técnico informando que está correto o entendimento, desde que o desempenho não seja afetado. A variação de 110W no médio para 115W está dentro de um limite de variação aliás muito pequeno.”

“Em relação aos questionamentos da linha corporativa, o documento da fabricante Dell anexado ao processo com o nome “Declaração Técnica - IFC - PE 90088.2024 - HT.pdf” comprova que o equipamento ofertado é da linha Corporativa. Os componentes selecionados atendem a este padrão.”

“Em relação ao questionamento 14, o datasheet apresentando na proposta apresenta: [imagem comprobatória da parte frontal] Portanto, a parte frontal está aderente ao edital. Já a parte traseira: [imagem da parte traseira]. Ou seja, as 4 portas USB 3.2 solicitadas no edital estão contempladas, o edital não menciona se é tipo C ou tipo A, portanto o equipamento apresentado tem 2 de cada tipo, totalizando 4 portas USB 3.2.

7) DA CONCLUSÃO

Diante de todo o acima exposto, recebe-se o recurso interposto, dele se CONHECE, e nesta

extensão para, no mérito, **NEGAR PROVIMENTO.**

Há que se destacar que as justificativas desta comissão de contratação não vinculam a decisão superior acerca da conveniência e oportunidade da manutenção ou reforma do ato, apenas faz uma contextualização fática e documental com base no que foi carreado a este processo fazendo um paralelo com as disposições contidas no Edital de Pregão Eletrônico 90088/2024, na lei e na jurisprudência acerca do tema em apreço.

Vem, contudo, contribuir no sentido de fornecer subsídios à Autoridade Superior, a quem cabe a análise e decisão acerca desta manifestação, cabendo-o ainda, em caso de dúvidas e caso considere pertinente, convocar sua assessoria jurídica.

Subam os autos para apreciação, julgamento e decisão da Autoridade Competente, conforme prevê o art. 165, § 2º da Lei 14.133/2021.

Blumenau, SC, 19 de dezembro de 2024.

AGENTE DE CONTRATAÇÃO
Portaria Nº 7 / 2024 - PROAD/IFC

DECISÃO Nº 9/2024 - COMLIC/REI (11.01.18.47)

(Nº do Protocolo: NÃO PROTOCOLADO)

(Assinado digitalmente em 19/12/2024 10:27)
PAULO ROBERTO DA SILVA
COORDENADOR GERAL - TITULAR
COMLIC/REI (11.01.18.47)
Matrícula: ###252#6

Visualize o documento original em https://sig.ifc.edu.br/documentos/ informando seu número: ***9****, ano:* ***2024****, tipo:* ***DECISÃO****, data de emissão:* ***19/12/2024*** *e o código de verificação:* ***36f099e82e***

MINISTÉRIO DA EDUCAÇÃO
INSTITUTO FEDERAL CATARINENSE
REITORIA-COORD GERAL COMPRAS,LIC E CONTR

DESPACHO Nº 60 / 2024 - COMLIC/REI (11.01.18.47)

Nº do Protocolo: 23348.006942/2024-51

Blumenau-SC, 19 de dezembro de 2024.

DESPACHO DA AUTORIDADE SUPERIOR

Processo: 23348.004817/2024-15

Pregão Eletrônico SRP nº 90088/2024

OBJETO: Registro de preços para eventual aquisição de consumíveis, permanentes de TI e softwares para atender as necessidades do Instituto Federal Catarinense.

Acolho as razões apresentadas no Termo de Julgamento, ratifico a decisão exarada pelo agente de contratação e julgo **IMPROCEDENTE** o recurso apresentado pela Empresa **MICROTÉCNICA INFORMÁTICA LTDA, CNPJ 01.590.728/0009-30.**

Blumenau, SC, 19 de dezembro de 2024.

(Assinado digitalmente em 19/12/2024 13:09)
RUDINEI KOCK EXTERCKOTER
REITOR - TITULAR

Visualize o documento original em **https://sig.ifc.edu.br/public/documentos/index.jsp** informando seu número: **60**, ano: **2024**, tipo: **DESPACHO**, data de emissão: **19/12/2024** e o código de verificação: **2654f0e402**

RESPOSTA ITEM 53

Em relação ao item 3, da fonte de 500W, o Datasheet do Fabricante da placa de vídeo coloca uma observação que:

8 - Minimum is based on a PC configured with a Ryzen 9 5900X processor. Power requirements can be different depending on system configuration.

Required System Power (W) [8]	550	550
Supplementary Power Connectors	1x PCIe 8-pin cables (adapter in box) OR 300 W or greater PCIe Gen 5 cable Certain manufacturer models may use 1x PCIe 8-pin cable.	1x PCIe 8-pin cables (adapter in box 300 W or greater PCIe Gen 5 cable Certain manufacturer models may PCIe 8-pin cable.

GeForce RTX 4060 Family

1 - Up to 4k 12-bit HDR at 240Hz with DP 1.4a + DSC. Up to 8k 12-bit HDR at 60Hz with DP 1.4a + DSC or HDMI 2.1 + DSC. With dual DP 1.4a + DSC, up to 8K HDR at 120Hz

2 - As specified in HDMI 2.1a: up to 4K 240Hz or 8K 60Hz with DSC, Gaming VRR, HDR

3 - DisplayPort 1.4a

4 - Multi Monitor:

- 4 independent displays at 4K 120Hz using DP or HDMI
- 2 independent displays at 4K 240Hz or 8K 60Hz with DSC using DP or HDMI
- Other display configurations may be possible based on available bandwidth

5 - Idle power measured with GPU running at idle at the Windows desktop for 10 minutes

6 - Video playback power measured using AV1 codec

7 - Average gaming power is measured across 22 games at 4K, 1440p, and 1080p

8 - Minimum is based on a PC configured with a Ryzen 9 5900X processor. Power requirements can be different depending on system configuration.

Ou seja, a configuração de energia pode variar de acordo com o conjunto de recursos do equipamento.

Em relação ao item 5 do questionamento, o TDP, foi apresentado o desempenho máximo em modo turbo, o consumo básico do processador é de 65W, pode ser evidenciado inclusive na própria imagem anexada ao recurso,

Typical TDP:	**TDP Up**
65 W	: 219 W

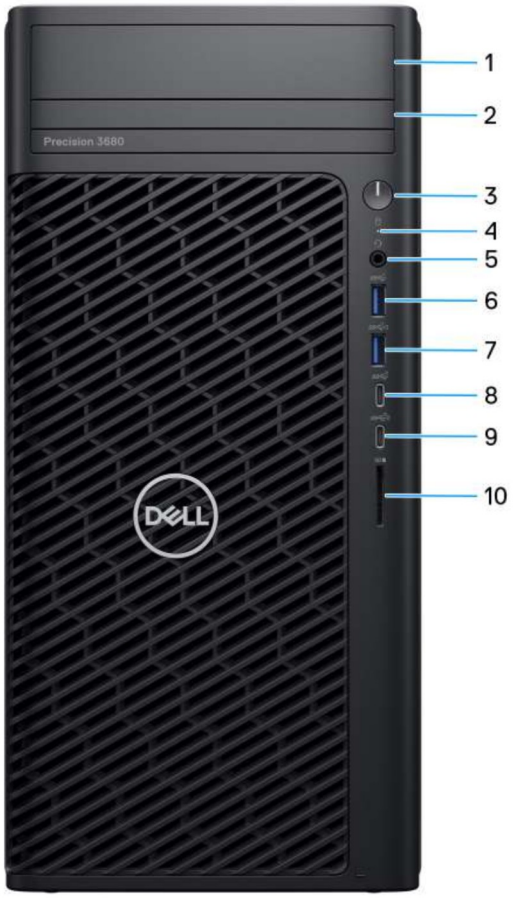
Cache per CPU Package:

A configuração do equipamento para uso do Instituto Federal Catarinense entra nesse modelo de uso.

Em relação ao questionamento número 6, ao solicitar o consumo de 110W está claro que é referente ao consumo médio, inclusive com resposta do técnico informando que está correto o entendimento, desde que o desempenho não seja afetado. A variação de 110W no médio para 115W está dentro de um limite de variação aliás muito pequeno.

Em relação aos questionamentos da linha corporativa, o documento da fabricante Dell anexado ao processo com o nome “Declaração Técnica - IFC - PE 90088.2024 - HT.pdf” comprova que o equipamento ofertado é da linha Corporativa. Os componentes selecionados atendem a este padrão.

Em relação ao questionamento 14, o datasheet apresentando na proposta apresenta:



6. **Porta USB 3.2 de 1ª geração (5 Gbps)**

   Conecte dispositivos como os de armazenamento externo e impressoras.

   Garante velocidades de transferência de dados de 5 Gbps.

7. **Porta USB 3.2 de 1ª geração (5 Gbps) com PowerShare**

   Conecte dispositivos como os de armazenamento externo e impressoras.

   Garante velocidades de transferência de dados de 5 Gbps. O PowerShare permite carregar dispositivos USB conectados.

   NOTA: Os dispositivos USB conectados não serão carregados quando o computador estiver desligado ou em um estado de suspensão. Para iniciar o carregamento dos dispositivos conectados, ligue o computador.

8. **Porta USB 3.2 Type-C de 2ª geração (10 Gbps)**

   Conecte dispositivos como os de armazenamento externo e impressoras. Permite velocidades de transferência de dados de 10 Gbps.

9. **Porta USB 3.2 Type-C x2 de 2ª geração (20 Gbps) com PowerShare**

   Conecte dispositivos como os de armazenamento externo, impressoras e monitores externos. Oferece velocidades de transferência de dados de 20 Gbps.

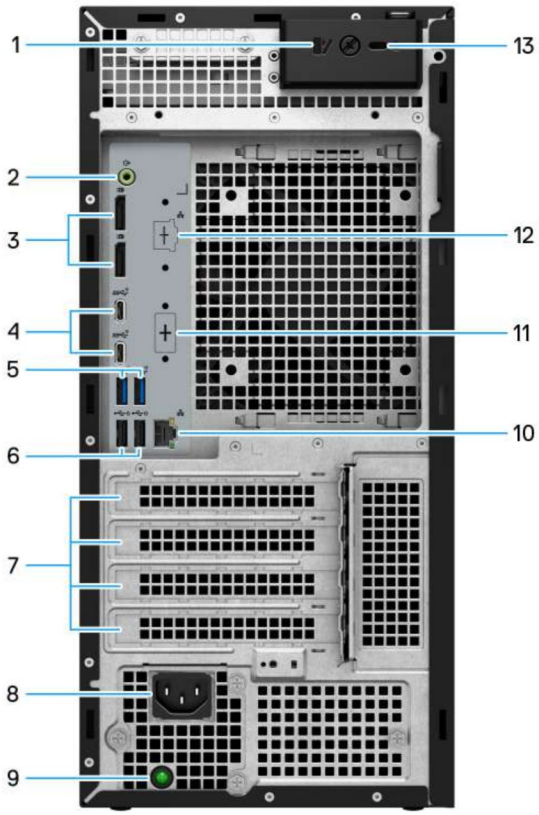
   O PowerShare permite carregar dispositivos USB conectados.

   NOTA: Os dispositivos USB conectados não serão carregados quando o computador estiver desligado ou em um estado de suspensão. Para iniciar o carregamento dos dispositivos conectados, ligue o computador.

10. **Slot do cartão SD**

Portanto, a parte frontal está aderente ao edital.

Já a parte traseira:



Conecte um monitor externo ou um projetor.

4. **Duas portas USB 3.2 Type-C de 2ª geração (10 Gbps)**

   Conecte dispositivos como os de armazenamento externo e impressoras. Permite velocidades de transferência de dados de 10 Gbps.

5. **Duas portas USB 3.2 de 2ª geração (10 Gbps)**

   Conecte dispositivos como os de armazenamento externo e impressoras. Permite velocidades de transferência de dados de 10 Gbps.

6. **Duas portas USB 2.0 (480 Mbps) com SmartPower**

Ou seja, as 4 portas USB 3.2 solicitadas no edital estão contempladas, o edital não menciona se é tipo C ou tipo A, portanto o equipamento apresentado tem 2 de cada tipo, totalizando 4 portas USB 3.2.

ILUSTRÍSSIMO SENHOR PREGOEIRO DO INSTITUTO FEDERAL CATARINENSE

PREGÃO ELETRÔNICO Nº 900088/2024

MICROTÉCNICA INFORMÁTICA LTDA., devidamente qualificada nos autos do certame em epígrafe, vem tempestiva e mui respeitosamente à presença de Vossa Senhoria, com fulcro nas disposições pertinentes do Edital do Pregão Eletrônico em epígrafe, interpor

RECURSO ADMINISTRATIVO

em face da decisão que consagrou a licitante **GLOBAL DISTRIBUIÇÃO DE BENS DE CONSUMO LTDA.** arrematante do Item 53, valendo-se a doravante "Recorrente", para tanto, das suficientes razões de fato e de Direito delineadas a seguir.

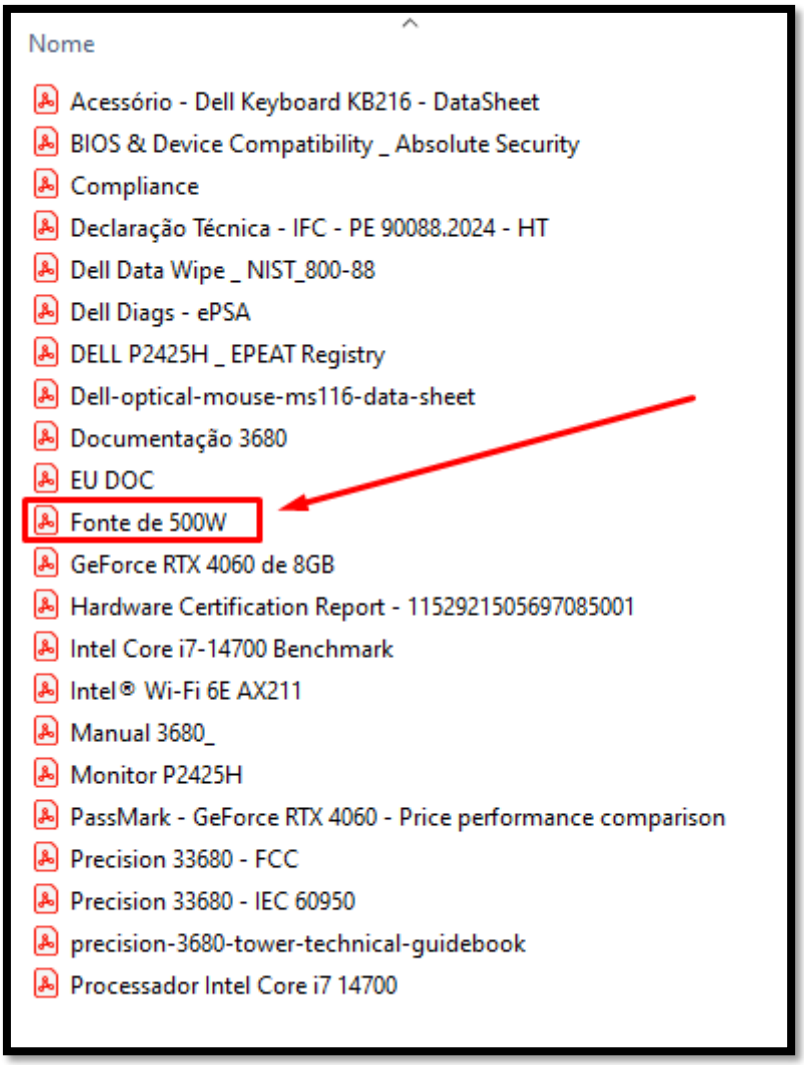
I. DO MÉRITO

1. *Data maxima venia*, Ilustre Pregoeiro, referida decisão não merece prosperar. O licitante em comento deixou de cumprir a integralidade das exigências do Edital. É o que restará cabalmente demonstrado a seguir:

2. Para o Item 53, o licitante **GLOBAL DISTRIBUIÇÃO DE BENS DE CONSUMO LTDA.** apresentou o modelo de equipamento **Dell Precision 3680 Torre**. Entretanto, o equipamento ofertado por esta licitante está em desacordo às exigências do edital além de ser inviável tecnicamente, conforme demonstraremos a seguir.

3. A partir da documentação técnica apresentada pela atual detentora é possível verificar que houve a oferta de uma fonte de alimentação de apenas 500W. Ainda, consta a documentação técnica do processador ofertado, qual seja o Intel Core i7-14700 e da placa de vídeo, qual seja Geforce RTX 4060 de 8GB:


89.237.911/0289-08
Aceita e habilitada
GLOBAL DISTRIBUICAO DE BENS DE CO..
ES
Valor ofertado (unitário)
R$ 12.948,0000
Valor negociado (unitário)
-
Chat
Proposta
Anexos
PropostaGlobalES_Item53.pdf
06/11/2024 15:11:16
Documentos Tecnicos.zip
06/11/2024 15:11:29
Documentos Tecnicos - Fabricante.zip
06/11/2024 15:11:43
Documentos Habilitacao.zip
06/11/2024 15:12:45


Nome
Acessório - Dell Keyboard KB216 - DataSheet
BIOS & Device Compatibility _ Absolute Security
Compliance
Declaração Técnica - IFC - PE 90088.2024 - HT
Dell Data Wipe _ NIST_800-88
Dell Diags - ePSA
DELL P2425H _ EPEAT Registry
Dell-optical-mouse-ms116-data-sheet
Documentação 3680
EU DOC
Fonte de 500W
GeForce RTX 4060 de 8GB
Hardware Certification Report - 1152921505697085001
Intel Core i7-14700 Benchmark
Intel® Wi-Fi 6E AX211
Manual 3680_
Monitor P2425H
PassMark - GeForce RTX 4060 - Price performance comparison
Precision 33680 - FCC
Precision 33680 - IEC 60950
precision-3680-tower-technical-guidebook
Processador Intel Core i7 14700

ID Number	6574
Manufacturer	Dell
Model Number	L500EPS-01
Serial Number	N/A
Year	2021
Type	CUSTOM
Test Date	5/19/21

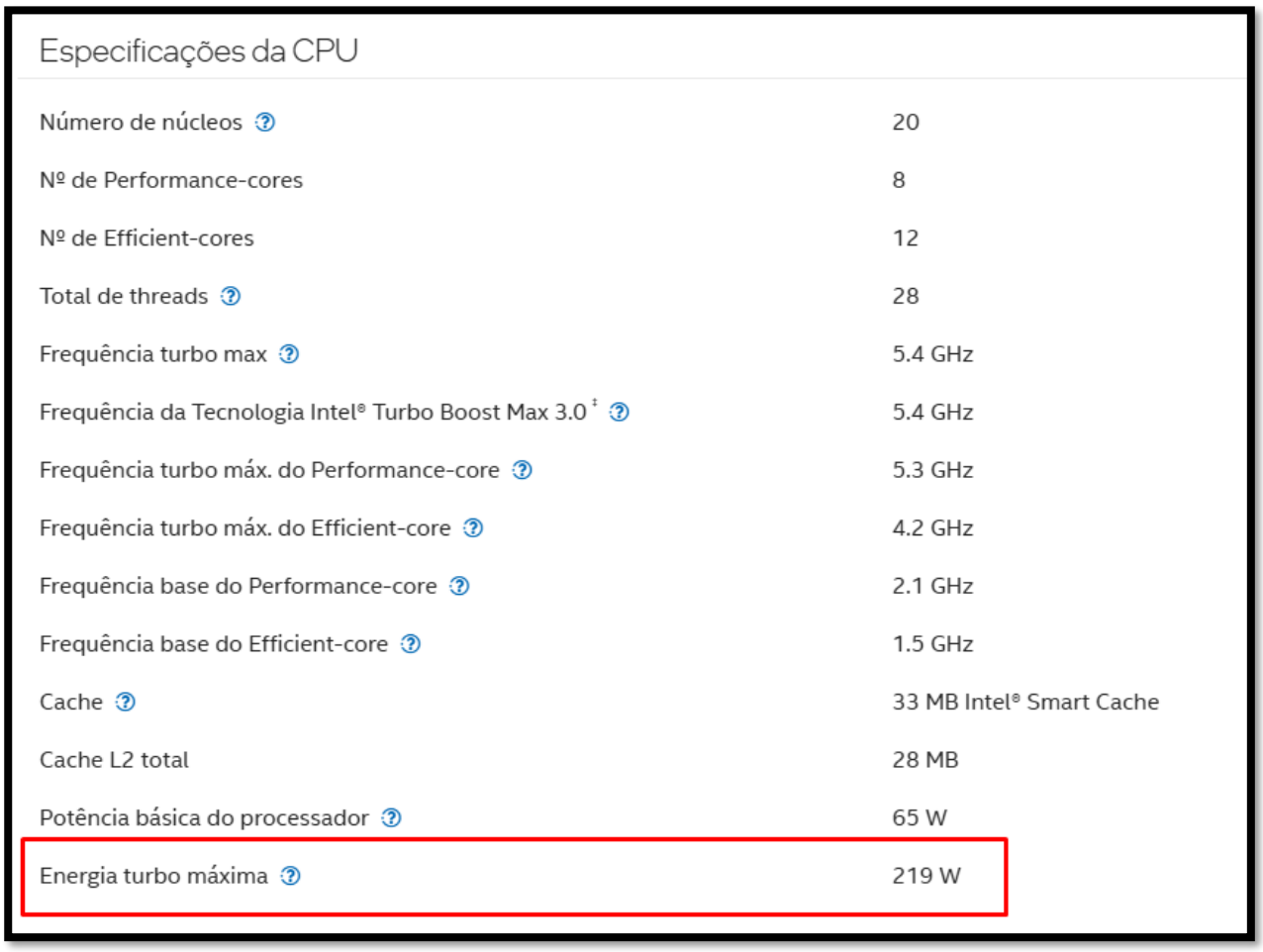
Rated Specifications	Value	Units
Input Voltage	100-240	Volts
Input Current	7	Amps
Input Frequency	50-60	Hz
Rated Output Power	**500**	**Watts**

Note: All measurements were taken with input voltage at 115 V nominal at 60 Hz.

4. Ocorre que esta fonte de alimentação não é suficiente para suportar os componentes desta máquina. A partir do documento apresentado pela recorrida, intitulado como "GeForce RTX 4060 de 8GB" é possível comprovar que este componente só é suportado por fontes de alimentação superiores a 550W. Através do link https://www.nvidia.com/pt-br/geforce/graphics-cards/40-series/rtx-4060-4060ti/ é possível acessar o mesmo datasheet apresentado na proposta da recorrida:

Thermal and Power Specs:		
Maximum GPU Temperature (in C)	90	90
Idle Power (W) [5]	7	7
Video Playback Power (W) [6]	13	11
Average Gaming Power (W) [7]	140	110
Total Graphics Power (W)	165 or 160	115
Required System Power (W) [8]	550	550
Supplementary Power Connectors	1x PCIe 8-pin cables (adapter in box) OR 300 W or greater PCIe Gen 5 cable Certain manufacturer models may use 1x PCIe 8-pin cable.	1x PCIe 8-pin cables (adapter in box) OR 300 W or greater PCIe Gen 5 cable Certain manufacturer models may use 1x PCIe 6-pin cable or 1x PCIe 8-pin cable.

5. A fonte de alimentação ofertada pela recorrida não é suficiente para suportar o produto ofertado, pois além do alto consumo da placa de vídeo, cujo datasheet, por si, já indica a necessidade de uma fonte superior a 550w, ainda, a fonte precisa suportar todos os demais componentes como memória, armazenamento, wi-fi, placa mãe e, principalmente, o processador ofertado, qual seja o Intel Core i7-14700 que também apresenta um altíssimo consumo, podendo chegar a 219W:



Especificações da CPU

Número de núcleos	20
Nº de Performance-cores	8
Nº de Efficient-cores	12
Total de threads	28
Frequência turbo max	5.4 GHz
Frequência da Tecnologia Intel® Turbo Boost Max 3.0 ‡	5.4 GHz
Frequência turbo máx. do Performance-core	5.3 GHz
Frequência turbo máx. do Efficient-core	4.2 GHz
Frequência base do Performance-core	2.1 GHz
Frequência base do Efficient-core	1.5 GHz
Cache	33 MB Intel® Smart Cache
Cache L2 total	28 MB
Potência básica do processador	65 W
Energia turbo máxima	219 W

https://www.intel.com.br/content/www/br/pt/products/sku/236781/intel-core-i7-processor-14700-33m-cache-up-to-5-40-ghz/specifications.html

6. Há outros vícios insanáveis na proposta da **GLOBAL DISTRIBUIÇÃO DE BENS DE CONSUMO LTDA,** a exemplo do consumo máximo da placa de vídeo, cujo texto original do edital de licitação delimitava em 50W. Na fase preliminar a disputa, esta empresa chegou a enviar questionamento sugerindo potências até 110W mas, ainda assim, e GeForce 4060 não atende,

pois em picos de consumo gráfico, ela pode alcançar até 115W, extrapolando tanto o limite estabelecido no edital quando a variação admitida por meio de questionamento:

Thermal and Power Specs:		
Maximum GPU Temperature (in C)	90	90
Idle Power (W) [5]	7	7
Video Playback Power (W) [6]	13	11
Average Gaming Power (W) [7]	140	110
Total Graphics Power (W)	165 or 160	115
Required System Power (W) [8]	550	550

QUESTIONAMENTO 2 - Referente ao item 53:

"Esclarecimento 06
PLACA DE VÍDEO OFF-BOARD: a) Placa de vídeo off-board que permita a utilização simultânea de até 4 (quatro) monitores externos, sem espelhamento da tela, em resolução de vídeo de 4K com taxa de atualização de 60Hz ou superior. b) Suporte à resolução de 7680x4320; c) Memória da placa de vídeo GDDR6 de 8GB com interface de 128 Bits e no mínimo 896 CUDA Cores; d) Largura de memória mínima de 160 GB/s; e) Suporte a OpenGL 4.6, OpenCL e DirectX 12, Vulkan; f) Consumo máximo de 50W; g) Possuir, no mínimo, 4 (quatro) portas de vídeo Displayport ou Mini Displayport; No caso de saídas Mini Displayport deve acompanhar 4 adaptadores de Mini para Displayport; h) Deve atingir pontuação mínima de 7.000 (sete mil) pontos; i) O desempenho será comprovado por intermédio de resultados de Benchmark, disponíveis em: https://www.videocardbenchmark.net/gpu_list.php. 7"

O modelo que pretendemos ofertar possui desempenho superior aos requisitos solicitados com pontuação superior com 17.000 (dezessete mil) pontos; considerando os resultados de Benchmark, disponíveis em: https://www.videocardbenchmark.net/gpu_list.php. 7
Por conta disso o modelo apresenta um consumo maior, com certa de 110W.
A placa também apresenta 04(quatro) portas de vídeo digitais, sendo 03 (três) Displayport e 01(uma) HDMI. Entendemos que uma das portas ser HDMI não interfere em nada a utilização do equipamento já que a qualidade apresentada pode ser considerada equivalente. Está correto nosso entendimento?"

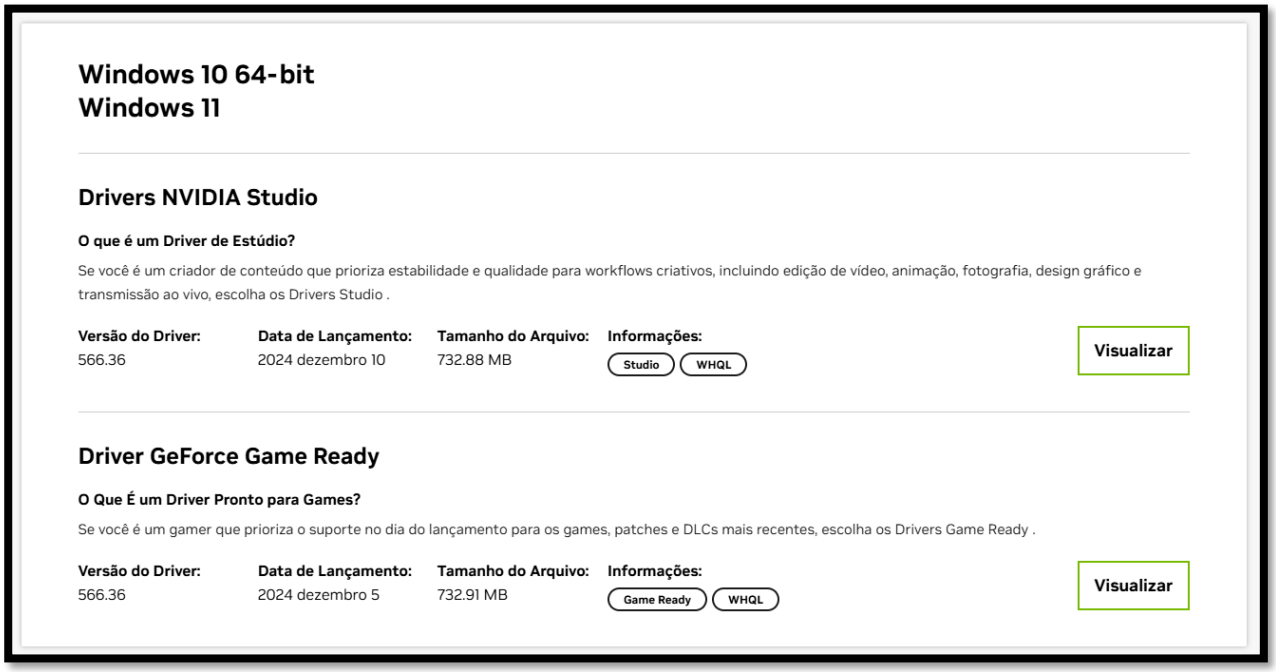
QUESTIONAMENTO 2.
Resposta: Tendo desempenho comprovadamente superior, o entendimento está correto.
QUESTIONAMENTO 3.
Resposta: Tendo desempenho comprovadamente superior, o entendimento está correto.

7. Vício tão grave quanto os até então denunciados, é o público-alvo deste componente, o qual também viola o disposto no edital que exige, claramente: **"Comprovação que, o(s) produto(s) ofertado(s) pertence(m) à linha corporativa. Não serão aceitos equipamentos destinados ao uso da linha doméstica".**

8. Através do link https://www.nvidia.com/pt-br/geforce/graphics-cards/40-series/rtx-4060-4060ti/ é possível verificar que esta placa de vídeo é dedicada ao público gamer, ou seja, doméstico, e o edital se faz claro quanto a vedação deste tipo de oferta.

9. Somente placa de vídeo de uso corporativos são homologadas para utilização de diversas aplicações de uso profissional, como por exemplo Adobe, Altair, Autodesk, Avid, Barco, Bentley, Dassault Systemes, Dedalus, Nemetschek, PTC, Siemens, entre outras.

10. Por meio do link https://www.nvidia.com/pt-br/drivers/ é possível comprovar que a placa de vídeo RTX 4060 só possui 02 (dois) drivers que são Nvidia Studio e Geforce Game Ready:



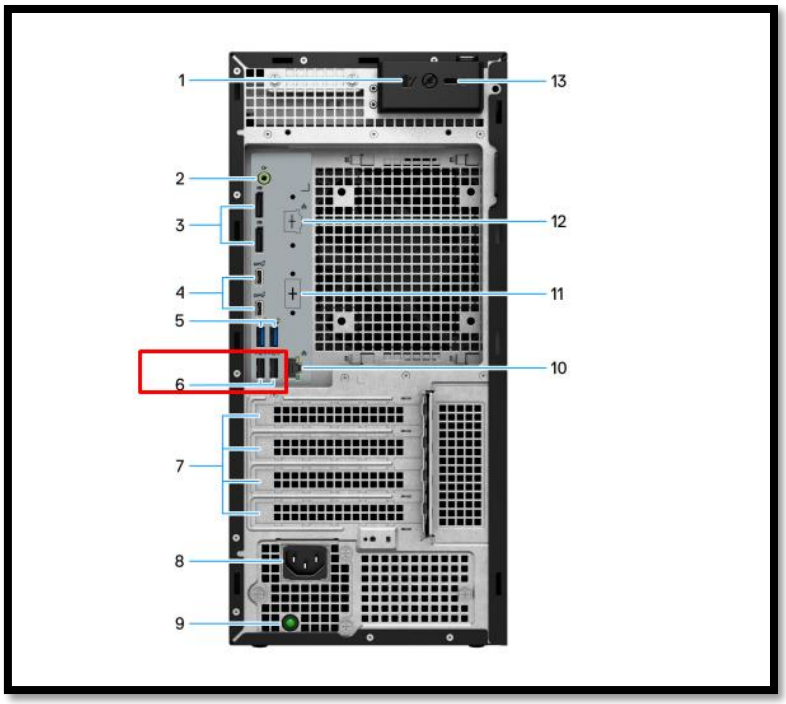
11. Ou seja, o componente ofertado pela recorrida, não possui drivers nem suporte para utilização de aplicações profissionais, vez que se tratam de drivers voltados a público gamers ou, no máximo, de uso gráfico.

12. O ETP – Estudo Técnico Preliminar da presente contratação, descreve como necessidade da presente contratação: "A aquisição dos produtos permanentes e consumíveis de Tecnologia da Informação visam atender as necessidades/demandas dos diversos setores do IFC, servindo de suporte e subsídio para as atividades administrativas, de ensino, pesquisa e extensão no desenvolvimento de processos internos que fazem uso da tecnologia da informação e comunicação".

13. Com a presente contratação, pretende-se prestar o suporte adequado aos usuários das áreas administrativas, de ensino, pesquisa e extensão referente à consumíveis e softwares de TIC. Ou seja, o usuário dos produtos a serem adquiridos necessita de equipamentos para desenvolvimento científico e tecnológico e tais necessidades não podem ser entregues por meio de placas de vídeo voltadas ao público gamer, conforme pontos acima denunciados.

14. Alterando a pauta, o edital demanda "k) Na parte frontal deve conter no mínimo 4 USB 3.2 Gen 1 ou superior, sendo no mínimo 1 USB Tipo C; l) Na parte traseira, deve conter no mínimo 4 (quatro) portas USB 3.2 Gen 2 ou superior".

15. Conforme imagem a seguir retirada do catálogo apresentado pela Recorrida, **as interfaces USB são do tipo 2.0**, logo, são de qualidade inferior ao Termo de Referência, vejamos:



6. Two USB 2.0 (480 Mbps) ports with SmartPower

16. *Data maxima venia,* ilustre Pregoeiro, a arrematação indevida consolida evidente violação às disposições normativas de caráter Editalício, legal e principiológico a regerem o presente certame. Nessa toada, ressalta-se que o artigo 5º da nova Lei de Licitações, 14.133/21, também

vêm mantendo as regras contidas nos artigos da antiga lei de licitações, principalmente quanto ao princípio da vinculação ao instrumento convocatório e do julgamento objetivo, *in verbis:*

> **"Art. 5º. Na aplicação desta Lei, serão observados os princípios da legalidade, da impessoalidade, da moralidade, da publicidade, da eficiência, do interesse público, da probidade administrativa, da igualdade, do planejamento, da transparência, da eficácia, da segregação de funções, da motivação, da vinculação ao Edital, do julgamento objetivo, da segurança jurídica, da razoabilidade, da competitividade, da proporcionalidade, da celeridade, da economicidade e do desenvolvimento nacional sustentável, assim como as disposições do Decreto Lei nº 4.657, de 4 de setembro de 1942 (Lei de Introdução às Normas do Direito Brasileiro)."**

17. O que se assevera acima está na mesma esteira do que já foi, inclusive, exaustivamente firmado pelo Judiciário:

> "EMENTA – AGRAVO DE INSTRUMENTO – AÇÃO ANULATÓRIA – CONCORRÊNCIA – NÃO ATENDIMENTO ÀS EXIGÊNCIAS DO EDITAL – PRINCÍPIO DA VINCULAÇÃO AO EDITAL – AUSÊNCIA DO 'FUMUS BONI IURIS' – RECURSO CONHECIDO E NÃO PROVIDO. **1. O princípio da vinculação ao Edital impõe que a Administração e os licitante respeitem as normas estabelecidas no instrumento convocatório, sob pena de nulidade dos atos praticados. 2. Evidenciado que o licitante descumpriu exigências previstas no Edital, bem assim que estas não são ilegais ou manifestamente destituídas de razoabilidade, sua desclassificação do certamente é medida que se impõe por ofensa ao princípio da vinculação ao instrumento convocatório.** 3. Agravo de Instrumento não provido.
> (TJMS - AI: 14049893020188120000 MS 1404989-30.2018.8.12.0000, Relator: Des. Alexandre Bastos, Data de Julgamento: 20/03/2019, 4ª Câmara Cível, Data de Publicação: 22/03/2019)."

18. Também, ocasiona ferida gangrênica ao princípio do julgamento objetivo. Nas palavras da digníssima jurisconsulta Maria Sylvia Zanella Di Pietro, *in verbis*[1]:

> **"Quanto ao julgamento objetivo, que é decorrência também do princípio da legalidade, está assente seu significado: o julgamento das propostas há de ser feito de acordo com os critérios fixados no Edital. E também está consagrado, de modo expresso, no artigo 45, em cujos termos "o julgamento das propostas será objetivo, devendo a Comissão de Licitação ou responsável pelo convite realizá-lo em conformidade com os tipos de licitação, os critérios previamente estabelecidos no ato convocatório e de acordo com os fatores exclusivamente neles referidos, de maneira a possibilitar sua aferição pelos licitante e pelos órgãos de controle. (...)"**

[1] Maria Sylvia Zanella Di Pietro. Direito Administrativo. 18ª ed.; São Paulo: Atlas, 2005, p. 387.

19. Assim sendo, todas as disposições colacionadas *in retro* socorrem a Recorrente no tangente à desclassificação do licitante em comento, nos moldes das regras do próprio Edital, *in verbis:*

> 7.7. Será desclassificada a proposta vencedora que:
>
> 7.7.1. contiver vícios insanáveis;
>
> 7.7.2. não obedecer às especificações técnicas contidas no Termo de Referência;

20. Não se justifica na legalidade, e em qualquer outro parâmetro normativo licitatório, a arrematação do Item 53 ao licitante em comento, descumpridores do Edital e da Lei.

21. Sem mais delongas, e firme nas suficientes razões de fato e de Direito delineadas *in supra,* a Recorrente pleiteia o seguinte.

II. DOS PEDIDOS

Ante as razões expostas supra, bem como do dever do Ilustre Pregoeiro de zelar pelo fiel cumprimento das disposições Editalícias e legais pertinentes ao saudável desenvolvimento do presente certame licitatório, a Recorrente roga que Vossa Senhoria reconsidere o *decisum* de arrematação e classificação do licitante em comento para o Item 53, para consequente e subsequente chamamento do *ranking* de classificação.

Se assim não o fizer, que se digne Vossa Senhoria a encaminhar o presente Recurso Administrativo à Autoridade Superior competente para conhecê-lo e, certamente, dar-lhe provimento.

Nestes termos, pede deferimento.

Brasília/DF, 11 de dezembro de 2024.

MICROTÉCNICA INFORMÁTICA LTDA.
ROBERTO MÁRCIO NARDES MENDES
CPF nº 327.962.266-20
DIRETOR

FRANCISCO PARAISO RIBEIRO DE PAIVA
OAB/DF nº 36.471

AO (A) EXCELENTÍSSIMO (A) SENHOR (A) PREGOEIRO (A) DO INSTITUTO FEDERAL CATARINENSE

PREGÃO ELETRÔNICO Nº 90088/2024

GLOBAL DISTRIBUIÇÃO DE BENS DE CONSUMO LTDA. (GLOBAL), pessoa jurídica de direito privado, estabelecida na Rodovia Governador Mario Covas, 10.600 Cariacica/ES, inscrita no CNPJ/MF sob o nº 89.237.911/0289-08, vem pelo presente, apresentar **CONTRARRAZÕES** em face dos recursos interpostos pela empresa **MICROTÉCNICA INFORMÁTICA LTDA.**, conforme razões a seguir

I. DOS FATOS

A empresa GLOBAL participou do Pregão Eletrônico Nº 90088/2024, restando vencedora para os Itens 53, 54 e 56, e teve sua proposta aceita para o presente certame, estando em plena conformidade com o estipulado em edital.

Não satisfeita com o resultado do pregão, a empresa **MICROTÉCNICA INFORMÁTICA LTDA.** apresentou recurso administrativo frente à decisão que declarou a empresa GLOBAL vencedora do certame para os presentes itens, alegando o que segue:

> *"Para o Item 53, o licitante GLOBAL DISTRIBUIÇÃO DE BENS DE CONSUMO LTDA. apresentou o modelo de equipamento Dell Precision 3680 Torre. Entretanto, o equipamento ofertado por esta licitante está em desacordo às exigências do edital além de ser inviável tecnicamente [...]". (sic)*

E ainda:

> *"Para o Item 54, o licitante GLOBAL DISTRIBUIÇÃO DE BENS DE CONSUMO LTDA. ofertou o modelo DELL OPTIPLEX SMALL + MONITOR DELL P2425H. No entanto, não atende ao Edital e Termo de Referência.*
> *[...]*
> *Da mesma forma para o Item 56, a Recorrida ofertou o modelo Dell OptiPlex 7020 SFF. No entanto, não atende ao Edital e Termo de Referência." (sic)*

No entanto, os pontos arguidos pela recorrente, não podem prosperar de forma alguma, visto que não correspondem à realidade efetiva e prática, conforme será demonstrado a seguir.

II. DA TEMPESTIVIDADE

Preliminarmente, importante destacar a tempestividade da presente contrarrazão em resposta ao Recurso interposto pela recorrente, tendo em vista a ciência do mesmo e o prazo de apresentação das contrarrazões recursais.

III. DOS FUNDAMENTOS

III.I. DO ATENDIMENTO AOS REQUISITOS EDITALÍCIOS RELATIVOS AO ITEM 53

O ponto arguido pela recorrida não merece prosperar, uma vez que o equipamento em questão ofertado por esta recorrente atende a todos os requisitos editalícios. Complementou a recorrente acerca das supostas inconsistências:

> *"A partir da documentação técnica apresentada pela atual detentora é possível verificar que houve a oferta de uma fonte de alimentação de apenas 500W. Ainda, consta a documentação técnica do processador ofertado, qual seja o Intel Core i7-14700 e da placa de vídeo, qual seja Geforce RTX 4060 de 8GB."*

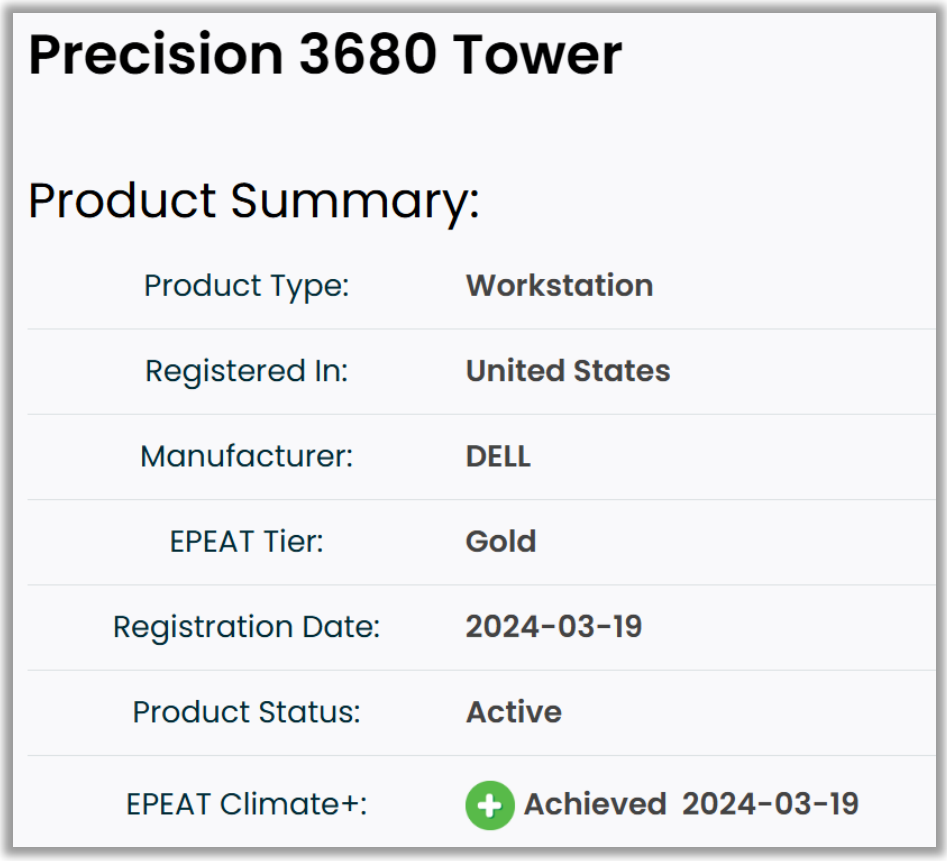
O edital aduz no "ANEXO I – DETALHAMENTO LISTA DE ITENS", do item 53, subitem 10 o seguinte:

> *"10. FONTE DE ALIMENTAÇÃO: a) Deverá possuir eficiência energética de 92%, em 50% de carga, comprovada pela certificação 80PLUS Platinum em nome do fabricante do equipamento. b) Deve possuir cabo de alimentação elétrica com comprimento mínimo de 1,5 m (um metro e meio) com plugue macho 2P+T de acordo com a norma NBR 14136;"*

Ao observarmos o catálogo apresentado por esta licitante, é possível validarmos que a placa Nvidia RTX 4060 traz de fato um consumo de 115W, no entanto, o componente é ofertado junto com a fonte de alto desempenho e eficiência, o que garante o seu perfeito desempenho, uma vez que a própria fabricante Dell garante o funcionamento do equipamento proposto ao permitir a sua configuração com todos estes componentes.

Ainda, a Workstation Precision 3680 possui alta eficiência energética de 93%, junto ao certificado 80 Plus comprovado através de documento Fonte de 500W.pdf, garantindo o nível

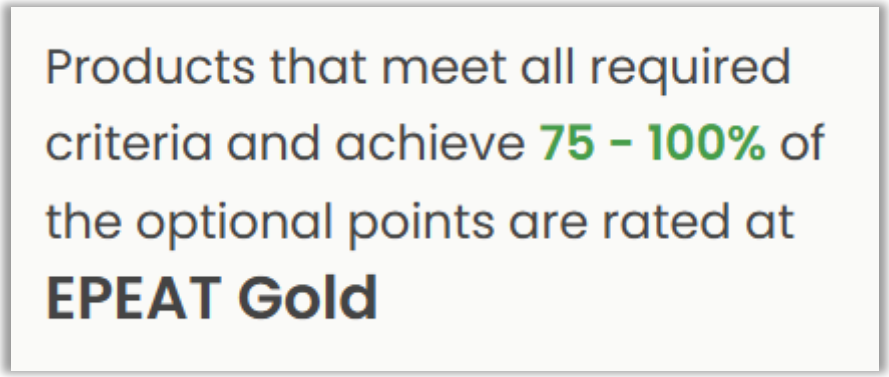
Platinum, sendo este o melhor dos níveis de eficiência energética, além disso, o produto também oferece certificação EPEAT Gold – cujo qual atesta a eficiência energética juntamente com a certificação Energy Star, conforme segue



Precision 3680 Tower

Product Summary:

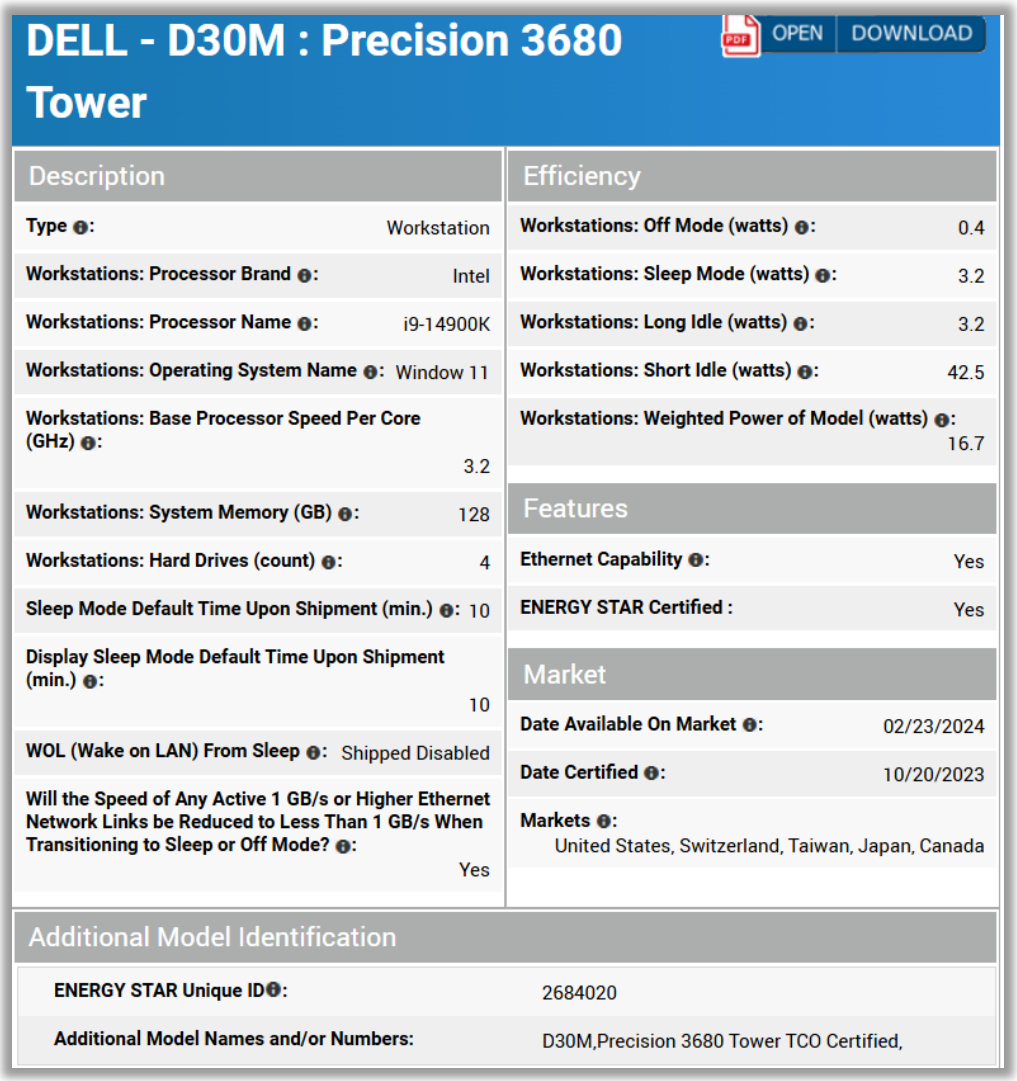
Product Type:	Workstation
Registered In:	United States
Manufacturer:	DELL
EPEAT Tier:	Gold
Registration Date:	2024-03-19
Product Status:	Active
EPEAT Climate+:	Achieved 2024-03-19



Products that meet all required criteria and achieve **75 - 100%** of the optional points are rated at **EPEAT Gold**

Link: https://epeat.net/product-details/d5433b8e1458421cafec2e21d04766d5?backUrl=%252Fcomputers-and-displays-search-result%252Fpage-1%252Fsize-25%253FcountryId%253D112%2526manufacturerId%253D317%2526productName%253DPrecision%2526productStatusId%253D1%2526productTypeId%253D185437%2526productTypeId%253D185434

Conforme retrocitado, o equipamento possui comprovadamente a certificação Energy Star, conforme segue:



DELL - D30M : Precision 3680 Tower

OPEN DOWNLOAD

Description	
Type:	Workstation
Workstations: Processor Brand:	Intel
Workstations: Processor Name:	i9-14900K
Workstations: Operating System Name:	Window 11
Workstations: Base Processor Speed Per Core (GHz):	3.2
Workstations: System Memory (GB):	128
Workstations: Hard Drives (count):	4
Sleep Mode Default Time Upon Shipment (min.):	10
Display Sleep Mode Default Time Upon Shipment (min.):	10
WOL (Wake on LAN) From Sleep:	Shipped Disabled
Will the Speed of Any Active 1 GB/s or Higher Ethernet Network Links be Reduced to Less Than 1 GB/s When Transitioning to Sleep or Off Mode?:	Yes

Efficiency	
Workstations: Off Mode (watts):	0.4
Workstations: Sleep Mode (watts):	3.2
Workstations: Long Idle (watts):	3.2
Workstations: Short Idle (watts):	42.5
Workstations: Weighted Power of Model (watts):	16.7

Features	
Ethernet Capability:	Yes
ENERGY STAR Certified :	Yes

Market	
Date Available On Market:	02/23/2024
Date Certified:	10/20/2023
Markets:	United States, Switzerland, Taiwan, Japan, Canada

Additional Model Identification	
ENERGY STAR Unique ID:	2684020
Additional Model Names and/or Numbers:	D30M,Precision 3680 Tower TCO Certified,

Link: https://www.energystar.gov/productfinder/product/certified-computers/details/2684020

No que diz respeito ao ponto arguido de desrespeito a alínea "k", qual seja:

> *"k) Na parte frontal deve conter no mínimo 4 USB 3.2 Gen 1 ou superior, sendo no mínimo 1 USB Tipo C; l) Na parte traseira, deve conter no mínimo 4 (quatro) portas USB 3.2 Gen 2 ou superior"*

Oportunamente, cabe esclarecer que o edital solicitava 4 (quatro) portas USB 3.2 Gen 1 ou superior, e conforme o catálogo mencionado abaixo, entregamos as portas solicitadas através dos itens 4 e 5 do catálogo, sendo 2 portas USB 3.2 Type-C Gen 2 e 2 portas USB 3.2Gen2, do tipo A, ou seja, superiores ao solicitado em edital.

Back

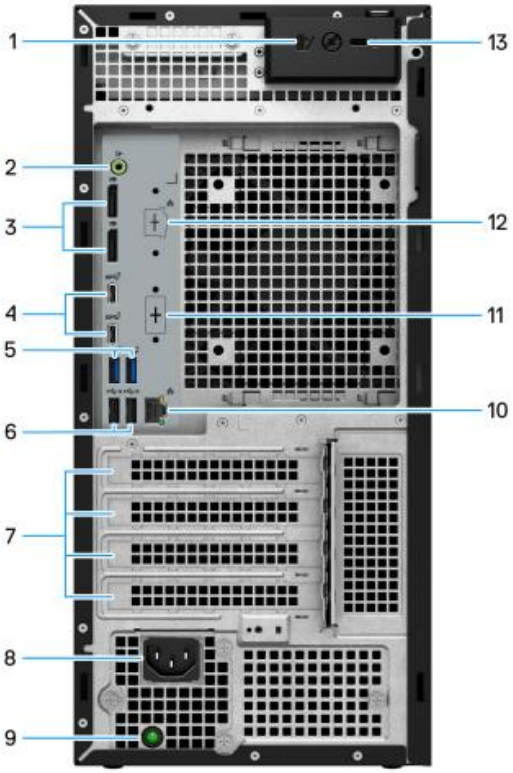


Figure 2. Image: Back view

1. **Side cover release latch**
   Release to allow to open the side cover.
2. **Audio line out port**
   Connect audio-output devices such as speakers and amplifiers. In a 5.1 speaker channel setup, connect the front-left and front-right speakers.
3. **Two DisplayPort 1.4 ports**
   Connect an external display or a projector.
4. **Two USB 3.2 Type-C Gen 2 (10 Gbps) ports**
   Connect devices such as external storage devices and printers. Provides data transfer speeds up to 10 Gbps.
5. **Two USB 3.2 Gen 2 (10 Gbps) ports**
   Connect devices such as external storage devices and printers. Provides data transfer speeds up to 10 Gbps.
6. **Two USB 2.0 (480 Mbps) ports with SmartPower**

Por fim, cabe destacar que o equipamento Dell Precision 3680 Tower faz parte da linha corporativa de equipamentos Dell, conforme declaração anexada à proposta – da pasta "Documentos técnicos.zip" sob o arquivo denominado "Declaração Técnica - IFC - PE 90088.2024 – HT".

III.II. DO ATENDIMENTO AOS REQUISITOS EDITALÍCIOS RELATIVOS AOS ITENS 54 E 56

Novamente o ponto arguido pela recorrida não merece prosperar, uma vez que o equipamento em questão ofertado por esta recorrente atende a todos os requisitos editalícios. Aduziu a recorrente acerca das supostas inconsistências:

> *"...o equipamento ofertado pela Recorrida é equipado com o processador Intel Core I5 14500, no entanto, o referido processador não permite atingir a frequência de 5600MHz exigida vez que este possui limitação de operação a até 4800MHz, sendo de qualidade inferior ao Termo de Referência*
> *[...]*
> *...da mesma forma da inconsistência apontada no item 54, vossa senhoria pode constatar que o equipamento ofertado pela Recorrida é equipado com o processador Intel Core I5 14500, no entanto, o referido processador não atinge a frequência de 5200MHz exigida..."*

O edital aduz no "ANEXO I – DETALHAMENTO LISTA DE ITENS", dos itens 54 e 56, subitem "3. CHIPSET E PLACA MÃE", alínea "d" o seguinte:

> *"d) Deverá possuir memória não volátil integrada à placa-mãe para armazenamento de informações de inventário de hardware e software. Estas informações deverão estar acessíveis via rede (local ou na wan) para leitura;*
> *e) Possui no mínimo 2 (dois) slots de memória com suporte a DDR5 de 5.600 MHz;.*
> *[...]*
> *d) Deverá possuir memória não volátil integrada à placa-mãe para armazenamento de informações de inventário de hardware e software. Estas informações deverão estar acessíveis via rede (local ou na wan) para leitura;*
> *e) Possui no mínimo 2 (dois) slots de memória com suporte a DDR5 de 5.200 MHz;"*

Ao observarmos o equipamento apresentado por essa licitante, é possível validarmos que se configuraram as memórias com velocidade de 5600 MHz, tal especificação pode ser comprovada através da cotação/configuração da Dell anexa junto à proposta, portanto, atendendo os requisitos do edital, uma vez que foram ofertadas as memórias DDR5 16/32 GB 5600Mhz.

Seguem informação constante nas propostas de preços:

Memória ofertada Item 54, conforme proposta:

16GB DDR5 (1x16GB) 5600MT/s	1

Memória ofertada Item 56, conforme proposta:

32 GB DDR5 (1x32GB) 5600MT/s	1

Quanto ao processador, é possível verificar através da proposta de preços e dos documentos anexos, que o modelo Intel Core i5-14500 vPro® (14 core, 20 threads, cache de 24MB, 2.6 GHz a 5.0 GHz), ofertado tanto para o item 54 quanto para o item 56, atende às especificações técnicas exigidas nos respectivos itens.

Diante de todos os fatos ora trazidos, cumpre observar que esta licitante não só cumpre, como tem a capacidade para manter sua habilitação e fornecimento dos equipamentos.

IV. DO MÉRITO

Após as supracitadas considerações, pelo atendimento da norma imperativa regente do certame e com base nos princípios de **JULGAMENTO OBJETIVO, PRINCÍPIO DA ISONOMIA E PUBLICIDADE**, impõe seja mantida a decisão administrativa que importou na declaração da GLOBAL como vencedora.

Se os argumentos da **MICROTÉCNICA INFORMÁTICA LTDA.** forem aceitos, acarretará na nulidade do presente certame, de forma contrária à lei incidente, uma vez mais do que comprovado o respeito dessa licitante às normas editalícias.

Segundo Hely Lopes Meirelles, a licitação:

"realiza-se através de um procedimento vinculado, no desenvolver do qual a administração não pode afastar-se das prescrições legais que bitolam a sua tramitação, sob pena de invalidar o contrato subsequente." (direito administrativo brasileiro 2a. Ed. Pág. 251).

Por fim, é importante destacar que a administração pública deve pensar no menor impacto para o erário, ou seja, para isso existe o processo licitatório que deve acatar e aceitar o objeto que foi oferecido, atende ao edital e advém de um licitante com idoneidade para participar do certame com o valor mais vantajoso ao órgão público.

Dessa forma, resta apenas a manutenção da GLOBAL DISTRIBUIÇÃO DE BENS DE CONSUMO LTDA. como vencedora para o presente processo licitatório.

IV. DO PEDIDO

Assim, diante de todo exposto requer sejam indeferidas as justificativas expostas pela recorrente, tampouco entendimento subsidiário que se tenha de quaisquer pedidos.

Destarte, requer a GLOBAL pela manutenção da declaração que sagrou a recorrida como vencedora para o item objeto das avenças, uma vez que atende às exigências legais e editalícias.

Nestes termos pede e aguarda deferimento

Cariacica/ES, 16 de dezembro de 2024.

VINICIUS DA SILVA:83925090053

Assinado de forma digital por VINICIUS DA SILVA:83925090053
Dados: 2024.12.16 09:44:58 -03'00'

Vinicius da Silva
Representante Legal
GLOBAL DISTRIBUIÇÃO DE BENS DE CONSUMO LTDA.

Precision 3680 Tower

Technical Guidebook

Regulatory Model: D30M
Regulatory Type: D30M001
February 2024
Rev. A00

DELL Technologies

Notes, cautions, and warnings

NOTE: A NOTE indicates important information that helps you make better use of your product.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

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Contents

1

Views of Precision 3680 Tower

Front

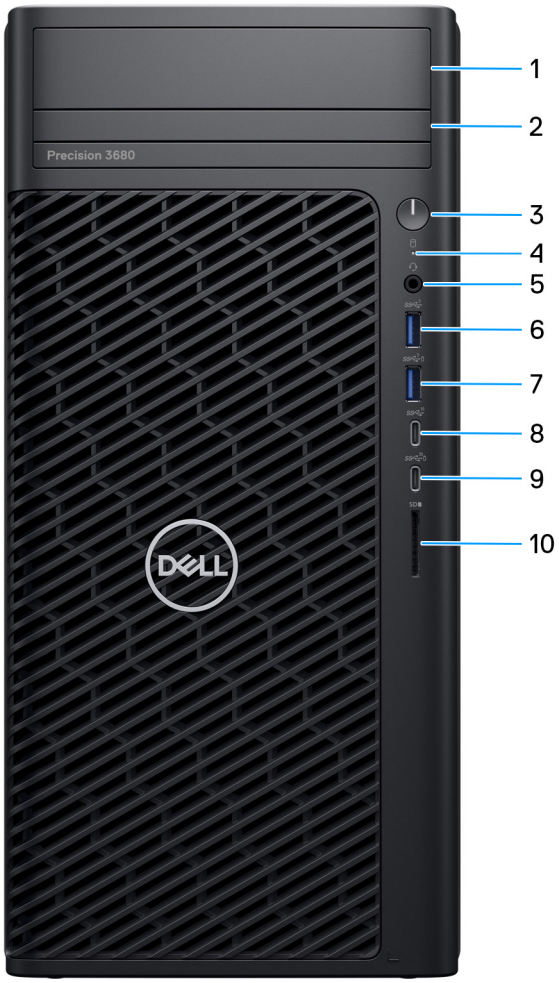

Figure 1. Image: Front view

1. **Front 3.5-inch hard drive bay (optional)**

   Slot to install the 3.5-inch hard drive

2. **Slim ODD (optional)**

   Reads from and writes to CDs, DVDs, and Blu ray disks.

3. **Power button with diagnostic LED**

   Press to turn on the computer if it is turned off, in sleep state, or in hibernate state.

4. **Hard-drive activity light**

   Turns on when the computer reads from or writes to the hard drive.

   NOTE: Hard-drive activity light is supported only on computers that are shipped with hard drive.

5. **Universal audio port**

   Connect headphones or a headset (headphone and microphone combo).

6. **USB 3.2 Gen 1 (5 Gbps) port**

   Connect devices such as external storage devices and printers.

   Provides data transfer speeds up to 5 Gbps.

7. **USB 3.2 Gen 1 (5 Gbps) port with PowerShare**

   Connect devices such as external storage devices and printers.

   Provides data transfer speeds up to 5 Gbps. PowerShare enables you to charge connected USB devices.

   NOTE: Connected USB devices will not charge when the computer is turned off or in a sleep state. To start charging connected devices, turn on the computer.

8. **USB 3.2 Type-C Gen 2 (10 Gbps) port**

   Connect devices such as external storage devices and printers. Provides data transfer speeds up to 10 Gbps.

9. **USB 3.2 Type-C Gen 2x2 (20 Gbps) port with PowerShare**

   Connect devices such as external storage devices, printers, and external displays. Provides data transfer rate of up to 20 Gbps.

   PowerShare enables you to charge connected USB devices.

   NOTE: Connected USB devices will not charge when the computer is turned off or in a sleep state. To start charging connected devices, turn on the computer.

10. **SD-card slot**

    Reads from and writes to the SD card.

Back

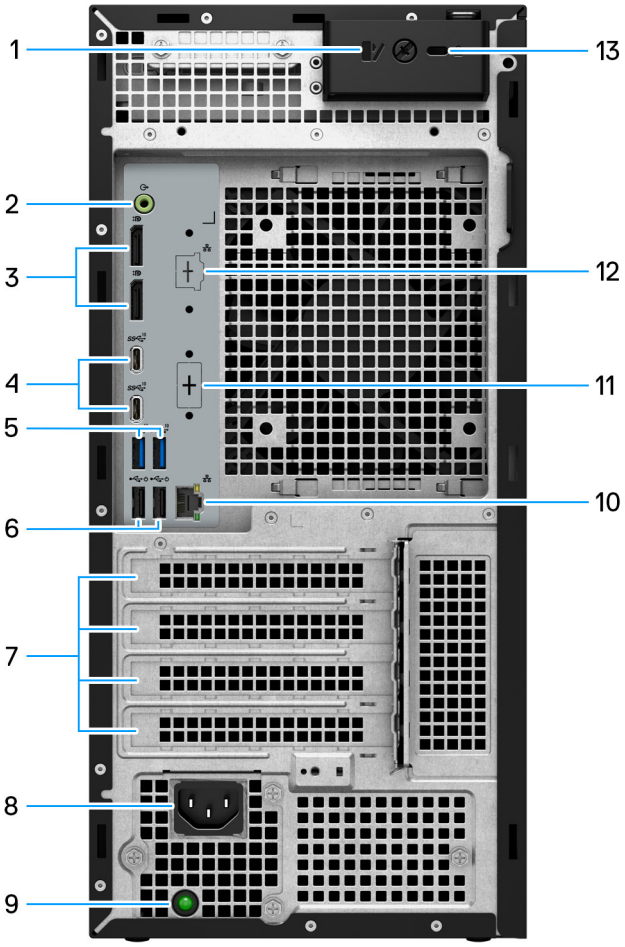

Figure 2. Image: Back view

1. **Side cover release latch**

   Release to allow to open the side cover.

2. **Audio line out port**

   Connect audio-output devices such as speakers and amplifiers. In a 5.1 speaker channel setup, connect the front-left and front-right speakers.

3. **Two DisplayPort 1.4 ports**

   Connect an external display or a projector.

4. **Two USB 3.2 Type-C Gen 2 (10 Gbps) ports**

   Connect devices such as external storage devices and printers. Provides data transfer speeds up to 10 Gbps.

5. **Two USB 3.2 Gen 2 (10 Gbps) ports**

   Connect devices such as external storage devices and printers. Provides data transfer speeds up to 10 Gbps.

6. **Two USB 2.0 (480 Mbps) ports with SmartPower**

Connect devices such as external storage devices and printers. Provides data transfer speeds up to 480 Mbps. Wake from standby with the keyboard or mouse that is connected to this port.

7. **Expansion card slots**

   Provide access to ports on any installed PCI Express cards.

8. **Power cord connector port**

   Connect a power cable to provide power to your computer.

9. **Power supply diagnostic light**

   Indicates the power-supply state.

10. **RJ45 port 10/100/1000 Mbps**

    Connect an Ethernet (RJ45) cable from a router or a broadband modem for network or Internet access, with a transfer rate of 10/100/1000 Mbps.

11. **HDMI 2.0/ DisplayPort 1.4/ VGA/ USB Type-C with DisplayPort Alt mode (optional)**

    The port available at this location may vary depending on the optional I/O card that is installed on your computer.

    - **HDMI 2.0 port**

      Connect to a TV, external display, or another HDMI-in enabled device. Maximum resolution that is supported up to 4096 x 2160 @60 Hz.

    - **DisplayPort 1.4**

      Connect an external display or a projector. Maximum resolution that is supported up to 5120 x 3200 @60 Hz.

    - **VGA port**

      Connect an external display or a projector. Maximum resolution that is supported up to 1920 x 1200 @60 Hz.

    - **USB Type-C with DisplayPort port**

      Connect devices such as external storage devices and printers. Provides data transfer speeds of up to 10 Gbps. Maximum resolution supported up to 5120x3200 @60Hz with a Type-C to DisplayPort adapter.

12. **2.5 GbE RJ45 port (optional)**

    Connect an Ethernet (RJ45) cable from a router or a broadband modem for network or Internet access.

13. **Kensington security-cable slot**

    Connect a security cable to prevent unauthorized movement of your computer.

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Specifications of Precision 3680 Tower

Dimensions and weight

The following table lists the height, width, depth, and weight of your Precision 3680 Tower.

Table 1. Dimensions and weight

Description	Values
Height	372.90 mm (14.68 in.)
Width	173.00 mm (6.81 in.)
Depth	420.20 mm (16.54 in.)
Weight **NOTE:** The weight of your computer depends on the configuration ordered and manufacturing variability.	• Minimum - 7.58 kg (16.71 lb) • Maximum - 16.05 kg (35.38 lb)

Processor

The following table lists the details of the processors that are supported for your Precision 3680 Tower.

Table 2. Processor

Description	Option one	Option two	Option three	Option four	Option five	Option six	Option seven	Option eight
Processor type	14th Gen Intel Core i3-14100	14th Gen Intel Core i5-14500 vPro	14th Gen Intel Core i5-14600 vPro	14th Gen Intel Core i5-14600K vPro	14th Gen Intel Core i7-14700 vPro	14th Gen Intel Core i7-14700K vPro	14th Gen Intel Core i9-14900 vPro	14th Gen Intel Core i9-14900K vPro
Processor wattage	60 W	65 W	65 W	125 W	65 W	125 W	65 W	125 W
Processor core count	4	14	14	14	20	20	24	24
Processor thread count	8	20	20	20	28	28	32	32
Processor speed	3.5 GHz to 4.7 GHz Turbo	2.6 GHz to 5.0 GHz Turbo	2.7 GHz to 5.2 GHz Turbo	3.5 GHz to 5.3 GHz Turbo	2.1 GHz to 5.4 GHz Turbo	3.4 GHz to 5.6 GHz Turbo	2.0 GHz to 5.8 GHz Turbo	3.2 GHz to 6.0 GHz Turbo
Processor cache	12 MB	24 MB	24 MB	24 MB	33 MB	33 MB	36 MB	36 MB
Integrated graphics	Intel UHD Graphics 730	Intel UHD Graphics 770	Intel UHD Graphics 770	Intel UHD Graphics 770	Intel UHD Graphics 770	Intel UHD Graphics 770	Intel UHD Graphics 770	Intel UHD Graphics 770

NOTE:

1. Precision 3680 Tower supports Unlimited Turbo Duration feature (PL1=PL2) for all K-processor (125W) CPUs. A 1000W power supply and Premium Air Cooling solution are required.
2. Precision 3680 Tower supports Enhanced Performance (PL1=85W) for 65W CPUs. A Premium Air Cooling solution is required.

Chipset

The following table lists the details of the chipset that is supported for your Precision 3680 Tower.

Table 3. Chipset

Description	Values
Chipset	W680
Processor	14th Gen Intel Core i3/i5/i7/i9
DRAM bus width	64-bit DIMM
Flash EPROM	16 MB + 32 MB
PCIe bus	Up to Gen5

Operating system

Your Precision 3680 Tower supports the following operating systems:

- Windows 11 Home, 64-bit
- Windows 11 Pro, 64-bit
- Windows 11 Pro National Education, 64-bit
- Windows 11 Pro for Workstations
- Ubuntu Linux 22.04 LTS, 64-bit

Memory

The following table lists the memory specifications of your Precision 3680 Tower.

Table 4. Memory specifications

Description	Values
Memory slots	Four-DIMM slots **NOTE:** Up to 128 GB or up to 4400 MT/s ECC and Non-ECC DDR5
Memory type	DDR5
Memory speed	Maximum speed: 4400 MT/s **NOTE:** Maximum memory speed varies by the following configuration on each channel. If the two DIMM configuration is not symmetrical, the maximum speed may drop. • 4400 MT/s: 1 DIMM-1R/2R • 4000 MT/s: 2 DIMM-1R • 3600 MT/s: 2 DIMM-2R

Table 4. Memory specifications (continued)

Description	Values
Maximum memory configuration	128 GB
Minimum memory configuration	8 GB
Memory size per slot	8 GB, 16 GB, and 32 GB
Memory configurations supported	• 8 GB: 1 x 8 GB, DDR5, 4400 MT/s, Non-ECC • 16 GB: 2 x 8 GB, DDR5, 4400 MT/s, Non-ECC, dual-channel • 16 GB: 1 x 16 GB, DDR5, 4400 MT/s, Non-ECC • 32 GB: 2 x 16 GB, DDR5, 4400 MT/s, Non-ECC, dual-channel • 32 GB: 4 x 8 GB, DDR5, 4000 MT/s, Non-ECC, dual-channel • 64 GB: 2 x 32 GB, DDR5, 4400 MT/s, Non-ECC, dual-channel • 64 GB: 4 x 16 GB, DDR5, 4000 MT/s, Non-ECC, dual-channel • 128 GB: 4 x 32 GB, DDR5, 3600 MT/s, Non-ECC, dual-channel • 16 GB: 1 x 16 GB, DDR5, 4400 MT/s, ECC • 32 GB: 2 x 16 GB, DDR5, 4400 MT/s, ECC, dual-channel • 64 GB: 2 x 32 GB, DDR5, 4400 MT/s, ECC, dual-channel • 64 GB: 4 x 16 GB, DDR5, 4000 MT/s, ECC, dual-channel • 128 GB: 4 x 32 GB, DDR5, 3600 MT/s, ECC, dual-channel **NOTE:** ECC memory is not supported on the Intel Core i3-14100 processor.

Memory matrix

The following table lists the memory configurations supported on your Precision 3680 Tower.

Table 5. Memory matrix

Configuration	Slot			
	DIMM1	DIMM2	DIMM3	DIMM4
8 GB DDR5	8 GB	N/A	N/A	N/A
16 GB DDR5	16 GB	N/A	N/A	N/A
16 GB DDR5	8 GB	8 GB	N/A	N/A
32 GB DDR5	16 GB	16 GB	N/A	N/A
64 GB DDR5	32 GB	32 GB	N/A	N/A
64 GB DDR5	16 GB	16 GB	16 GB	16 GB
128 GB DDR5	32 GB	32 GB	32 GB	32 GB

NOTE: 8 GB configuration available only for non-ECC memory.

External ports

The following table lists the external ports of your Precision 3680 Tower.

Table 6. External ports

Description	Values
Network port	• One RJ45 (1 GbE) Ethernet port • One RJ45 (2.5 GbE) Ethernet port (optional)
USB ports	Front: • One USB 3.2 Gen 1 (5 Gbps) port • One USB 3.2 Gen 1 (5 Gbps) port with PowerShare • One USB 3.2 Gen 2 (10 Gbps) Type-C port • One USB 3.2 Gen 2x2 (20 Gbps) Type-C port with PowerShare Rear: • Two USB 2.0 (480 Mbps) ports with SmartPower • Two USB 3.2 Gen 2 (10 Gbps) ports • Two USB 3.2 Gen 2 (10 Gbps) Type-C ports
Audio port	• Front: One Universal Audio port • Rear: One Audio line-out
Video port	• Two DisplayPort 1.4a HBR2 ports • One Optional Port (VGA, HDMI 2.0, DP++ 1.4a HBR3, USB 3.2 Gen 2 (10 Gbps) Type-C with DP-Alt mode) **NOTE:** Download and install the latest Intel Graphics driver from www.dell.com/support to enable multiple displays.
Media-card reader	One SD-card slot
Power-adapter port	N/A
Security-cable slot	One Kensington security-cable slot

Internal slots

The following table lists the internal slots of your Precision 3680 Tower.

Table 7. Internal slots

Description	Values
M.2	• One M.2 2230 slot for WiFi and Bluetooth card • Two M.2 2230/2280 slots (SSD0 and SSD1) for SSD • One M.2 2280 slot (SSD2) for SSD **NOTE:** SSD0 slot supports M.2 2230 and M.2 2280 SSDs by default. **NOTE:** SSD1 slot supports M.2 2230 and M.2 2280 SSDs by default. **NOTE:** SSD2 slot supports only M.2 2280 SSDs by default.

Table 7. Internal slots

Description	Values
	NOTE: To learn more about the features of different types of M.2 cards, search in the Knowledge Base Resource at www.dell.com/support.

Ethernet

The following table lists the wired Ethernet Local Area Network (LAN) specifications of your Precision 3680 Tower.

Table 8. Ethernet specifications

Description	Values
Model number	Intel I219-LM
Transfer rate	10/100/1000 Mbps

Wireless module

The following table lists the Wireless Local Area Network (WLAN) modules that are supported on your Precision 3680 Tower.

Table 9. Wireless module specifications

Description	Option one	Option two
Model number	Intel AX211	Qualcomm WCN6856-DBS
Transfer rate	2400 Mbps	Up to 3571 Mbps
Frequency bands supported	2.4 GHz/5 GHz/6 GHz **NOTE:** The 6 GHz frequency is supported on computers that are installed with the Windows 11 operating system only.	2.4 GHz/5 GHz/6 GHz **NOTE:** The 6 GHz frequency is supported on computers that are installed with the Windows 11 operating system only.
Wireless standards	• WiFi 802.11a/b/g • Wi-Fi 4 (WiFi 802.11n) • Wi-Fi 5 (WiFi 802.11ac) • Wi-Fi 6E (WiFi 802.11ax)	• WiFi 802.11a/b/g • Wi-Fi 4 (WiFi 802.11n) • Wi-Fi 5 (WiFi 802.11ac) • Wi-Fi 6E (WiFi 802.11ax)
Encryption	• 64-bit/128-bit WEP • AES-CCMP • TKIP	• 64-bit and 128-bit WEP • AES-CCMP • TKIP
Bluetooth wireless card	5.3	5.3
	NOTE: The version of the Bluetooth wireless card may vary depending on the operating system that is installed on your computer.	

Audio

The following table lists the audio specifications of your Precision 3680 Tower.

Table 10. Audio specifications

Description		Values
Audio controller		Realtek ALC3246-CG
Stereo conversion		24-bit DAC (Digital-to-Analog) and ADC (Analog-to-Digital)
Internal audio interface		Intel HDA (high-definition audio)
External audio interface		• Front: One Universal Audio port • Rear: One Audio line-out
Number of speakers		One (optional)
Internal-speaker amplifier		Integrated in ALC3246-CG (Class-D 2 W)
External volume controls		Keyboard shortcut controls
Speaker output:		
	Average speaker output	2 W
	Peak speaker output	2.2 W
Subwoofer output		Not supported
Microphone		Not supported

Storage

This section lists the storage options on your Precision 3680 Tower.

- M.2 SSD Boot + Optional M.2 SSDs – This configuration enables boot on M.2 NVMe SSD with up to three additional NVMe SSDs. No SATA hard drive are configured in this option.
- M.2 SSD Boot + Optional M.2 SSD + 3.5-inch SATA hard drive + Optional 3.5-inch SATA hard drive – This configuration enables boot on M.2 NVMe SSD with up to three additional NVMe SSDs, one 3.5-inch SATA hard drive and one additional 3.5-inch SATA hard drive.
- M.2 SSD Boot + Optional SSDs + Front-accessible 3.5-inch SATA hard drive - This configuration enabled boot on M.2 NVMe SSD with up to three additional NVMe SSDs, one front-accessible 3.5-inch SATA hard drive + Two 3.5-inch SATA hard drive (internal)
- RAID 0/1/5 is available.

NOTE: M.2 NVMe SSD cannot build RAID disk with any SATA drive.

NOTE: Fourth NVMe SSD is supported by UltraSpeed Duo M.2 PCIe card.

NOTE: Precision 3680 Tower motherboard can support up to two M.2 2230 or up to three M.2 2280 NVMe SSDs.

Table 11. Storage specifications

Storage type	Interface type	Capacity
3.5-inch, 5400 RPM, hard drive	SATA 3.0	4 TB
3.5-inch, 7200 RPM, hard drive	SATA 3.0	Up to 2 TB

Table 11. Storage specifications (continued)

Storage type	Interface type	Capacity
3.5-inch, 7200 RPM, Enterprise hard drive (optional)	SATA 3.0	Up to 8 TB
M.2 2230 SSD	Gen 4 PCIe NVMe, Class 35	256 GB
M.2 2280 SSD	Gen 4 PCIe NVMe, Class 40	Up to 4 TB
M.2 2280 SSD Self-Encrypting	Gen 4 PCIe NVMe	Up to 1 TB

Storage matrix

The following table lists the storage configurations that are supported on your Precision 3680 Tower.

Table 12. Storage matrix

Configuration group	Storage			Bootable Device	1st M.2 PCIe NVMe SSD CPU lane	2nd M.2 PCIe NVMe SSD PCH lane	3rd M.2 PCIe NVMe SSD PCH lane	CFI only 3rd NVMe SSD in QX118 slim line slot	Ultra-Speed NVMe SSD Zoom AIC	3.5-inch hard drive	3.5-inch hard drive	3.5-inch hard drive	3.5-inch hard drive	ODD
	PCIe lane connection and SSD location							PCH Gen3 Slot 3						
	QX118/ODD Physical Location				CPU Gen4 Slot 1	PCH Gen4 Slot 2	PCH Gen3 Slot 3	5.25-inch front bay slimline	PCH Gen3 Slot 4					
C1	Internal M.2 SSD Boot (No SATA hard drive)			M.2 SSD	Y1 (boot)	Y2 (optional)	Y3 (optional)	N/A	Y4 (optional)	N/A	N/A	N/A	N/A	Y (optional)
C1	Internal M.2 SSD Boot (No SATA hard drive)			M.2 SSD	Y (boot) RAID 0 or 1	RAID 0 or 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Y (optional)
C1	Internal M.2 SSD Boot (No SATA hard drive)			M.2 SSD	Y (boot) RAID 0 or 5	RAID 0 or 5	RAID 0 or 5	N/A	N/A	N/A	N/A	N/A	N/A	Y (optional)
C1	Internal M.2 SSD Boot (No SATA hard drive)			M.2 SSD	Y (boot) RAID 0 or 5	RAID 0 or 5	RAID 0 or 5	N/A	RAID 0 or 5	N/A	N/A	N/A	N/A	Y (optional)
C1	Internal M.2 SSD Boot (No SATA hard drive)			M.2 SSD	Y1 (boot)	Y2 (optional)	N/A	Y3 (optional)	Y4 (optional)	N/A	N/A	N/A	N/A	Y (optional)
C2	Internal M.2 SSD Boot	Optional SSDs	3.5-inch hard drives	M.2 SSD	Y1 (boot)	Y2 (optional)	Y3 (optional)	N/A	Y4 (optional)	Y1 Bay 1	Y2 (optional) Bay 2	N/A	N/A	Y (optional)

Table 12. Storage matrix (continued)

Configuration group	Storage			Bootable Device	1st M.2 PCIe NVMe SSD CPU lane	2nd M.2 PCIe NVMe SSD PCH lane	3rd M.2 PCIe NVMe SSD PCH lane	CFI only 3rd NVMe SSD in QX118 slim line slot	Ultra-Speed NVMe SSD Zoom AIC	3.5-inch hard drive	3.5-inch hard drive	3.5-inch hard drive	3.5-inch hard drive	ODD
	PCIe lane connection and SSD location							PCH Gen3 Slot 3						
	QX118/ODD Physical Location				CPU Gen4 Slot 1	PCH Gen4 Slot 2	PCH Gen3 Slot 3	5.25-inch front bay slimline	PCH Gen3 Slot 4					
C2	Internal M.2 SSD Boot	Optional SSDs	3.5-inch hard drives	M.2 SSD	Y (boot) RAID 0 or 1	RAID 0 or 1	N/A	N/A	N/A	Y1 Bay 1	Y2 (optional) Bay 2	N/A	N/A	Y (optional)
C2	Internal M.2 SSD Boot	Optional SSDs	3.5-inch hard drives	M.2 SSD	Y (boot) RAID 0 or 5	RAID 0 or 5	RAID 0 or 5	N/A	N/A	Y1 Bay 1	Y2 (optional) Bay 2	N/A	N/A	Y (optional)
C2	Internal M.2 SSD Boot	Optional SSDs	3.5-inch hard drives	M.2 SSD	Y1 (boot)	Y2 (optional)	N/A	Y3 (optional)	Y4 (optional)	Y1 Bay 1	Y2 (optional) Bay 2	N/A	N/A	Y (optional)
C2	Internal M.2 SSD Boot	Optional SSDs	3.5-inch hard drives	M.2 SSD	Y1 (boot)	Y2 (optional)	Y3 (optional)	N/A	Y4 (optional)	RAID 0 or 1 Bay 1	RAID 0 or 1 Bay 2	N/A	N/A	Y (optional)
C3	Internal M.2 SSD Boot	Optional SSDs	Front removable 3.5-inch hard drives	M.2 SSD	Y1 (boot)	Y2 (optional)	Y3 (optional)	N/A	Y4 (optional)	Y2 (optional) Bay 1	Y3 (optional) Bay 2	N/A	Y1 Front Bay 3	Y (optional)
C4	No storage drive			None	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

RAID (Redundant Array of Independent Disks)

For optimal performance when configuring drives as a RAID volume, Dell Technologies recommends drive models that are identical.

NOTE: RAID is not supported on Intel Optane configurations.

RAID 0 (Striped, Performance) volumes benefit from higher performance when drives are matched because the data is split across multiple drives: any I/O operations with block sizes larger than the stripe size splits the I/O and become constrained by the slowest of the drives. For RAID 0 I/O operations where block sizes are smaller than the stripe size, whichever drive the I/O operation targets determine the performance, which increases variability and results in inconsistent latencies. This variability is particularly pronounced for write operations, and it can be problematic for applications that are latency sensitive. One such example of this is any application that performs thousands of random writes per second in small block sizes.

RAID 1 (Mirrored, Data Protection) volumes benefit from higher performance when drives are matched because the data is mirrored across multiple drives: all I/O operations must be performed identically to both drives, thus variations in drive performance when the models are different, results in the I/O operations completing only as fast as the slowest drive. While this does not suffer the variable latency issue in small random I/O operations as with RAID 0 across heterogeneous drives, the impact is nonetheless large because the higher performing drive becomes limited in all I/O types. One of the worst examples of constrained performance here is when using unbuffered I/O. To ensure that writes are fully committed to nonvolatile regions of the RAID volume, unbuffered I/O bypasses cache (for example by using the Force Unit Access bit in the NVMe protocol) and the I/O operation will not complete until all the drives in the RAID volume have completed the request to commit the data. This kind of I/O operation completely negates any advantage of a higher performing drive in the volume.

RAID 5 provides better performance by using data striping and protection through parity. The disadvantage of RAID 5 is that rebuilding a large RAID 5 volume requires a longer period of time. The following are the key features of RAID 5:

- Requires at least three drives.
- Data is available even if ones of the drives present in the volume fails. The failed drive must be replaced, and the volume must be rebuilt for the data to be accessible.
- The total capacity is N-1, where N is the total capacity of the drives in the array. For example, if you use three 1 TB drives in a RAID 5 array, the total volume size is 2 TB.

Care must be taken to match not only the drive vendor, capacity, and class, but also the specific model. Drives from the same vendor, with the same capacity, and even within the same class, can have different performance characteristics for certain types of I/O operations. Thus, matching by model ensures that the RAID volume is comprised of a homogeneous array of drives that deliver all the benefits of a RAID volume without incurring the additional penalties when one or more drives in the volume are lower performing.

Precision 3680 Tower supports RAID with more than one hard drive configuration.

Media-card reader

The following table lists the media cards that are supported on your Precision 3680 Tower.

Table 13. Media-card reader specifications

Description	Values
Media-card type	One SD-card slot **NOTE:** The SD-card reader maybe from different manufacturers and will require specific drivers to be installed.
Media-cards supported	• Secure Digital (SD) • Secure Digital High Capacity (SDHC) • Secure Digital Extended Capacity (SDXC)
NOTE: The maximum capacity supported by the media-card reader varies depending on the standard of the media card that is installed on your computer.	

Power ratings

The following table lists the power rating specifications of Precision 3680 Tower.

Table 14. Power ratings

Description	Option one	Option two	Option three
Type	300 W Platinum internal power supply unit (80PLUS Platinum Certified)	500 W Platinum internal power supply unit (80PLUS Platinum Certified)	1000 W Platinum internal power supply unit (80PLUS Platinum Certified)
Input voltage	90 VAC–264 VAC	90 VAC–264 VAC	90 VAC–264 VAC
Input frequency	47 Hz-63 Hz	47 Hz–63 Hz	47 Hz–63 Hz

Table 14. Power ratings (continued)

Description	Option one	Option two	Option three
Input current (maximum)	• 4.2 A	• 7 A	13.6 A
Output current (continuous)	• 12 VA/18 A • 12 VB/18 A Standby mode: • 12 VA/1.5 A • 12 VB/3.3 A	• 12 VA/18 A • 12 VB/18 A • 12 VC/18 A Standby mode: • 12 VA/1.5 A • 12 VB/3.3 A • 12 VC/0 A	• 12 VA/36 A • 12 VB/27 A • 12 VC/36 A Standby mode: • 12 VA/1.5 A • 12 VB/5 A • 12 VC/0 A
Rated output voltage	• 12 VA • 12 VB	• 12 VA • 12 VB • 12 VC	• 12 VA • 12 VB • 12 VC
Temperature range:			
Operating	5°C to 45°C (41°F to 113°F)	5°C to 45°C (41°F to 113°F)	5°C to 45°C (41°F to 113°F)
Storage	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)

Power supply connector

The following table lists the Power supply connector specifications of your Precision 3680 Tower.

Table 15. Power supply connector

Power supply unit	Connectors
300W (80 PLUS Platinum)	• Two 4-pin connectors for the processor • One 8-pin connector for the system board
500W (80 PLUS Platinum)	• Two 4-pin connectors for the processor • One 8-pin connector for the system board • One 6-pin and one 2 + 6-pin connectors for graphic card
1000W (80 PLUS Platinum)	• Two 4-pin connectors for the processor • One 8-pin connector for the system board • Two 6-pin and two 2 + 6-pin connectors for the graphic card

NOTE: This workstation uses high wattage power supply unit and has to be connected to a Power Distribution Unit (PDU) always for protection of equipment.

GPU—Integrated

The following table lists the specifications of the integrated Graphics Processing Unit (GPU) supported by your Precision 3680 Tower.

Table 16. GPU—Integrated

Controller	Memory size	Processor
Intel UHD Graphics 730	Shared system memory	14th Gen Intel Core i3-14100

Table 16. GPU—Integrated (continued)

Controller	Memory size	Processor
Intel UHD Graphics 770	Shared system memory	14th Gen Intel Core i5-14500, i5-14600, i5-14600K, i7-14700, i7-14700K, i9-14900, and i9-14900K processors

Multiple display support matrix

The following table lists the multiple display support matrix for your Precision 3680 Tower.

Table 17. Multiple display support matrix

Description	Option one	Option two
Integrated Graphics Card	Intel UHD Graphics 730	Intel UHD Graphics 770
Optional Module	VGA, HDMI 2.0, DP++ 1.4a HBR3, USB 3.2 Gen 2 (10 Gbps) Type-C with DP-Alt mode	VGA, HDMI 2.0, DP++ 1.4a HBR3, USB 3.2 Gen 2 (10 Gbps) Type-C with DP-Alt mode
Supported 4K Displays	DP1.4a HBR2, 4096 x 2304 @60 Hz	DP1.4a HBR2, 4096 x 2304 @60 Hz
Supported 5K Displays	5K tiled resolution (5120 x 2880) support on DP panels. **NOTE:** Requires two DP cables that are driven through two separate DDIs from the source, and using DP-SST (Single Stream Transport) mechanism.	5K tiled resolution (5120 x 2880) support on DP panels. **NOTE:** Requires two DP cables that are driven through two separate DDIs from the source, and using DP-SST (Single Stream Transport) mechanism.

GPU—Discrete

The following table lists the specifications of the discrete Graphics Processing Unit (GPU) supported by your Precision 3680 Tower.

Table 18. GPU—Discrete

Controller	Memory size	Memory type
NVIDIA RTX 6000 Ada Generation	48 GB	GDDR6
NVIDIA RTX 5000 Ada Generation	24 GB	GDDR6
NVIDIA RTX 4500 Ada Generation	24 GB	GDDR6
NVIDIA RTX 4000 Ada Generation	20 GB	GDDR6
NVIDIA RTX 2000 Ada Generation	12 GB	GDDR6
NVIDIA T1000	8 GB	GDDR6
NVIDIA T1000	4 GB	GDDR6
NVIDIA T400	4 GB	GDDR6
NVIDIA GeForce RTX 4090	24 GB	GDDR6X
NVIDIA GeForce RTX 4090D	24 GB	GDDR6X

Table 18. GPU—Discrete (continued)

Controller	Memory size	Memory type
NVIDIA GeForce RTX 4080 Super	16 GB	GDDR6X
NVIDIA GeForce RTX 4070	12 GB	GDDR6
NVIDIA GeForce RTX 4060	8 GB	GDDR6
AMD Radeon Pro W7900	48 GB	GDDR6
AMD Radeon Pro W7600	8 GB	GDDR6
AMD Radeon Pro W7500	8 GB	GDDR6
AMD Radeon Pro W6400	4 GB	GDDR6
AMD Radeon Pro W6300	2 GB	GDDR6

Video port resolution

The following table lists the video port resolution for your Precision 3680 Tower.

Table 19. Video port resolution

Graphics card	Video ports	Maximum supported resolution
NVIDIA RTX 6000 Ada Generation	Four DP 1.4 ports	7680 x 4320 @24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC **NOTE:** DisplayPort 1.2 Certified, DisplayPort 1.3 and 1.4 ready
NVIDIA RTX 5000 Ada Generation	Four DP 1.4 ports	7680 x 4320 @24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC **NOTE:** DisplayPort 1.2 Certified, DisplayPort 1.3 and 1.4 ready
NVIDIA RTX 4500 Ada Generation	Four DP 1.4 ports	7680 x 4320 @24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC **NOTE:** DisplayPort 1.2 Certified, DisplayPort 1.3 and 1.4 ready
NVIDIA RTX 4000 Ada Generation	Four DP 1.4 ports	7680 x 4320 @24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC **NOTE:** DisplayPort 1.2 Certified, DisplayPort 1.3 and 1.4 ready
NVIDIA RTX 2000 Ada Generation	Four mini-DP 1.4 ports	7680 x 4320 @24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC **NOTE:** DisplayPort 1.2 Certified, DisplayPort 1.3 and 1.4 ready
NVIDIA T1000	Four mini-DP 1.4 ports	7680 x 4320 @24 bpp at 120 Hz **NOTE:** Requires three DPs 1.4a and DSC

Table 19. Video port resolution (continued)

Graphics card	Video ports	Maximum supported resolution
		NOTE: DisplayPort 1.2 Certified, DisplayPort 1.3 and 1.4 ready
NVIDIA T1000	Four mini-DP 1.4 ports	7680 x 4320 @24 bpp at 120 Hz **NOTE:** Requires three DPs 1.4a and DSC **NOTE:** DisplayPort 1.2 Certified, DisplayPort 1.3 and 1.4 ready
NVIDIA T400	Three mini-DP 1.4 ports	7680 x 4320 @24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC **NOTE:** DisplayPort 1.2 Certified, DisplayPort 1.3 and 1.4 ready
NVIDIA GeForce RTX 4090	• Three DisplayPort 1.4a ports • One HDMI 2.1 port	7680 x 4320 @60 Hz
NVIDIA GeForce RTX 4090D	• Three DisplayPort 1.4a ports • One HDMI 2.1 port	7680 x 4320 @60 Hz
NVIDIA GeForce RTX 4080 Super	• Three DisplayPort 1.4a ports • One HDMI 2.1 port	7680 x 4320 @60 Hz
NVIDIA GeForce RTX 4070	• Three DisplayPort 1.4a ports • One HDMI 2.1 port	7680 x 4320 @60 Hz
NVIDIA GeForce RTX 4060	• Three DisplayPort 1.4a ports • One HDMI 2.1 port	7680 x 4320 @60 Hz
AMD Radeon Pro W7900	• Three DisplayPort 2.1 ports • One enhanced mini-DP 2.1 port	7680 x 4320 @60 Hz
AMD Radeon Pro W7600	Four DP 2.1 ports	7680 x 4320 @60 Hz
AMD Radeon Pro W7500	Four DP 2.1 ports	7680 x 4320 @60 Hz
AMD Radeon Pro W6400	Two DP 1.4 ports	7680 x 4320 @60 Hz
AMD Radeon Pro W6300	Two DP 1.4 ports	7680 x 4320 @60 Hz

Hardware security

The following table lists the hardware security of your Precision 3680 Tower.

Table 20. Hardware security

Hardware security
Kensington security-cable slot
Padlock loop
Lockable cable cover (optional)
Lockable Bezel and Key for Front Accessible SATA hard drive (optional) **NOTE:** Included with front-accessible storage configurations

Table 20. Hardware security (continued)

Hardware security
Chassis intrusion switch
Trusted Platform Module TPM 2.0 (FIPs 140-2 certificate)
Intel Integrated TPM

Environmental

The following table lists the environmental specifications of your Precision 3680 Tower.

Table 21. Environmental

Feature	Values
Recyclable packaging	Yes
BFR/PVC—free	No
Vertical orientation packaging support	Yes
MultiPack packaging	Yes (Except Brazil)
Energy-Efficient Power Supply	Standard
ENV0424 compliant	Yes

NOTE: Wood-based fiber packaging contains a minimum of 35% recycled content by total weight of wood-based fiber. Packaging that contains without wood-based fiber can be claimed as Not Applicable. The anticipated required criteria for EPEAT 2018.

Regulatory compliance

The following table lists the regulatory compliance of your Precision 3680 Tower.

Table 22. Regulatory compliance

Regulatory compliance
Product Safety, EMC and Environmental Datasheets
Dell Regulatory Compliance Home page
Responsible Business Alliance Policy

Operating and storage environment

This table lists the operating and storage specifications of your Precision 3680 Tower.

Airborne contaminant level: G1 as defined by ISA-S71.04-1985

Table 23. Computer environment

Description	Operating	Storage
Temperature range	10°C-35°C (50°F-95°F)	-40°C-65°C (-40°F-149°F)

Table 23. Computer environment (continued)

Description	Operating	Storage
Relative humidity (maximum)	20% to 85% (non-condensing) (non-condensing, Max dew point temperature = 26°C)	0% to 95% (non-condensing) 5% to 95% (non-condensing, Max dew point temperature = 33°C)
Vibration (maximum)*	0.52 GRMS random at 5 Hz-350 Hz	2.0 GRMS random at 5 Hz-500 Hz
Shock (maximum)	40G Bottom half-sine pulse (2.5 ms)	105G half-sine pulse (2.5 ms)
Altitude range	-15.2 m to 3048 m (4.64 ft to 10,000 ft)	-15.2 m to 10,668 m (4.64 ft to 35,000 ft)
CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.		

* Measured using a random vibration spectrum that simulates the user environment.

† Measured using a 2 ms half-sine pulse.

3

Engineering specifications

Physical system dimensions

The following table provides the physical dimensions of your Precision 3680 Tower.

NOTE: System weight and shipping weight are based on a typical configuration and may vary based on your system configuration. A typical configuration includes integrated graphics, one hard drive, and one optical drive.

Table 24. Physical system dimensions

Feature	Values
Chassis volume	26.80 L
Chassis Weight	• Minimum: 7.58 kg (16.71 lb) • Maximum: 16.05 kg (35.38 lb)
Chassis dimensions	
Height	372.90 mm (14.68 in.)
Width	173.00 mm (6.81 in.)
Depth	420.20 mm (16.54 in.)
Shipping Weight (includes packaging materials)	• Minimum: 10.29 kg (22.68 lb) • Maximum: 18.86 kg (41.57 lb)
Packaging dimensions	
Height	546 mm (21.50 in.)
Width	492 mm (19.37 in.)
Depth	359 mm (14.13 in.)

Add-in card dimensions

System board connector maximum add-in card allowable dimensions

Table 25. System board connector maximum add-in card allowable dimensions

Feature	Values
M.2 connector	• Two M.2 2230/2280 PCIe Gen4 x4 • One M.2 2280 PCIe Gen3 x4
Voltage	3.3 V
Power	11.55W
PCIe x16 connector	One PCIe x16 slot
Voltage	3.3 V/12 V

Table 25. System board connector maximum add-in card allowable dimensions (continued)

Feature	Values
Height	4.37 in. (111.15 mm)
Length	• 12.28 in. (312 mm) (without an extender) • 12.36 in. (314 mm) (with an extender)
Maximum wattage	• 75W/300W PSU • 225W/500W PSU • 450W/1000W PSU
PCIe x4 connector	• One PCIe Gen3 x4 Closed-end • One PCIe Gen4 x4 Open end
Voltage	3.3 V/12 V
Height	4.37 in. (111.15 mm)
Length	• Slot 1: 6.60 in. (167.65 mm) • Slot 4: 12.28 in. (312 mm) (without an extender) • Slot 4: 12.36 in. (314 mm) (with an extender)
Maximum wattage	PCIe Gen3 x4 Closed-end • 10W for 300W/500W/1000W PSU PCIe Gen4 x4 Open end • 25W/300W PSU • 25W*/500W PSU (up to 125W if total slots <=250W) • Blocked by 450W graphics card/1000W PSU (up to 125W if total slots <= 460W)

PCIe lane details

Table 26. PCIe lane details

Expansion Slot Type	Voltage	Maximum Height	Maximum Length	Maximum Wattage	Cards supported
PCIe x16 connector	3.3 V/12 V	110.98 mm (4.37 in.)	266.70 mm (10.50 in.)	• 75W/300W PSU • 225W/500W PSU • 450W/1000W PSU	Yes
PCIe x4 connector	3.3 V/12 V	111.25 mm (4.38 in.)	167.64 mm (6.60 in.)	Slot 1 • 10W for 300W/500W/1000W PSU Slot 4 • 25W/300W PSU • 25W*/500W PSU (up to 125W if total slots <=250W) • Blocked by 450W graphics card	Yes

PCIe add-in cards

Serial port PCIe card, Low Profile

Table 27. Serial port PCIe card, Low Profile

Feature	Values
Interface	• RS-232 • IEEE1284
Data rates	• 50 bps ~115.2 Kbps (serial) • maximum 1.8 Mbps (parallel)
Controller details	
Controller	SUNIX SUN2212 (16C950 UART compatible)
Controller bus architecture	• PCI Express 2.0 • Single-Lane (x1)
Driver support	Windows 10 (64-bit)
Half-height serial add-in dongle	Optional
Environment	
Operating temperature	0°C to 60°C (32°F–140°F)
Operating humidity	5% to 95% RH
Storage temperature	-20°C to 85°C (-4°F to 185°F)

UltraSpeed Duo M.2 PCIe card

The following table lists the UltraSpeed Duo M.2 PCIe card specifications, also known as Zoom 2 card.

Table 28. UltraSpeed Duo M.2 PCIe card (Zoom 2 card) specifications

Feature	Values
Interface	PCIe
Data rates	PCIe Gen 4
Environment	
Operating temperature	0°C to 60°C (32°F to 140°F)
Operating humidity	5% to 95% RH
Storage temperature	-20°C to 70°C (-4°F to 158°F)

Thunderbolt 4 PCIe Add-In Card

The following table lists the Thunderbolt 4 PCIe Add-In Card specifications.

Table 29. Thunderbolt 4 PCIe Add-In Card

Features	Values
Design	LP HL PWA with PCIe 4.0 x4 Full height Bracket option
Number of ports	• 2x Type-C I/O • 2x DP input

Table 29. Thunderbolt 4 PCIe Add-In Card (continued)

Features	Values
	• GPIO (requires side-band cable)
Feature	• 40 Gb/s (2x 20) with TB4 and USB 4.0 • Auto switch/shift to Legacy TB/USB (support backwards compatibility) • DP1.4a HBR3 Out (DP-MF and DP-alt) two streams • DP Tunnel 32 Gb/s 2 Streams, USB3.0 Tunnel 10 Gb/s • Hub Support, TB Networking, Universal Cable
Power	• Upper Port - 5 V@3 A (TB + Power Delivery Icon) • Lower Port - 5 V@1.5 A (TB Icon Only)
Drivers	• Windows 10 and Windows 11 • Red Hat Enterprise Linux • Ubuntu
Cables	• 1x Sideband cable (system to TBT4 card) • 2x DP cables x24 cm Graphics loopback (DP connector from GFX card to TBT4 card)
Manuals	• Product Specification Sheet and User Guide • Online Post Drivers and Docs
Certificates	• Intel Thunderbolt Validation • WHQL • USB 4.0 40 Gb/s
Specifications	• Dell standard reliability • Behavior • Materials

Dust Filter

This topic illustrates the optional dust filter attachments for the Precision 3680 Tower.

Dust Filter

Table 30. Dust filter specifications

Feature	Value
Mesh count (cm/inch)	40/100
Weave	PW
Silk diameter (cm)	0.0055
Open area (%)	80
Thickness (cm)	0.01
Remark	PET

Ethernet

Intel Ethernet Connection i219-LM

The following table lists the i219-LM specifications.

Table 31. Intel Ethernet Connection i219-LM specifications

Feature	Values
External connector type	RJ45
Data rate	10/100/1000 Mbps
Controller Details	
Controller bus architecture	PCI Express base specification revision 1.1
Integrated memory	Yes
Data transfer mode	Yes (Bus-Master DMA)
Power consumption (Full operation per data rate connection speed)	542 mW (Max)
Power consumption (Standby operation)	76 mW (Max)
IEEE standards compliance	802.3
Hardware certifications	N/A
Boot ROM support	EEPROM (Located in SPI)
Network Transfer Mode	
Network transfer rate	10 Mb (full/half-duplex)
10BASE-T (full-duplex) 20 Mbps	100 Mb (full/half-duplex)
100BASE-TX (half-duplex) 100 Mbps	1000 Mb (full-duplex)
Environmental	
Operating temperature range	0°C–85°C (32°F–185°F)
Operating humidity	20% to 80% (non condensing)
Operating system driver Support	• Windows (x64) • Ubuntu • Neokylin
Manageability	• Wakeup On LAN • PXE 2.1
Management capabilities alerting	Optional Intel Standard Manageability (must be made at time of purchase).

This term does not connote an actual operating speed of 1 Gb/sec. For high-speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required.

Intel Ethernet Connection i226

The following table lists the i226 specifications.

Table 32. Intel Ethernet Connection i226 specifications

Feature	Values
External connector type	RJ45
Data rate	10/100/1000/2500 Mbps
Adapter Features	
Bus Type/Bus Width	PCI Express 3.1 x 1
Interrupt levels	INTA, MSI, MSI-X
Hardware certifications	FCC B, UL, CE, VCCI, BSMI, CTICK, KCC
Controller	Intel Ethernet Controller I226
Bracket	Full-height bracket installed.
Wake-on-LAN	Supported
Power Consumption	
Link Speed/Traffic	Typical power
10 Mbps	0.5W
100 Mbps	0.6W
1 Gbe	0.9W
2.5 Gbe	1.4W
Environmental	
Operating temperature range	0°C–55°C (32°F–131°F)
Storage temperature range	-40°C–70°C (-40°F–158°F)
Storage humidity	Maximum 90% non-condensing relative humidity at 35°C
Physical Dimensions	
Dimensions	68.70 mm x 65.30 mm

Wireless module

Intel AX211, 2x2 MIMO, 2400 Mbps, 2.4/5/6 GHz, Wi-Fi 6E (WiFi 802.11ax), Bluetooth 5.3

The following table lists the Intel AX211 specifications.

NOTE: Wi-Fi 6 is supported in regions where Wi-Fi 6E is unavailable.

Table 33. Intel AX211 specifications

Description	Specifications
Host interface	CNVio
Network standard	IEEE 802.11a/b/g/n/ac/ax, 160 MHz channel use, MU-MIMO, new 6 GHz band

Table 33. Intel AX211 specifications (continued)

Description	Specifications
Wi-Fi Alliance certifications	Wi-Fi CERTIFIED 6, Wi-Fi CERTIFIED a/b/g/n/ac,WMM, WMM-Power Save, WPA2, WPA3, WPS, PMF,Wi-Fi Direct, Wi-Fi Agile Multiband **NOTE:** Other names and brands may be claimed as the property of others.
Operating frequency bands	• 2.4 GHz • 5 GHz • 6 GHz
Data rate	• 2.4 GHz 40M: Up to 574 Mbps • 5/6 GHz 80M: Up to 1.2 Gbps • 5/6 GHz 160M: Up to 2.4 Gbps
Power consumption	Optimized power modes (sleep states) reduce power consumption during periods of inactivity
Security methods	• WPA2 Personal and Enterprise • WPA3
Authentication protocols	• 802.1X EAP-TLS • EAP-TTLS/MSCHAPv2 • PEAPv0 -MSCHAPv2 (EAP-SIM, EAP-AKA, EAP-AKA)
Encryption	• 64-bit and 128-bit WEP • TKIP • 128-bit AES-CCMP • 256-bit AES-GCMP
Product safety	• UL • C-UL • CB (IEC60950-1)
Management capabilities alerting	Support for Intel AMT
Government compliance	• FIPS 140-2 • FISMA
Client utility	Intel PRO/Set wireless software v22 and later
Antenna diversity	Supported
Radio On/Off	Supported
Roaming	Support seamless roaming between access points
Wake on wireless	Supported
Wireless display	Native Miracast support by Windows
Wireless PAN standard	• Dual Mode Bluetooth 5.3 • BLE
Bluetooth data rates	Up to 3 Mbps
Bluetooth operating frequency bands	2.4 GHz
Bluetooth profiles supported	Support for Microsoft Inbox Bluetooth Wireless Card profiles in Windows
Bluetooth data encryption	128-bit encryption
Bluetooth output power	Power class 1

Table 33. Intel AX211 specifications (continued)

Description	Specifications
Operating temperature	0°C to + 50°C (Full performance at shield temperatures up to 80°C)
Storage temperature	-40°C to +70°C
Humidity	Up to 90% RH non-condensing (at temperatures of 25°C to 35°C)

Qualcomm WCN6856, 2x2, Wi-Fi 6E DBS, Bluetooth 5.3

The following table lists the Intel Qualcomm WCN6856 specifications.

Table 34. Qualcomm WCN6856 specifications

Description	Specifications
Host interface	• Wi-Fi - PCIe • Bluetooth - USB
Network standard	IEEE 802.11a/b/g/n/ac/ax, 160MHz channel use, MU-MIMO
Wi-Fi Alliance certifications	• 802.11 a/b/g/n/ac R2/ax R2 • WMM • WMM-PS • WPA3 • WPS2 • PMF • WFD • Miracast • Passpoint R2 • Voice Personal
Operating frequency bands	• 2.4 GHz • 5 GHz • 6 GHz
Data rate	• 2.4 GHz 40M: Up to 691 Mbps • 5 GHz 160M: Up to 2.88 Gbps • 6 GHz 160M: Up to 2.88 Gbps • DBS mode • 2.4 GHz 40M + 5/6 GHz 160M: Up to 3.57 Gbps
Power consumption	Optimized power modes (sleep states) reduce power consumption during periods of inactivity
Authentication	• WPA and WPA2 Personal and Enterprise • WPA3 Personal and Enterprise
Authentication protocols	• 802.1X EAP-TLS • EAP-TTLS/MSCHAPv2 • PEAPv0-MSCHAPv2 (EAP-SIM, EAP-AKA, EAP-AKA)
Encryption	• 64-bit and 128-bit WEP • TKIP • 128-bit AES-CCMP • 256-bit AES-GCMP
Product safety	• UL • C-UL

Table 34. Qualcomm WCN6856 specifications (continued)

Description	Specifications
	• CB (IEC60950-1)
Government compliance	• FIPS 140-2 • FISMA
Client utility	Intel PRO/Set wireless software v22 and later
Antenna diversity	Supported
Radio On/Off	Supported
Roaming	Support seamless roaming between access points
Wake on wireless	Supported
Wireless display	Native Miracast support by Windows
Wireless PAN standard	• Dual Mode Bluetooth 5.3 • BLE
Bluetooth data rates	Up to 3 Mbps
Bluetooth operating frequency bands	2.4 GHz
Bluetooth profiles supported	Support for Microsoft Inbox Bluetooth profiles in Windows
Bluetooth data encryption	128-bit encryption
Bluetooth output power	Power Class 1
Operating temperature	0°C to + 50°C (Full performance at shield temperatures up to 80°C)
Storage temperature	-40°C to +70°C
Humidity	Up to 90% RH non-condensing (at temperatures of 25° C to 35° C)

GPU—Integrated

Intel UHD Graphics 730

Table 35. Intel UHD Graphics 730 specifications

Intel UHD Graphics 730	
Bus Type	Integrated
Memory Type	UMA
Graphics Level	i3: GT1 (UHD)
Overlay Planes	Yes
Operating Systems Graphics/ Video API Support	DirectX 12, OpenGL (4.6)
Supports maximum resolution	• On board integrated DP1.4 (HBR2)(4096 x 2304 @ 60 Hz) • Option card with VGA (1920 x 1200 @ 60 Hz) • Option card with DP1.4 (HBR3) (5120 x 3200 @ 60 Hz), (7680 × 4320 @ 60 Hz HDR with discrete graphics)

Table 35. Intel UHD Graphics 730 specifications (continued)

Intel UHD Graphics 730		
		• Option card with HDMI 2.0 (4096 x 2160 @ 60 Hz) • Option card with Type-C (5120 x 3200 @ 60 Hz), (7680 × 4320 @ 60 Hz HDR with discrete graphics)
Number of displays supported		Up to four displays are supported
Multiple Display Supports	2 displays	• On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + On board integrated DP1.4 (4096x2304 @ 60 Hz) • On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + Option card with VGA (1920 x 1200 @ 60 Hz) • On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + Option card with DP1.4 (5120 x 3200 @ 60 Hz) • On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + Option card with HDMI 2.0 (4096 x 2160 @ 60 Hz) • On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + Option card with Type-C (5120 x 3200 @ 60 Hz)
	3 displays	• On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + Option card with VGA (1920 x 1200 @ 60 Hz) • On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + On board integrated DP1.4(4096 x 2304 @ 60 Hz) + Option card with DP1.4 (5120 x 3200 @ 60 Hz) • On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + On board integrated DP1.4(4096 x 2304 @ 60 Hz) + Option card with HDMI 2.0 (4096 x 2160 @ 60 Hz) • On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + Option card with Type-C (5120 x 3200 @ 60 Hz)
External connectors		• Two system-board integrated DP1.4 HBR2 + One video option (VGA/DP1.4 HBR3/ HDMI2.0/USB 3.2 Gen 2 type-C Alt-mode)

Intel UHD Graphics 770

Table 36. Intel UHD Graphics 770 specifications

Intel UHD Graphics 770		
Bus Type		Integrated
Memory Type		UMA
Graphics Level		i5/i7/i9: GT1 (UHD)
Overlay Planes		Yes
Operating Systems Graphics/ Video API Support		DirectX 12, OpenGL (4.6)
Supports maximum resolution		• On board integrated DP1.4 (HBR2)(4096 x 2304 @ 60 Hz) • Option card with VGA (1920 x 1200 @ 60 Hz) • Option card with DP1.4 (HBR3) (5120 x 3200 @ 60 Hz), (7680 × 4320 @ 60 Hz HDR with discrete graphics) • Option card with HDMI 2.0 (4096 x 2160 @ 60 Hz) • Option card with Type-C (5120 x 3200 @ 60 Hz), (7680 × 4320 @ 60 Hz HDR with discrete graphics)
Number of displays supported		Up to four displays are supported
Multiple Display Supports	2 displays	• On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + On board integrated DP1.4(4096 x 2304 @ 60 Hz) • On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + Option card with VGA (1920 x 1200 @ 60 Hz) • On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + Option card with DP1.4 (5120 x 3200 @ 60 Hz) • On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + Option card with HDMI 2.0 (4096 x 2160 @ 60 Hz) • On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + Option card with Type-C (5120 x 3200 @ 60 Hz)
	3 displays	• On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + On board integrated DP1.4(4096 x 2304 @ 60 Hz) + Option card with VGA (1920 x 1200 @ 60 Hz) • On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + On board integrated DP1.4(4096 x 2304 @ 60 Hz) + Option card

Table 36. Intel UHD Graphics 770 specifications (continued)

Intel UHD Graphics 770		
		with DP1.4 (5120 x 3200 @ 60 Hz) • On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + On board integrated DP1.4(4096 x 2304 @ 60 Hz) + Option card with HDMI 2.0 (4096 x 2160 @ 60 Hz) • On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + On board integrated DP1.4 (4096 x 2160 @ 30 Hz)+ Option card with Type-C (5120 x 3200 @ 60 Hz)
External connectors		Two system-board integrated DP1.4 HBR2 + One video option (VGA/DP1.4 HBR3/ HDMI2.0/USB 3.2 Gen 2 type-C Alt-mode)

GPU—Discrete

NVIDIA RTX 6000 Ada Generation, 48 GB GDDR6

The following table lists the NVIDIA RTX 6000 Ada Generation specifications.

Table 37. NVIDIA RTX 6000 Ada Generation specifications

Description	Values
GPU Memory	48 GB GDDR6
Memory Interface	384-bit
Memory Bandwidth	960 GB/s
NVIDIA CUDA Cores	18176
System Interface	PCI Express 4.0 x16
Max Power Consumption	300 W
Thermal Solution	Active
Form Factor	Height: 4.37 in./111.15 mm/Length: 10.58 in./268.60 mm, Dual Slot
Display Connectors	4x DP 1.4a
Max Simultaneous Displays	4 direct, 4 DP 1.4a Multi-Stream
Display Resolution	• 2x 7680 x 4320 @ 60 Hz • 4x 5120 x 2880 @ 60 Hz • 4x 4096 x 2160 @ 120 Hz
Graphics APIs	• Shader Model 6.6 • OpenGL 4.6 • DirectX 12 • Vulkan 1.3

Table 37. NVIDIA RTX 6000 Ada Generation specifications (continued)

Description	Values
Compute APIs	• CUDA 11.6 • DirectCompute • OpenCL 3.0

NVIDIA RTX 5000 Ada Generation, 24 GB GDDR6

The following table lists the NVIDIA RTX 5000 Ada Generation specifications.

Table 38. NVIDIA RTX 5000 Ada specifications

Description	Values
GPU Memory	24 GB GDDR6
Memory Interface	256-bit
Memory Bandwidth	576 GB/s
NVIDIA CUDA Cores	12800
System Interface	PCI Express 4.0 x16
Max Power Consumption	250 W
Thermal Solution	Active
Form Factor	Height: 4.37 in./111.15 mm/Length: 10.58 in./268.60 mm, Dual Slot
Display Connectors	4x DP 1.4a
Max Simultaneous Displays	4 direct, 4 DP 1.4a Multi-Stream
Display Resolution	• 2x 7680 x 4320 @ 60 Hz • 4x 5120 x 2880 @ 60 Hz • 4x 4096 x 2160 @ 120 Hz
Graphics APIs	• Shader Model 6.7 • OpenGL 4.6 • DirectX 12 • Vulkan 1.3
Compute APIs	• CUDA 12.2 • DirectCompute • OpenCL 3.0

NVIDIA RTX 4500 Ada Generation, 24 GB GDDR6

The following table lists the NVIDIA RTX 4500 Ada Generation specifications.

Table 39. NVIDIA RTX 4500 Ada specifications

Description	Values
GPU Memory	24 GB GDDR6
Memory Interface	192-bit
Memory Bandwidth	432 GB/s
NVIDIA CUDA Cores	7680
System Interface	PCI Express 4.0 x16

Table 39. NVIDIA RTX 4500 Ada specifications (continued)

Description	Values
Max Power Consumption	210 W
Thermal Solution	Active
Form Factor	Height: 4.37 in./111.15 mm/Length: 10.58 in./268.60 mm, Dual Slot
Display Connectors	4x DP 1.4a
Max Simultaneous Displays	4 direct, 4 DP 1.4 Multi-Stream
Display Resolution	• 2x 7680 x 4320 @ 60 Hz • 4x 5120 x 2880 @ 60 Hz • 4x 4096 x 2160 @ 120 Hz
Graphics APIs	• Shader Model 6.7 • OpenGL 4.6 • DirectX 12 • Vulkan 1.3
Compute APIs	• CUDA 12.2 • DirectCompute • OpenCL 3.0

NVIDIA RTX 4000 Ada Generation, 20 GB GDDR6

The following table lists the NVIDIA RTX 4000 Ada Generation specifications.

Table 40. NVIDIA RTX 4000 Ada Generation specifications

Description	Values
GPU Memory	20 GB GDDR6
Memory Interface	160-bit
Memory Bandwidth	360 GB/s
NVIDIA CUDA Cores	6144
System Interface	PCI Express 4.0 x16
Max Power Consumption	130 W
Thermal Solution	Active
Form Factor	Height: 4.39 in./111.75 mm and Length: 9.58 in./243.15 mm, Single Slot
Display Connectors	4x DP 1.4a
Max Simultaneous Displays	4 direct, 4 DP 1.4 Multi-Stream
Display Resolution	• 2x 7680 x 4320 @ 60 Hz • 4x 5120 x 2880 @ 60 Hz • 4x 4096 x 2160 @ 120 Hz
Graphics APIs	• Shader Model 6.7 • OpenGL 4.6 • DirectX 12 • Vulkan 1.3
Compute APIs	• CUDA 12.2 • DirectCompute • OpenCL 3.0

NVIDIA RTX 2000 Ada Generation, 12 GB, GDDR6

The following table lists the NVIDIA RTX 2000 Ada Generation specifications.

Table 41. NVIDIA RTX 2000 Ada Generation specifications

Description	Values
GPU Memory	12 GB GDDR6
Memory Interface	160-bit
Memory Bandwidth	256 GB/s
NVIDIA CUDA Cores	3072
System Interface	PCI Express 4.0 x16
Max Power Consumption	00 W
Thermal Solution	Active
Form Factor	Height: 4.39 in./111.75 mm and Length: 9.58 in./243.15 mm, Single Slot
Display Connectors	4x DP 1.4a
Max Simultaneous Displays	4 direct, 4 DP 1.4 Multi-Stream
Display Resolution	• 2x 7680 x 4320 @ 60 Hz • 4x 5120 x 2880 @ 60 Hz • 4x 4096 x 2160 @ 120 Hz
Graphics APIs	• Shader Model 6.7 • OpenGL 4.6 • DirectX 12 • Vulkan 1.3
Compute APIs	• CUDA 12.2 • DirectCompute • OpenCL 3.0

NVIDIA T1000, 8 GB GDDR6

The following table lists the NVIDIA T1000 specifications.

Table 42. NVIDIA T1000 specifications

Feature	Values
GPU frequency	1065 MHz
DirectX 12	12
Shader model	5.17
Open CL	3
Open GL	4.6
GPU memory interface	128 bits
PCIe bus	PCIe 3.0 x16
Display support	Four mini-DP 1.2 Certified, 1.3/1,4 Ready
Graphics memory configuration	8 GB, GDDR6
Graphics memory clock speed	5001 MHz

Table 42. NVIDIA T1000 specifications (continued)

Feature	Values
Active fan sink	4-pin embedded fan controller
Slot number	Single Slot
PCB form factor	Half Height
PCB layer	N/A
PCB solder mask	N/A
Bracket form factor	Low Profile or Full Height
Maximum resolution	7680 x 4320 x 24 bpp at 120 Hz (Requires two DPs 1.4a and DSC)
Power consumption	50 W

NVIDIA T1000, 8 GB GDDR6

The following table lists the NVIDIA T1000 specifications.

Table 43. NVIDIA T1000 specifications

Feature	Values
GPU frequency	1065 MHz
DirectX 12	12
Shader model	5.17
Open CL	3
Open GL	4.6
GPU memory interface	128 bits
PCIe bus	PCIe 3.0 x16
Display support	Four mini-DP 1.2 Certified, 1.3/1,4 Ready
Graphics memory configuration	4 GB, GDDR6
Graphics memory clock speed	1250 MHz
Active fan sink	4-pin embedded fan controller
Slot number	Single Slot
PCB form factor	Half Height
PCB layer	N/A
PCB solder mask	N/A
Bracket form factor	Low Profile or Full Height
Maximum resolution	7680 x 4320 x 24 bpp at 120 Hz (Requires two DPs 1.4a and DSC)
Power consumption	50 W

NVIDIA T400, 4 GB GDDR6

The following table lists the NVIDIA T400 specifications.

Table 44. NVIDIA T400 specifications

Feature	Values
GPU frequency	420 MHz
DirectX 12	12
Shader model	5.17
Open CL	3
Open GL	4.6
GPU memory interface	64 bits
PCIe bus	PCIe 3.0 x16
Display support	Three mini-DP 1.2 Certified, 1.3/1,4 Ready
Graphics memory configuration	4 GB, GDDR6
Graphics memory clock speed	5001 MHz
Active fan sink	4-pin embedded fan controller
Slot number	Single Slot
PCB form factor	Half Height
PCB layer	N/A
PCB solder mask	N/A
Bracket form factor	Low Profile
Maximum resolution	7680 x 4320 x 24 bpp at 120 Hz (Requires two DPs 1.4a and DSC)
Power consumption	30 W

NVIDIA GeForce RTX 4090, 24 GB, GDDR6

The following table lists the NVIDIA GeForce RTX 4090 specifications.

Table 45. NVIDIA GeForce RTX 4090 specifications

Feature	Values
GPU frequency	2230 MHz (base clock)
DirectX 12	12
Shader model	6.7
Open CL	3.0
Open GL	4.6
GPU memory interface	384-bit
PCIe bus	PCIe 4.0 x 16
Display support	• Three DisplayPort 1.4a ports • One HDMI 2.1a port
Graphics memory configuration	24 GB, GDDR6X

Table 45. NVIDIA GeForce RTX 4090 specifications (continued)

Feature	Values
Graphics memory clock speed	21 Gbps
Active fan sink	Fan Controller Embedded (4-pin)
Slot number	3
PCB form factor	Full Height
PCB layer	14 layer
Bracket form factor	Triple
Maximum resolution	4K @ 120 Hz or 8K @ 60 Hz (with DSC)
Power consumption	450 W

NVIDIA GeForce RTX 4090D, 24 GB, GDDR6

The following table lists the NVIDIA GeForce RTX 4090D specifications.

Table 46. NVIDIA GeForce RTX 4090D specifications

Feature	Values
GPU frequency	2230 MHz (base clock)
DirectX 12	12
Shader model	6.7
Open CL	3.0
Open GL	4.6
GPU memory interface	384-bit
PCIe bus	PCIe 4.0 x 16
Display support	• Three DisplayPort 1.4a ports • One HDMI 2.1a port
Graphics memory configuration	24 GB, GDDR6X
Graphics memory clock speed	21 Gbps
Active fan sink	Fan Controller Embedded (4-pin)
Slot number	3
PCB form factor	Full Height
PCB layer	14 layer
Bracket form factor	Triple
Maximum resolution	4K @ 120 Hz or 8K @ 60 Hz (with DSC)
Power consumption	450 W

NVIDIA GeForce RTX 4080 Super, 16 GB, GDDR6X

The following table lists the NVIDIA GeForce RTX 4080 Super specifications.

Table 47. NVIDIA GeForce RTX 4080 Super specifications

Feature	Values
GPU frequency	2210 MHz (base clock)
DirectX 12	12
Shader model	6.7
Open CL	3.0
Open GL	4.6
GPU memory interface	256-bit
PCIe bus	PCIe 4.0 x 16
Display support	• Three DisplayPort 1.4a ports • One HDMI 2.1a port
Graphics memory configuration	16 GB, GDDR6X
Graphics memory clock speed	21 Gbps
Active fan sink	Fan Controller Embedded (4-pin)
Slot number	3
PCB form factor	Full Height
PCB layer	14 layer
Bracket form factor	Triple
Maximum resolution	4K @ 120 Hz or 8K @ 60 Hz (with DSC)
Power consumption	320 W

NVIDIA GeForce RTX 4070, 12 GB, GDDR6

The following table lists the NVIDIA GeForce RTX 4070 specifications.

Table 48. NVIDIA GeForce RTX 4070 specifications

Feature	Values
GPU frequency	1920 MHz (base clock)
DirectX 12	12
Shader model	6.7
Open CL	3.0
Open GL	4.6
GPU memory interface	192-bit
PCIe bus	PCIe 4.0 x 16
Display support	• Three DisplayPort 1.4a ports • One HDMI 2.1a port
Graphics memory configuration	12 GB, GDDR6
Graphics memory clock speed	21 Gbps

Table 48. NVIDIA GeForce RTX 4070 specifications (continued)

Feature	Values
Active fan sink	Fan Controller Embedded (4-pin)
Slot number	3
PCB form factor	Full Height
PCB layer	14 layer
Bracket form factor	Triple
Maximum resolution	4K @ 120 Hz or 8K @ 60 Hz (with DSC)
Power consumption	200 W

NVIDIA GeForce RTX 4060, 8 GB GDDR6

The following table lists the NVIDIA GeForce RTX 4060 specifications.

Table 49. NVIDIA GeForce RTX 4060 specifications

Feature	Values
GPU frequency	1830 MHz (base clock)
DirectX 12	12
Shader model	6.7
Open CL	3.0
Open GL	4.6
GPU memory interface	128-bit
PCIe bus	PCIe 4.0 x 16
Display support	• Three DisplayPort 1.4a ports • One HDMI 2.1a port
Graphics memory configuration	8 GB, GDDR6
Graphics memory clock speed	21 Gbps
Active fan sink	Fan Controller Embedded (4-pin)
Slot number	3
PCB form factor	Full Height
PCB layer	14 layer
Bracket form factor	Triple
Maximum resolution	4K @120 Hz or 8K @ 60 Hz (with DSC)
Power consumption	115 W

AMD Radeon Pro W7900, 48 GB GDDR6

The following table lists the AMD Radeon Pro W7900 specifications.

Table 50. AMD Radeon Pro W7900 specifications

Feature	Values
GPU frequency	1855 MHz (base clock)

Table 50. AMD Radeon Pro W7900 specifications (continued)

Feature	Values
DirectX 12	12.0 Ultimate
Shader model	6.7
Open CL	2.1
Open GL	4.6
GPU memory interface	384-bit
PCIe bus	Gen 4 (x8 lanes)
Display support	• 3x DP 2.1 • Enhanced mini-DP 2.1
Graphics memory configuration	48 GB DDR6
Graphics memory clock speed	2250 MHz
Active fan sink	Fan Controller Embedded (4 pin)
Slot number	Single slot
PCB form factor	Full Height, Three-Quarter Length
PCB layer	8
PCB solder mask	Matte Black
Bracket form factor	Full Height
Maximum resolution	7680 x 4320 @ 60 Hz
Power consumption	295 W

AMD Radeon Pro W7600, 8 GB GDDR6

The following table lists the AMD Radeon Pro W7600 specifications.

Table 51. AMD Radeon Pro W7600 specifications

Feature	Values
GPU frequency	1240 MHz (base clock)
DirectX 12	12.0 Ultimate
Shader model	6.7
Open CL	2.2
Open GL	4.6
GPU memory interface	128-bit
PCIe bus	Gen 4 (x8 lanes)
Display support	x4 DP 2.1
Graphics memory configuration	8 GB DDR6
Graphics memory clock speed	2250 MHz
Active fan sink	Fan Controller Embedded (4 pin)
Slot number	Single slot
PCB form factor	Full Height, Three-Quarter Length
PCB layer	8

Table 51. AMD Radeon Pro W7600 specifications (continued)

Feature	Values
PCB solder mask	Matte Black
Bracket form factor	Full Height
Maximum resolution	7680 x 4320 @ 60 Hz
Power consumption	130 W

AMD Radeon Pro W7500, 8 GB GDDR6

The following table lists the AMD Radeon Pro W7500 specifications.

Table 52. AMD Radeon Pro W7500specifications

Feature	Values
GPU frequency	540 MHz (base clock)
DirectX 12	12.0 Ultimate
Shader model	6.7
Open CL	2.2
Open GL	4.6
GPU memory interface	128-bit
PCIe bus	Gen 4 (x8 lanes)
Display support	x4 DP 2.1
Graphics memory configuration	8 GB DDR6
Graphics memory clock speed	1350 MHz
Active fan sink	Fan Controller Embedded (4 pin)
Slot number	Single slot
PCB form factor	Full Height, Three-Quarter Length
PCB layer	8
PCB solder mask	Matte black
Bracket form factor	Full Height
Maximum resolution	7680 x 4320 @ 60 Hz
Power consumption	70 W

AMD Radeon Pro W6400, 4 GB GDDR6

The following table lists the AMD Radeon Pro W6400 specifications.

Table 53. AMD Radeon Pro W6400 specifications

Feature	Values
GPU frequency	1923 MHz (base clock)
DirectX 12	12.0 Ultimate
Shader model	6.6
Open CL	2.2

Table 53. AMD Radeon Pro W6400 specifications (continued)

Feature	Values
Open GL	4.6
GPU memory interface	64-bit
PCIe bus	Gen 4 (x4 lanes)
Display support	x2 DP 1.4
Graphics memory configuration	4 GB DDR6
Graphics memory clock speed	14 Gbps
Active fan sink	Fan Controller Embedded(4 pin)
Slot number	Single slot
PCB form factor	Full Height, Full length
PCB layer	6
PCB solder mask	Black
Bracket form factor	Full Height
Maximum resolution	7680 x 4320 @ 60 Hz
Power consumption	50 W

AMD Radeon Pro W6300, 2 GB GDDR6

The following table lists the AMD Radeon Pro W6300 specifications.

Table 54. AMD Radeon Pro W6300 specifications

Feature	Values
GPU frequency	1096 MHz (base clock)
DirectX 12	12.0 Ultimate
Shader model	6.1
Open CL	2.2
Open GL	4.6
GPU memory interface	32-bit
PCIe bus	Gen 4 (x4 lanes)
Display support	x2 DP 1.4
Graphics memory configuration	2 GB DDR6
Graphics memory clock speed	16 Gbps
Active fan sink	Fan Controller Embedded (4 pin)
Slot number	Single slot
PCB form factor	Full Height, Half Length
PCB layer	6
PCB solder mask	Red
Bracket form factor	Full Height
Maximum resolution	7680 x 4320 @60 Hz
Power consumption	35 W

GPU and PSU matrix

The following table provides the GPU and PSU matrix of your Precision 3680 Tower.

Table 55. GPU and PSU matrix

Graphics card	Card length	Weight (kg)	Power connector	I/O connector	Single/Dual/ Triple wide	PSU
NVIDIA RTX 6000 Ada Generation	10.50 in.	1.15	Two 8-pins	Four DisplayPort 1.4a ports	Dual	1000W
NVIDIA RTX 5000 Ada Generation	10.50 in.	1.18	8-pin	Four DisplayPort 1.4a ports	Dual	1000W
NVIDIA RTX 4500 Ada Generation	8.50 in.	0.395	6-pin	Four DisplayPort 1.4a ports	Dual	• 500W • 1000W
NVIDIA RTX 4000 Ada Generation	9.50 in.	0.50	6-pin	Four DisplayPort 1.4a ports	Single	• 500W • 1000W
NVIDIA T1000	6.13 in.	0.174	N/A	Four mini-DP 1.2 ports	Single	• 300W • 500W • 1000W
NVIDIA T1000	6.13 in.	0.132	N/A	Four mini-DP 1.2 ports	Single	• 300W • 500W • 1000W
NVIDIA T400	6.13 in.	0.123	N/A	Three mini-DP 1.2 ports	Single	• 300W • 500W • 1000W
NVIDIA GeForce RTX 4090	12.28 in.	1.63	16-pin	• Three DisplayPort 1.4a ports • One HDMI 2.1a port	Triple	1000W
NVIDIA GeForce RTX 4080	8.50 in.	0.395	16-pin	• Three DisplayPort 1.4a ports • One HDMI 2.1a port	Triple	1000W
NVIDIA GeForce RTX 4070	8.50 in.	0.395	8-pin	• Three DisplayPort 1.4a ports • One HDMI 2.1a port	Dual	1000W
NVIDIA GeForce RTX 4060	8.50 in.	0.395	8-pin	• Three DisplayPort 1.4a ports • One HDMI 2.1a port	Dual	• 500W • 1000W
AMD Radeon Pro W7900	8.50 in.	0.395	8-pin	• Three DisplayPort 2.1 ports • One enhanced mini-DP 2.1 port	Triple	1000W
AMD Radeon Pro W7600	9.50 in.	0.621	6-pin	Four DisplayPort 2.1 ports	Single	• 500W • 1000W
AMD Radeon Pro W7500	8.50 in.	0.395	N/A	Four DisplayPort 2.1 ports	Single	• 500W • 1000W
AMD Radeon Pro W6400	6.60 in.	0.162	N/A	Two DisplayPort 1.4 ports	Single	• 300W • 500W

Table 55. GPU and PSU matrix (continued)

Graphics card	Card length	Weight (kg)	Power connector	I/O connector	Single/Dual/ Triple wide	PSU
						• 1000W
AMD Radeon Pro W6300	6.0 in.	0.14	N/A	Two DisplayPort 1.4 ports	Single	• 300W • 500W • 1000W

Video port and resolution matrix

The following table lists the Video port and resolution matrix on your Precision 3680 Tower.

Table 56. Video port and resolution matrix

Port type	DP++ 1.4/HDCP 2.3 port (UMA and Discrete Graphics)	HDMI-OUT port—HDMI 1.4a (UMA Graphics)	HDMI-OUT port—HDMI 2.1 (Discrete Graphics)
Maximum resolution—single display	4096 x 2304 @ 60 Hz	4096 x 2160 @ 30 Hz	4096 x 2160 @ 60 Hz
Maximum resolution—dual MST	4096 x 2304 @ 60 Hz, 1400 x 1050 @ 60 Hz or 2880 x 1800 @ 60 Hz, 2880 x 1800 @ 60 Hz	Not applicable	Not applicable
Maximum resolution—triple MST	4096 x 2304 @ 60 Hz, 1360 x 768 @ 60 Hz, 640 x 480 @ 60 Hz or 2304 x 1440 @ 60 Hz, 2304 x 1440 @ 60 Hz, 2304 x 1440 @ 60 Hz	Not applicable	Not applicable
Maximum resolution—quad MST	4096 x 2304 @ 60 Hz, 4096 x 2304 @ 60 Hz, 1360 x 768 @ 60 Hz, 640 x 480 @ 60 Hz or 2304 x 1440 @ 60 Hz, 2304 x 1440 @ 60 Hz, 2304 x 1440 @ 60 Hz, 2304 x 1440 @ 60 Hz	Not applicable	Not applicable

Hard-disk drive Preloaded bracket matrix

The following table lists the hard drive preloaded bracket information of your Precision 3680 Tower.

Table 57. Hard-disk drive Preloaded bracket matrix

Hard-disk drive Preloaded bracket	Available
3.5-inch Caddy or Bracket	Yes
2.5-inch Caddy or Bracket	No

Storage

3.5-inch, 1 TB, 7200 RPM, SATA, HDD

Table 58. 3.5-inch, 1 TB, 7200 RPM, SATA, HDD specifications

Description	Values
Capacity	1 TB
Speed	7200 RPM
Height (approximate)	26.10 mm (1.02 in.)

Table 58. 3.5-inch, 1 TB, 7200 RPM, SATA, HDD specifications (continued)

Description	Values
Width (approximate)	147.06 mm (5.79 in.)
Depth (approximate)	101.60 mm (4.00 in.)
Interface	SATA 3.0
Speed (maximum)	Up to 6 Gbps
MTBF	550,000 hours
Logical blocks	1,953,525,168
Power source	
Power consumption (reference only)	• Idle: 5 W • Active: 10 W
Environmental operating conditions (non-condensing)	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock	65G @2ms
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

3.5-inch, 2 TB, 7200 RPM, SATA, HDD

Table 59. 3.5-inch, 2 TB, 7200 RPM, SATA, HDD specifications

Description	Values
Capacity	2 TB
Speed	7200 RPM
Height (approximate)	25.40 mm (1.00 in.)
Width (approximate)	147.06 mm (5.79 in.)
Depth (approximate)	101.60 mm (4.00 in.)
Interface	SATA 3.0
Speed (maximum)	Up to 6 Gbps
MTBF	550,000 hours
Logical blocks	3,907,029,168
Power source	
Power consumption (reference only)	• Idle: 5 W • Active: 10 W
Environmental operating conditions (non-condensing)	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock	65G @2ms
Environmental non-operating conditions (non-condensing)	

Table 59. 3.5-inch, 2 TB, 7200 RPM, SATA, HDD specifications (continued)

Description	Values
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

3.5-inch, 4 TB, 5400 RPM, SATA, HDD

Table 60. 3.5-inch, 4 TB, 5400 RPM, SATA, HDD specifications

Capacity	4 TB
Speed	5400 RPM
Height (approximate)	25.40 mm (1.00 in.)
Width (approximate)	147.06 mm (5.79 in.)
Depth (approximate)	101.60 mm (4.00 in.)
Interface	SATA 3.0
Speed (maximum)	Up to 6 Gbps
MTBF	550,000 hours
Logical blocks	7,814,037,168
Power source	
Power consumption (reference only)	• Idle: 5 W • Active: 10 W
Environmental operating conditions (non-condensing)	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock	65G @2ms
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

3.5-inch, 4 TB, 7200 RPM, SATA, Enterprise HDD

Table 61. 3.5-inch, 4 TB, 7200 RPM, SATA, Enterprise HDD specifications

Capacity	4 TB
Speed	7200 RPM
Height (approximate)	25.40 mm (1.00 in.)
Width (approximate)	147.06 mm (5.79 in.)
Depth (approximate)	101.60 mm (4.00 in.)
Interface	SATA 3.0
Speed (maximum)	Up to 6 Gbps
MTBF	550,000 hours
Logical blocks	3,907,029,168

Table 61. 3.5-inch, 4 TB, 7200 RPM, SATA, Enterprise HDD specifications (continued)

Power source	
Power consumption (reference only)	• Idle: 5 W • Active: 10 W
Environmental operating conditions (non-condensing)	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock	65G @2ms
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

3.5-inch, 8 TB, 7200 RPM, SATA, Enterprise HDD

Table 62. 3.5-inch, 8 TB, 7200 RPM, SATA, Enterprise HDDspecifications

Capacity	8 TB
Speed	7200 RPM
Height (approximate)	25.40 mm (1.00 in.)
Width (approximate)	147.06 mm (5.79 in.)
Depth (approximate)	101.60 mm (4.00 in.)
Interface	SATA 3.0
Speed (maximum)	Up to 6 Gbps
MTBF	550,000 hours
Logical blocks	3,907,029,168
Power source	
Power consumption (reference only)	• Idle: 5 W • Active: 10 W
Environmental operating conditions (non-condensing)	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock	65G @2ms
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

M.2 2230, 256 GB, TLC PCIe NVMe Gen 4, Class 35 SSD

The following table lists the M.2 2230, 256 GB SSD specifications.

Table 63. 256 GB SSD specifications

Description	Values
Capacity	256 GB

Table 63. 256 GB SSD specifications (continued)

Description	Values
Height (approximate)	3.50 mm (0.13 in.)
Width (approximate)	22 mm (0.87 in.)
Depth (approximate)	30 mm (1.18 in.)
Interface type	PCIe Gen 4
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTTF	1.4M hours
Logical blocks	500,118,192
Power source	
Power consumption (reference only)	• Idle: 5 mW (PS4) • Active: 4W
Environmental operating conditions (non-condensing)	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

M.2 2280, 512 GB, PCIe NVMe Gen4 x4, Class 40 SSD

The following table lists the M.2 2280, 512 GB SSD specifications.

Table 64. 512 GB SSD specifications

Description	Values
Capacity	512 GB
Height (approximate)	2.38 mm (0.17 in.)
Width (approximate)	22 mm (0.87 in.)
Depth (approximate)	80 mm (3.15 in.)
Interface type	PCIe Gen4
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	1,000,215,216
Power source	
Power consumption (reference only)	• Idle: 5 mW (PS4 - L1.2) • Active: 5 W
Environmental operating conditions (non-condensing)	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G

Table 64. 512 GB SSD specifications (continued)

Description	Values
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

M.2 2280, 1 TB, PCIe NVMe Gen4 x4, Class 40 SSD

The following table lists the M.2 2280, 1 TB SSD specifications.

Table 65. 1 TB SSD specifications

Description	Values
Capacity	1 TB
Height (approximate)	2.38 mm (0.17 in.)
Width (approximate)	22 mm (0.87 in.)
Depth (approximate)	80 mm (3.15 in.)
Interface type	PCIe Gen4
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	2,000,409,264
Power source	
Power consumption (reference only)	• Idle: 5 mW (PS4 - L1.2) • Active: 5 W
Environmental operating conditions (non-condensing)	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

M.2 2280, 2 TB, PCIe NVMe Gen4 x4, Class 40 SSD

The following table lists the M.2 2280, 2 TB SSD specifications.

Table 66. 2 TB SSD specifications

Description	Values
Capacity	2 TB
Height (approximate)	2.38 mm (0.09 in.)
Width (approximate)	22 mm (0.87 in.)
Depth (approximate)	80 mm (3.15 in.)
Interface type	PCIe Gen4

Table 66. 2 TB SSD specifications (continued)

Description	Values
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	4,000,797,360
Power source	
Power consumption (reference only)	• Idle: 5 mW (PS4 - L1.2) • Active: 5 W
Environmental operating conditions (non-condensing)	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

M.2 2280, 4 TB, PCIe NVMe Gen4 x4, Class 40 SSD

The following table lists the M.2 2280, 4 TB SSD specifications.

Table 67. 4 TB SSD specifications

Description	Values
Capacity	4 TB
Height (approximate)	3.73 mm (0.15 in.)
Width (approximate)	22 mm (0.87 in.)
Depth (approximate)	80 mm (3.15 in.)
Interface type	PCIe Gen4
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	8,001,573,552
Power source	
Power consumption (reference only)	• Idle: 5 mW (PS4 - L1.2) • Active: 5 W
Environmental operating conditions (non-condensing)	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

M.2 2280, 512 GB, PCIe NVMe Gen4 x4, Opal Self-Encrypting Class 40 SSD

The following table lists the M.2 2280, 512 GB SSD, self-encrypting drive specifications.

Table 68. 512 GB SSD, self-encrypting drive specifications

Description	Values
Capacity	512 GB
Height (approximate)	2.38 mm (0.09 in.)
Width (approximate)	22 mm (0.87 in.)
Depth (approximate)	80 mm (3.15 in.)
Interface type	PCIe Gen4
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	1,000,215,216
Power source	
Power consumption (reference only)	• Idle: 5 mW (PS4 - L12) • Active: 5 W
Environmental operating conditions (non-condensing)	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

M.2 2280, 1 TB, PCIe NVMe Gen4 x4, Opal Self-Encrypting Class 40 SSD

The following table lists the M.2 2280, 1 TB SSD, self-encrypting drive specifications.

Table 69. 1 TB SSD, self-encrypting drive specifications

Description	Values
Capacity	1 TB
Height (approximate)	2.38 mm (0.09 in.)
Width (approximate)	22 mm (0.87 in.)
Depth (approximate)	80 mm (3.15 in.)
Interface type	PCIe Gen4
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	2,000,409,264
Power source	

Table 69. 1 TB SSD, self-encrypting drive specifications (continued)

Description	Values
Power consumption (reference only)	• Idle: 5 mW (PS4 - L12) • Active: 5 W
Environmental operating conditions (non-condensing)	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

8x DVD±RW, slimline

Table 70. 8x DVD±RW, slimline specifications

Height (without bezel)	9.50 mm (0.37 in.)
Width (without bezel)	128.00 mm (5.04 in.)
Depth (without bezel)	126.01 mm (4.97 in.)
Weight (maximum)	140 grams
Interface	SATA 1.5
Speed (maximum)	Up to 1.5 Gbps
Disc capacity	Standard
Internal buffer size	0.5 MB
Access times (typical)	Supplier dependent
Maximum data transfer rates	
Writes	8x DVD/ 24x CD
Reads	8x DVD/ 24x CD
Power source	
DC power requirements	5 V
DC current	1300 mA
Environmental operating conditions (non-condensing)	
Operating temperature range	5°C to 60°C
Relative humidity range	10% to 90% RH
Maximum wet bulb temperature	29°C
Altitude range	0 m to 3048 m
Environmental non-operating conditions (non-condensing)	
Operating temperature range	-40°C to 65°C
Relative humidity range	5% to 95% RH
Maximum wet bulb temperature	38°C
Altitude range	0 m to 10600 m

Media-card reader

The following table lists the media-card reader specifications on your Precision 3680 Tower.

Table 71. Media-card reader (standard offering)

Media supported (Maximum capacity that is supported will vary by Flash Media Types)	
Media Supported	SDXC, SDHC, SD Secure Digital (SD) 4.0 UHS-II Secure Digital (SD) 3.0 UHS-I
Support Specification Versions	Secure Digital (SD) 4.0
Power source	
Max Power Requirements	1.2 A
Supply Voltage Range	3.3 V
Power Consumption	MS 0.08 mA
Environmental operating conditions (Non-condensing)	
Operating Temperature Range	0°C to 70°C
Relative Humidity Range	N/A
Environmental non-operating conditions (Non-condensing)	
Operating Temperature Range	N/A
Relative Humidity Range	N/A

NOTE: Systems may be shipped with media-card reader from Realtek or Genesys. If manually installing the Operating System, the appropriate driver must be installed.

Power supply unit

Table 72. Power supply unit specifications

Description	**Values**		
Type	300 W (internal power supply unit, 92% Efficient PSU, 80 Plus Platinum)	500 W (internal power supply unit, 92% Efficient PSU, 80 Plus Platinum)	1000 W (internal power supply unit, 92% Efficient PSU, 80 Plus Platinum)
Input voltage	90 VAC to 264 VAC	90 VAC to 264 VAC	90 VAC to 264 VAC
Input frequency	47 Hz to 63 Hz	47 Hz to 63 Hz	47 Hz to 63 Hz
Input current (maximum)	• 4.2 A @ 90 V AC • 2.1 A @ 180 V AC	• 7 A @ 90 V AC • 3.5 A @ 180 V AC	• 13.6 A @ 90 V AC • 12 A-6 A @ 100-240 V AC
Output current (continuous)	• 12 VA1/18 A • 12 VA2/18 A • 12 VB/18 A	• 12 VA1/18 A • 12 VA2/18 A • 12 VB/18 A • 12 VC/18 A	• 12 VA/36 A • 12 VB/27 A • 12 VC/36 A
Rated output voltage	• 12 VA1 • 12 VA2 • 12 VB	• 12 VA1 • 12 VA2 • 12 VB • 12 VC	• 12 VA • 12 VB • 12 VC
BTUs/h (based on PSU max wattage)	1023 BTU/h	1705 BTU/h	3410 BTU/h

Table 72. Power supply unit specifications (continued)

Description	Values		
Temperature range			
Operating	5°C to 50°C (41°F to 122°F)	5°C to 50°C (41°F to 122°F)	5°C to 50°C (41°F to 122°F)
Storage	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)
Compliance			
Erp Lot6 Tier 2 requirement	Yes	Yes	Yes
80Plus compliant	Yes	Yes	Yes
Energy Star 8.0 compliant	Yes	Yes	Yes
GS mark compliant	Yes	Yes	Yes
NCTC Anti Power Surge certification	Yes	Yes	Yes
NCTC Anti Lightning Strike certification	Yes	Yes	Yes

Thermal dissipation

The following table lists the thermal dissipation of your Precision 3680 Tower.

Table 73. Thermal dissipation

Power supply unit	Heat dissipation	Voltage
300W (80Plus Platinum)	300*3.412 = 818 BTU/hr	100 to 240 VAC, 47 to 63 Hz, 10.0 A/ 16.5 A
500W (80Plus Platinum)	500*3.412 = 1706 BTU/hr	100 to 240 VAC, 47 to 63 Hz, 16.0 A/ 18.0 A
1000W (80Plus Platinum)	1000*3.412 = 1706 BTU/hr	100 to 240 VAC, 47 to 63 Hz, 16.0 A/ 18.0 A/20.0 A

CMOS battery

The following table lists the CMOS battery specifications of your Precision 3680 Tower.

Table 74. CMOS battery

Brand	Type	Voltage	Composition	Battery life
SHUNWO, DOUBLE BEST, VIC-DAWN	CR2032	3.0 V	Lithium metal	Continuous Discharge Under 15 kΩ Load to 2.0 V End-Voltage. 20℃±2℃ 940 Hrs. or Longer.910 Hrs.or Longer after 12 mo.

Accessories

The following table lists the supported accessories on your Precision 3680 Tower.

Table 75. Accessories

Accessories
3Dconnexion SpaceMouse Wireless - 3DX-700066
Dell Slim Soundbar - SB521A
Dell Pro Wireless ANC Headset - WL7022
Dell UltraSharp Webcam - WB7022
Dell Webcam - WB3023
Dell 27 Monitor - P2723D
Dell Pro Wireless Keyboard and Mouse - KM5221W
Precision Tower Cable Cover

Security

Software security

The following table lists the software security details of your Precision 3680 Tower.

Table 76. Software security

McAfee Small Business Security 30-Day Free Trial
McAfee Small Business Security 12-month Subscription
McAfee Small Business Security 36-month Subscription
Security software per software functional plan/cycle list
Dell Data Protection | Personal Edition (DDP | E PE) or Dell Encryption Personal (Future Name)
Dell Data Protection | Enterprise Edition (DDP | E EE) or Dell Encryption Enterprise (Future Name)
Dell Data Protection | External Media Edition (DDP | E EME) or Dell Encryption External Media (Future Name)
Data Leakage Protection (DLP) or Dell Data Guardian (new name)
Dell Data Protection | BitLocker Manager (DDP | BLM)
VMware Airwatch
Dell Data Protection | Endpoint Security Suite or Dell Endpoint Security Suite Pro
Dell Data Protection | Endpoint Security Suite Enterprise or Dell Endpoint Security Suite Enterprise
Mozy (Cloud Backup)
Dell Threat Defense
RSA SecurID
RSA NetWitness Endpoint
Absolute Data and Device Security

Table 76. Software security (continued)

D-Pedigree (Secure Supply Chain Functionality)
Microsoft Windows BitLocker Manager
Support for Encryption SED hard drives (Opal FIPS and non-FIPS, SATA, PCIe)
Support eDRIVE Storage including RAID
Support UEFI-Preboot Authentication (PBA) solution for Windows 10
Local hard drive data wipe via BIOS ("Secure Erase")
BIOS Administrative Password
BIOS Password
BIOS hard drive password option (default off)
Windows 10 Device Guard and Credential Guard
BIOS Data Port On/Off - Data Port disablement
Intel Secure Boot (TXT + TPM) - Launch control policy
Intel's Identity Protection (IPT)
Intel Guard Technologies and Secure Key
Secure update of pre-boot password(s) via remote BIOS update

Trusted Platform Module

The following table lists the Trusted Platform Module (TPM) of your Precision 3680 Tower.

Table 77. Trusted Platform Module (TPM)

TPM: Nuvoton NPCT760JABYX
SPI interface
TPM 2.0
FIPs 140-2 certificate

Mil-SPEC

The Precision 3680 Tower meets military specifications for the following MIL-STD 810H tests:

Table 78. Military specifications

Test Category	Test Method	Test Parameters
Non-operating altitude test	Method 500.6 Procedure I	Test specification: • Altitude: 15,000 ft • Temperature: 21°C • Duration: 1 hour
Operating altitude test	Method 500.6 Procedure II	Test specification: • Altitude: 15,000 ft • Temperature: 21°C • Duration: 1 hour
Non-operating high temperature test	Method 501.7 Procedure I	Test specification: • Temperature: 33°C - 71°C

Table 78. Military specifications (continued)

Test Category	Test Method	Test Parameters
		• High temperature cycles, climatic category A1 - Hot dry • Duration: 168 hours constant
Operating high temperature test	Method 501.7 Procedure II	Test specification: • Temperature: 32°C - 49°C • High temperature cycles • Duration: 120 hours constant
Non-operating low temperature test	Method 502.7 Procedure I - Storage	Test specification: • Temperature: -51°C • Duration: 24 hours
Operating low temperature test	Method 502.7 Procedure II - Operation	Test specification: • Temperature: -29°C • Duration: 24 hours
Humidity test	Method 507.6 Procedure I	Induced B3 • Duration: Hot-humid, 15 days exposure Induced B3, Non-operating
Mechanical shock test - I Bench handling	Method 516.8 Procedure VI	Test specification: • The lifted edge of the chassis has been raised 100 mm (4 in.) above the horizontal bench top.
Blowing dust test	Method 510.7 Procedure I	Test specification: • Temperature: 25°C and 60°C • Dust concentration: (10.6±7) g/m³ • Air flow velocity: 1.5 m/s to 8.9 m/s • Relative humidity: 30% • Duration: 12 hours
Operating vibration test	Method 514.8 Procedure I	Refer table 514.6C-II: Category 4 - common carrier
Shock material to be packaged non-operating	Method 516.8 Procedure II	Test specification: • Pulse shape: Trapezoidal • Acceleration: 30 g • Velocity change: 304 inch/second • Shock direction: 6 faces (±X, ±Y, ±Z axes) • No. of shock: 1 shock/ face (total 6 shocks)
Crash hazard shock test Non-operating	Method 516.8 Procedure V	Test specification: • Pulse shape: Half-sine • Acceleration: 185 g • Pulse duration: 2 ms • Shock direction: 12 faces (±X, ±Y, ±Z axes) • No. of shock: 1 shock/ face (total 12 shocks)

Acoustic noise emission information tower

The following table lists the acoustic noise emission information of your Precision 3680 Tower.

Table 79. Precision 3680 Tower with 14th Generation Intel Core i9-14900K vPro processor/32 GB memory/8 TB hard drive

Component	Test Configuration
CPU	14th Generation Intel Core i9-14900K vPro
Memory	32 GB
Hard drive (#, capacity)	3.5-inch hard drive, 8 TB
ODD	DVD+/-RW, 8X, 9.5T
Graphics Adapter	NVIDIA GeForce RTX 4090

Table 80. Declared Sound Power (LWAd)

Operating Mode	Declared Sound Power(LWAd)
Idle	3.66
Hard drive Operating	3.67
CPU Stressed (50% loading)	3.66
ODD Operating	4.42

Table 81. A-Weighted Sound Pressure Level (dB)

Declared Sound Pressure (LpA)				
	Tabletop System		Floor Standing System	
Operating Mode	Operator Position	Bystander Position	Operator Position	Bystander Position
Idle	28.9	23.6	22.1	20.1
CPU Stressed (50% loading)	28.8	23.5	22.1	20.0

All tests are conducted according to ISO 7779 and declared according to ISO 9296 except CPU Stressed. This test mode is not specified in ISO 7779, but was measured using the same microphone distances and measurement techniques that are defined for the other reported operating modes.

Declared Sound Power rounded to the nearest tenth of a bel per ISO 9296 section 4.4.2.

Chassis enclosure and ventilation requirements

Enclosure ventilation

If your enclosure has doors, they need to be of a type that allows at least 30% airflow through the enclosure (front and back).

Enclosure minimum clearance

Leave a 10.20 cm (4 in.) minimum clearance on all vented sides of the computer to permit the airflow required for proper ventilation.

Recommended enclosure

Do not install your computer in an enclosure that does not allow airflow/dusty environment/temperate over 35°C. Do not put any objects to directly block air-vent. This restricts the airflow and impacts your computer's performance, possibly causing it to overheat.

Open desk minimum clearance

If your computer is installed in a corner, on a desk, or under a desk, leave at least 5.10 cm (2 in.) clearance from the back of the computer to the wall to permit the airflow required for proper ventilation.

System management features

Dell commercial systems come with a number of systems management options that are include by default for In-Band management with our Dell Client Command Suite. In-Band management meaning that the Operating System is functional and the device is connected to a network so that it can be managed. The Dell Client Command Suite of tools can be leveraged individually or with a systems management console like SCCM, LANDESK, KACE, etc.

We also offer Out-of-Band management as an option. Out-of-band management is when the system does not have a functional operating system or is turned off and you still want to be able to manage the system in that state.

Dell Client Command Suite for in-band systems management

Dell Client Command Suite is a free toolkit available for download, for all Latitude Rugged tablets at dell.com/support, that automates and streamlines systems management tasks, saving time, money, and resources. It consists of the following modules that can be used independently, or with a variety of systems management consoles such as SCCM.

Dell Client Command Suite's integration with VMware Workspace ONE Powered by AirWatch, now allows customers to manage their Dell client hardware from the cloud, using a single Workspace ONE console.

Dell Command | Deploy enables easy operating system (OS) deployment across all major OS deployment methodologies and provides numerous system-specific drivers that have been extracted and reduced to an OS-consumable state.

Dell Command I Configure is a graphical user interface (GUI) admin tool for configuring and deploying hardware settings in a pre-OS or post-OS environment, and it operates seamlessly with SCCM and Airwatch and can be self-integrated into LANDesk and KACE. Simply, this is all about the BIOS. Command I Configure allows you to remotely automate and configure over 150+ BIOS settings for a personalized user experience.

Dell Command I PowerShell Provider can do the same things as Command I Configure, but with a different method. PowerShell is a scripting language that allows customers to create a customized and dynamic configuration process.

Dell Command I Monitor is a Windows Management Instrumentation (WMI) agent that provides IT admins with an extensive inventory of the hardware and health-state data. Admins can also configure hardware remotely by using command line and scripting.

Dell Command | Update (end-user tool) is factory-installed and allows admins to individually manage and automatically present and install Dell updates to the BIOS, drivers, and software. Command I Update eliminates the time-consuming hunting and pecking process of update installation.

Dell Command I Update Catalog provides searchable metadata that allows the management console to retrieve the latest system-specific updates (driver, firmware or BIOS). The updates are then delivered seamlessly to end-users using the customer's systems management infrastructure that is consuming the catalog (like SCCM).

Dell Command | vPro Out of Band console extends hardware management to systems that are offline or have an un-reachable OS (Dell exclusive features).

Dell Command | Integration Suite for System Center - This suite integrates all the key components of the Client Command Suite into Microsoft System Center Configuration Manager 2012 and Current Branch versions.

Out-of-band systems management

Intel Standard Manageability option **must be configured in our factory at the time of purchase, as it is NOT field upgradable.** It offers out-of-band management and DASH compliance (https://registry.dmtf.org/registry/results/field_initiative_name%3A%22DASH%201.0%22).

4

Dell Optimizer

This section details the Dell Optimizer specifications of your Precision 3680 Tower.

On Precision 3680 Tower with Dell Optimizer, the following features are supported:

- **Express Connect**—Automatically joins the access point with the strongest signal, and directs bandwidth to conferencing applications when in use.
- **ExpressResponse**—Prioritizes the most important applications. Applications open faster and perform better.
- **AudioOptimization**—The audio feature enhances the audio functionality during your online meetings. The audio feature helps filter the background noise, stabilize volume, and prioritize preferred voice streaming during online meetings.

For more information about configuring and using these features, see Dell Optimizer User Guide.

5

Getting help and contacting Dell

Self-help resources

You can get information and help on Dell products and services using these self-help resources:

Table 82. Self-help resources

Self-help resources	Resource location
Information about Dell products and services	www.dell.com
Tips	
Contact Support	In Windows search, type `Contact Support`, and press Enter.
Online help for operating system	www.dell.com/support/windows www.dell.com/support/linux
Access top solutions, diagnostics, drivers and downloads, and learn more about your computer through videos, manuals, and documents.	Your Dell computer is uniquely identified by a Service Tag or Express Service Code. To view relevant support resources for your Dell computer, enter the Service Tag or Express Service Code at www.dell.com/support. For more information about how to find the Service Tag for your computer, see Locate the Service Tag on your computer.
Dell knowledge base articles	1. Go to www.dell.com/support. 2. On the menu bar at the top of the Support page, select **Support** > **Knowledge Base**. 3. In the Search field on the Knowledge Base page, type the keyword, topic, or model number, and then click or tap the search icon to view the related articles.

Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see www.dell.com/contactdell.

NOTE: Availability varies by country/region and product, and some services may not be available in your country/region.

NOTE: If you do not have an active Internet connection, you can find contact information about your purchase invoice, packing slip, bill, or Dell product catalog.

ENERGY STAR CERTIFIED
Computers

DELL - D30M : Precision 3680 Tower

Specifications

ENERGY STAR Unique ID:	2684020
Brand Name:	DELL
Model Name:	D30M
Model Number:	Precision 3680 Tower
Type:	Workstation
Workstations: Processor Brand:	Intel
Workstations: Processor Name:	i9-14900K
Workstations: Operating System Name:	Window 11
Workstations: Base Processor Speed Per Core (GHz):	3.2
Workstations: System Memory (GB):	128
Workstations: Hard Drives (count):	4
Workstations: Off Mode (watts):	0.4
Workstations: Sleep Mode (watts):	3.2
Workstations: Long Idle (watts):	3.2
Workstations: Short Idle (watts):	42.5
Workstations: Weighted Power of Model (watts):	16.7
Sleep Mode Default Time Upon Shipment (min.):	10
Display Sleep Mode Default Time Upon Shipment (min.):	10
WOL (Wake on LAN) From Sleep:	Shipped Disabled
Will the Speed of Any Active 1 GB/s or Higher Ethernet Network Links be Reduced to Less Than 1 GB/s When Transitioning to Sleep or Off Mode?:	Yes
Ethernet Capability:	Yes
Date Available On Market:	2024-02-23
Date Certified:	2023-10-20
Markets:	United States, Switzerland, Taiwan, Japan, Canada
ENERGY STAR Certified:	Yes

Additional Model Information

D30M,Precision 3680 Tower TCO Certified,

Captured On:
12/13/2024