

Processo Administrativo nº: 0016201/2020

Data do Despacho: 26/07/2021

## ANÁLISE TÉCNICA DAS PROPOSTAS

**PREGÃO 14/2021**

<b>LOCAL DO PREGÃO:</b> Prefeitura Municipal de Maricá	<b>DATA:</b> 26/07/2019
<b>SOLICITANTE:</b> Comissão Permanente de Licitação	<b>TÉCNICO RESPONSÁVEL:</b> Victor Silveira / Coord. Tec. Da Informação Nilton Cezar Marins Brum Junior / Assessor de Infraestrutura

### 1. CONTEXTUALIZAÇÃO

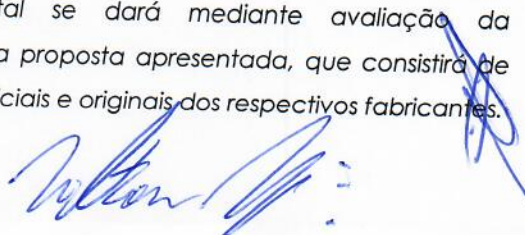
1.1. Este relatório é produto da análise das propostas ofertadas no pregão 14/2021, referente ao REGISTRO DE PREÇO AQUISIÇÃO DE COMPUTADORES, SERVIDORES, SWITCHES E NOBREAKS.

### 2. MÉTODO

2.1 O método de análise realizado foi a comparação das marcas/modelos apresentados pelas empresas nas propostas e documentação que a compõe, conforme os itens 11.8. e 11.9. do Anexo III do edital:

"[...]"

11.8. As propostas deverão obrigatoriamente conter marca e modelo dos equipamentos fornecidos. A comprovação do atendimento às características técnicas especificadas neste edital se dará mediante avaliação da documentação técnica integrante da proposta apresentada, que consistirá de catálogos, manuais ou publicações oficiais e originais dos respectivos fabricantes.



11.9. Serão aceitas, para efeito de comprovação de características técnicas, endereços de sítios Internet que contenham as informações solicitadas, os quais serão consultados no momento da validação das propostas, sendo de responsabilidade da licitante informar corretamente tais endereços."

**2.2** Foram analisadas as propostas das seguintes empresas:

a) Hard Solution Informática LTDA-EPP (**HARD SOLUTION**) – CNPJ: 00.461.225/0001-51 (62 páginas), quanto aos seguintes itens ofertados: Item 2, Item 3, Item 4 e Item 8.

b) MGL Indústria, Comércio e Serviços LTDA (**MGL**) – CNPJ: 02.656.438/0001-48 (4 páginas), quanto aos seguintes itens ofertados: Item 10.

c) PPN Tecnologia e Informática LTDA (**PPN**) – CNPJ: 06.673.799-09 (6 páginas), quanto aos seguintes itens ofertados: Item 1, Item 2, Item 3, Item 4, Item 5, Item 6, Item 7, Item 8, Item 9 e Item 10.

d) BR Copi Comércio Serviços e Logística (**BR Copi**) – CNPJ: 11.537.627/0001-00 (11 páginas), quanto aos seguintes itens ofertados: Item 1, Item 2, Item 3, Item 4, Item 5, Item 6, Item 7, Item 8, Item 9 e Item 10.

e) Stobtech – Soluções Tecnologias e Representação Comercial LTDA (**Stobtech**) – CNPJ: 30.227.556/0001-86 (7 páginas), quanto aos seguintes itens ofertados: Item 1, Item 2, Item 3, Item 4, Item 5, Item 6, Item 7, Item 8, Item 9 e Item 10.

**2.3** Não foi realizada a análise quanto ao **item 3** das propostas das empresas **Hard Solution, PPN, BR Copi e Stobtech**, visto ao processo de impugnação número 7825/2021 em trâmite, o qual se refere especificamente a este item, com intuito de manter este certame em consonância com os princípios que amparam a licitação.

### 3. OBJETIVO

**3.1.** Analisar as marcas/modelos dos equipamentos e serviços apresentados nas propostas ofertadas pelas empresas, referente ao Pregão Presencial 14/2021.





#### 4. ANÁLISE

- a) Quanto a análise da proposta da empresa **Hard Solution**: A proposta apresentada pela empresa atendeu todas as especificações exigidas no Edital para os itens ora ofertados, exceto:

**Para o Item 4:**

Descrição	Exigido	Ofertado
Gabinete	Formato reduzido na arquitetura Thin Client. / Possuir local para utilização de cabo de segurança compatível com "Kensington Cable Lock";	Mini PC / Não ofertado.
Fonte de Alimentação	Fonte de alimentação Bivolt automático no padrão com cabo de força no padrão NBR14136.	Não apresentado.
Gabinete, Teclado e Mouse	TECLADO COM FIO: com interface USB, devendo ser do mesmo fabricante do equipamento ofertado.	Não apresentado.
Gabinete, Teclado e Mouse	MOUSE COM FIO: Mouse óptico mínimo de 400 DPI com interface USB, devendo ser do mesmo fabricante do equipamento ofertado.	Não apresentado.
Interfaces	Alto-falante integrado ao gabinete.	Não apresentado.
Interfaces	Saída de Vídeo: com Suporte Widescreen	Não apresentado.

**Para o Item 8:**

Descrição	Exigido	Ofertado
Processadores	O equipamento deverá apresentar desempenho mínimo de 1100 (mil e cem) SPECint2006 RATE baseline, possuir no mínimo 2 processadores X86 e TDP máximo de 140W, DDR4 de 6 canais a 2.666 e 3 links UPI a 10,4GT/s.	Não especificado. TDP de 70 a 205W.*
Unidades de Discos Internos e Controladora	Interface <b>NVMe</b> PCIe 3.0 x4;	Ofertado x 2
Portas/Interfaces	Possuir <b>5(cinco) portas 10 Gigabit Ethernet</b> por servidor, distribuídas em, no mínimo, 3(três) adaptadores, com padrão IEEE	Não ofertado.**





	802.3ae, gerenciáveis. As portas devem ser do tipo <b>SFP(Small Form-factor Pluggable)</b> , com suporte a tranciveers de cobre TWINAX passivos e ativos, e tranciveers óticos SR(short- range). Os conectores <b>SFP's</b> devem ser fornecidos ( <b>2 portas para LAN, 2 portas para VSAN e 1 para backup</b> ).	
Portas/Interfaces	Suporte 10 Gbps	Não ofertado.
Portas/Interfaces	Suporte para VMDQ (Virtual machine device queue) , PCI-SIG SR-IOV (Single root I/O virtualization) e tecnologia de particionamento de porta flexível.	Não ofertado.
Comprovação de Performance	Todos os equipamentos da plataforma X86 para os quais for solicitado valor de performance baseado em SPEC CINT 2006 RATE, devem apresentar a comprovação, por documentação adequada, do resultado auditado pelo Standard Performance Evaluation Corporation (www.spec.org), para o equipamento cotado ou para equipamento equivalente.	Não ofertado. ***

\* Buscou-se ainda identificar o processador ofertado. Como o processador ofertado é da fabricante Intel, fizemos a tentativa de identificar se os modelos atenderiam a especificação solicitada. Entretanto diversos modelos não se adequaram, conforme anexo.

\*\* Característica importante para implementação do VSAN.

\*\*\* Buscou-se ainda identificar as características dos equipamentos assim como o atendimento as especificações das características de performance. Entretanto, dos servidores encontrados no site da **Spec**, na presente data, dentre eles alguns da Supermicro, não foi possível encontrar o modelo ofertado, **SuperServer 2029GP**, conforme anexos.

<http://www.spec.org/>

b) Quanto a análise da proposta da empresa **MGL**: A proposta apresenta pela empresa atendeu todas as especificações exigidas no Edital para os itens ora ofertados, exceto:



**Para o Item 10:**

Descrição	Exigido	Ofertado
Forma de onda senoidal por aproximação (retangular PWM)	Por aproximação.	Pura e Simulada
Autodiagnostico de bateria	Informa quando a bateria precisa ser substituída	Não apresentado.
Autonomia	30 minutos	10 a 20 min.

\*\* O modelo a ser adquirido visa atender os equipamentos de mesa que se referem aos demais itens.

- c) Quanto a análise da proposta da empresa **PPN**: A proposta ofertada pela empresa atendeu as especificações apontadas no Edital. Segue em anexo a comprovação de performance emitido no site da **Spec**.
- d) Quanto a análise da proposta da empresa **BR Copi**, não foi possível realizar a análise técnica dos equipamentos ofertados visto que não foi especificado o modelo dos equipamentos nem documentação técnica integrante a proposta, catálogos, manuais, ou publicações oficiais e originais dos fabricantes que viabilizasse a avaliação necessária. Identificamos que a empresa descreveu para os itens 1, 2 e 3 as marcas/modelos como sendo Dell/Corei5 e Multilaser/I5, entretanto, a denominação "Corei5" e "I5", poderia referir-se a característica do processador, entretanto não permitiria identificar as demais características necessárias aos requisitos mínimos exigidos aos equipamentos. Realizamos ainda, uma pesquisa no site de busca Google, conforme link abaixo, com as palavras "Dell Corei5" e "Multilaser I5", entretanto os resultados encontrados não permitiram garantir qual o item oferecido e a adequação às especificações exigidas no Edital devido à grande diversidade de modelos encontrados.





[https://www.google.com/search?q=computador+dell+Corei5&client=firefox-b-d&sxsrf=ALeKk038AeSyXU\\_mXWvrmDq\\_F8hDKvx\\_ZQ%3A1627329734862&ei=xhT\\_YISGNN6\\_5OU\\_PtqOdaAM&oq=computador+dell+Corei5&gs\\_lcp=Cgdnd3Mtd2l6EAM6BwgAEecQsANKBAhBkWPbsJGCQ\\_yRoAXACeACAaccBiAH4BJIBAzAuNZgBAKABAaoBB2d3cy13aXrIAQjAAQE&scient=gws-wiz&ved=0ahUKEwiEgZ3Ww4HyAhXeH7kGHbZRBzUQ4dUDCA4&uact=5](https://www.google.com/search?q=computador+dell+Corei5&client=firefox-b-d&sxsrf=ALeKk038AeSyXU_mXWvrmDq_F8hDKvx_ZQ%3A1627329734862&ei=xhT_YISGNN6_5OU_PtqOdaAM&oq=computador+dell+Corei5&gs_lcp=Cgdnd3Mtd2l6EAM6BwgAEecQsANKBAhBkWPbsJGCQ_yRoAXACeACAaccBiAH4BJIBAzAuNZgBAKABAaoBB2d3cy13aXrIAQjAAQE&scient=gws-wiz&ved=0ahUKEwiEgZ3Ww4HyAhXeH7kGHbZRBzUQ4dUDCA4&uact=5)

[https://www.google.com/search?q=computador+Multilaser+i5&client=firefox-b-d&sxsrf=ALeKk02z7BV4UCyxLqzEI5jdbOqLjRB9qg%3A1627330388427&ei=VBf\\_YJzHGZDV5OUP0bCY0A8&oq=computador+Multilaser+i5&gs\\_lcp=Cgdnd3Mtd2l6EAM6BwgAEecQsANKBAhBGABQzw1Y-g5g6xBoAXACeACAAXGIACACkgEDMC4zmAEAoAEBagEHZ3dzLXdpesgBCMABAQ&scient=gws-wiz&ved=0ahUKEwicwe-NxoHyAhWQKrKGHVEYBvoQ4dUDCA4&uact=5](https://www.google.com/search?q=computador+Multilaser+i5&client=firefox-b-d&sxsrf=ALeKk02z7BV4UCyxLqzEI5jdbOqLjRB9qg%3A1627330388427&ei=VBf_YJzHGZDV5OUP0bCY0A8&oq=computador+Multilaser+i5&gs_lcp=Cgdnd3Mtd2l6EAM6BwgAEecQsANKBAhBGABQzw1Y-g5g6xBoAXACeACAAXGIACACkgEDMC4zmAEAoAEBagEHZ3dzLXdpesgBCMABAQ&scient=gws-wiz&ved=0ahUKEwicwe-NxoHyAhWQKrKGHVEYBvoQ4dUDCA4&uact=5)

- e) Quanto a análise da proposta da empresa **Stobtech**, não foi possível realizar a análise técnica dos equipamentos ofertados visto que não foi especificado o modelo dos equipamentos de forma integral nem disponibilizado documentação técnica integrante a proposta, catálogos, manuais, ou publicações oficiais e originais dos fabricantes que viabilizasse a avaliação necessária, exceto para os itens 5, 6 e 7. Identificamos que a empresa descreveu para os itens 1, 2, 3, 4, 8, 9 e 10 as marcas/modelos a marca e o que seria parte dos modelos. Realizamos, porém, uma pesquisa no site de busca Google com os nomes apresentados na proposta "Dell Optiplex", "Dell Latitude", "Dell Wyse", "PowerEdge", "Dell EMC" e "NOBREAK", conforme documentos em anexo, entretanto os resultados encontrados não permitiram garantir o item oferecido e a adequação às especificações exigidas no Edital devido à grande diversidade de modelos encontrados.



## 5 – CONCLUSÃO

A verificação das em atendimento às exigências do edital busca trazer a administração pública segurança na contratação e na qualidade da futura prestação dos serviços.



Apesar do clareza do Edital no tocante a documentação técnica na composição da proposta, conteúdo primordial para a avaliação em tela, observou-se a falta de atenção a este item por parte dos licitantes. Ressalta-se, porém, que não foram medidos esforços que buscassem entender o conteúdo das propostas, sempre que possível, como descrito acima.

Deste modo, conclui-se que as propostas ofertadas **apresentaram parcialmente** as características condizentes com as especificações técnicas referente ao Pregão Presencial 14/2021. Atenderam as especificações as seguintes empresas para os respectivos itens, como segue:

Hard Solution Informática LTDA-EPP (**HARD SOLUTION**) – CNPJ: 00.461.225/0001-51, para: Item 2

PPN Tecnologia e Informática LTDA (**PPN**) – CNPJ: 06.673.799-09, para: Item 1, Item 2, Item 4, Item 5, Item 6, Item 7, Item 8, Item 9 e Item 10.

Stobtech – Soluções Tecnologias e Representação Comercial LTDA (**Stobtech**) – CNPJ: 30.227.556/0001-86, para: Item 5, Item 6 e Item 7.

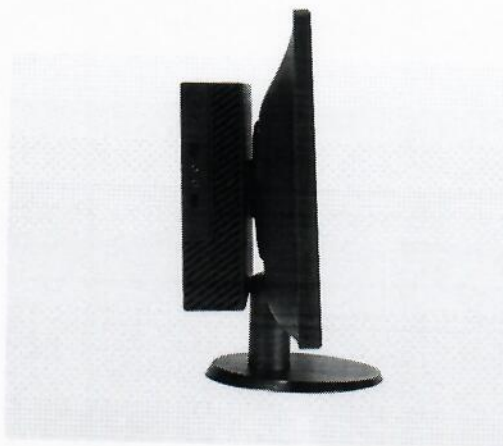
DATA: <b>Maricá, 26 de Julho de 2021</b>	
RESPONSÁVEIS Victor Andrade da Silveira  Nilton Cezar Marins Brum Junior	ASSINATURA  



2K + V3

Home &gt; Mini PCs &gt; 2K + V3

## Mini PC 2K + V3



Mais poderoso que um thin client, mais compacto e econômico que um desktop. Conheça a solução inteligente e ecológica da Positivo Servers & Solutions. Economize espaço e energia sem perder a performance e as conexões de um desktop tradicional e com baixo índice de manutenção.

Compacto, discreto, econômico e com o menor índice de RMA do mercado. Devido ao seu baixo consumo, ótimo desempenho e tamanho compacto, este microcomputador é indicado para usuários com tarefas e aplicativos leves, como Office, acesso à Internet, e-mails e clientes de soluções para desktops virtualizados ou serviços de terminais.

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- Blog

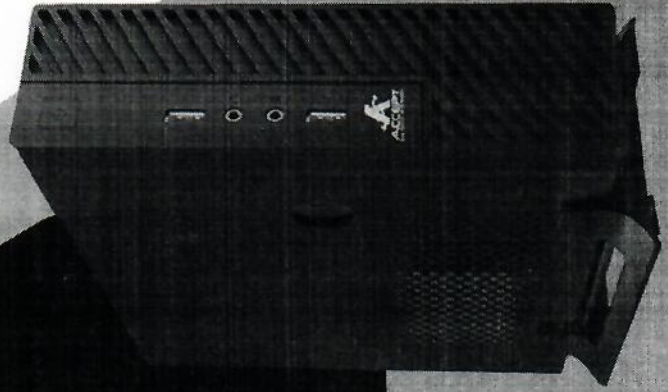


Mini PC  
**Smart Client**  
**2K V2 / 2K+ V3**

Onde a performance  
encontra a economia



**POSITIVO**





## A solução inteligente e ecológica da Accept

Bem-vindo a uma nova era de economia, ecologia e muita potência. Economize espaço e energia sem perder a performance e as conexões de um desktop tradicional e com baixo índice de manutenção. É inteligente por causa da sua configuração. É ecológico pois gasta muito menos energia\*.

### ECO CONSUME 5X MENOS QUE UM DESKTOP\*

\*Testes realizados pela Accept, em 18/05/2015 através de um Wattímetro. Resultado: um desktop convencional consumiu 1,512Kw, equivalente a R\$ 0,55/dia, enquanto um Smart Client ZK v2 consumiu 0,272Kw, equivalente a R\$ 0,10/dia.



Mouse PS/2

Ethernet Gigabit

Saída Serial

Audio Line In

Saída Serial

Audio Line Out

Mic In

VGA

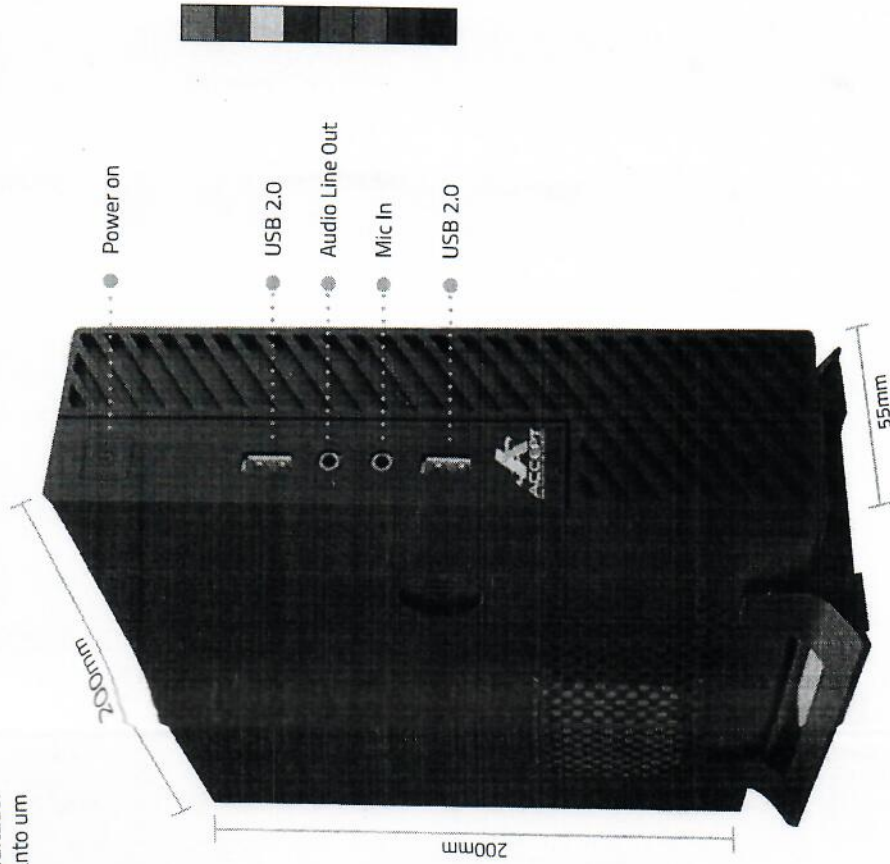
HDMI

USB 2.0

Teclado PS/2

USB 3.0

DC-In



Peso líquido: 1,5kg | Dimensões sem embalagem: 55x200x200mm (AxLxP)



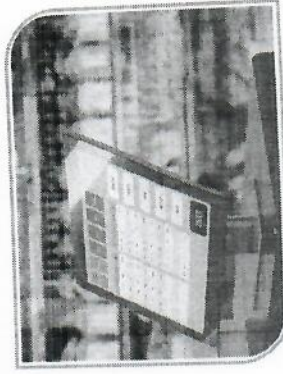


### Computação inteligente em pequeno espaço

Um gabinete ultra compacto com um fluxo térmico otimizado, capacitores sólidos e fonte de alimentação automática. Feito para as suas demandas.

### Repense as possibilidades.

Com este microcomputador, suas tarefas ficam mais rápidas e ágeis. Compacto, discreto e com baixo consumo de energia, o 2K V2/ 2K+V3, é feito para aplicações diversas, como: acesso à Internet, e-mails e clientes de soluções para desktops virtualizados, serviços de terminais e muito mais.



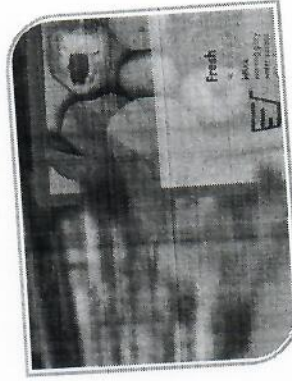
Padarias, farmácias,  
supermercados.



Centros de pesquisa.



Call center, escritórios.



Digital signage, quiosques.





	Smart Client 2K v2	Smart Client 2K+ v3
Processador	Intel® Celeron® Dual Core J1800, 1M Cache, até 2.58GHz	Intel® Celeron® Quad Core J4 105, 4M Cache, até 2.50 GHz
Placa mãe	Mini-ITX	Mini-ITX
Saída de vídeo	Duas saídas: VGA e HDMI 1.4 com resolução máxima de 1920 X 1080	Duas saídas: VGA e HDMI 2.0 com resolução máxima de 4096 X 2160 HDCP 2.2
Disco rígido	1 disco rígido de 2,5" - suporta até 2TB	1 disco rígido de 2,5" - suporta até 2TB
Conectividade	Ethernet Gigabit LAN (Realtek GBe)	Ethernet Gigabit LAN (Realtek GBe)
Memória	DDR3-1333/1600MHz SO-DIMM - capacidade de até 8GB	DDR4-2400/2133MHz SO-DIMM - capacidade de até 16GB
Áudio	de alta definição - 3 conectores (audio/mic/aux)	de alta definição - 3 conectores (audio/mic/aux)
Painel traseiro	1 porta PS2 para teclado / 1 porta PS2 para mouse / 4 portas USB 2.0 / 1 porta USB 3.0 traseira / 1 porta HDMI / 1 porta VGA / 1 porta LAN RJ45 / 2 portas seriais	1 porta PS2 para teclado / 1 porta PS2 para mouse / 4 portas USB 2.0 / 1 porta USB 3.0 traseira / 1 porta HDMI / 1 porta VGA / 1 porta LAN RJ45 / 2 portas seriais
Painel frontal	2 portas USB 2.0 / 2 conectores de áudio / 1 HD Led / 1 Power Led / 1 botão liga/desliga	2 portas USB 2.0 / 2 conectores de áudio / 1 HD Led / 1 Power Led / 1 botão liga/desliga
Fonte de alimentação	36W / full range / output 12V	36W / full range / output 12V
Medidas	55x200x200 mm (AxLxP)	55x200x200 mm (AxLxP)
Sistemas compatíveis	Linux, Windows 10 PRO, Windows 10 Enterprise IOT	Linux, Windows 10 PRO, Windows 10 Enterprise IOT
Wireless	Opcional	Opcional

Fale com a Accept e saiba como utilizar o Smart 2K V2/ 2K+V3 da melhor maneira.

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## 2nd Generation Intel® Xeon® Scalable Processors

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Product Name	Status	Launch Date	# of Cores	Max Turbo Frequency	Processor Base Frequency	Cache	Compare All
Intel® Xeon® Gold 6230 Processor	Launched	Q2'19	20	3.90 GHz	2.10 GHz	27.5 MB	
Intel® Xeon® Gold 6238T Processor	Launched	Q3'19	22	3.70 GHz	1.90 GHz	30.25 MB	
Intel® Xeon® Gold 6242 Processor	Launched	Q2'19	16	3.90 GHz	2.80 GHz	22 MB	
Intel® Xeon® Gold 6244 Processor	Launched	Q2'19	8	4.40 GHz	3.60 GHz	24.75 MB	
Intel® Xeon® Gold 6240 Processor	Launched	Q2'19	18	3.90 GHz	2.60 GHz	24.75 MB	
Intel® Xeon® Gold 5218 Processor	Launched	Q2'19	16	3.90 GHz	2.30 GHz	22 MB	
Intel® Xeon® Gold 5222 Processor	Launched	Q2'19	4	3.90 GHz	3.80 GHz	16.5 MB	
Intel® Xeon® Gold 6248 Processor	Launched	Q2'19	20	3.90 GHz	2.50 GHz	27.5 MB	
Intel® Xeon® Gold 6252 Processor	Launched	Q2'19	24	3.70 GHz	2.10 GHz	35.75 MB	
Intel® Xeon® Gold 6240Y Processor	Launched	Q2'19	18	3.90 GHz	2.60 GHz	24.75 MB	
Intel® Xeon® Gold 6230N Processor	Launched	Q2'19	20	3.50 GHz	2.30 GHz	27.5 MB	
Intel® Xeon® Gold 6254 Processor	Launched	Q2'19	18	4.60 GHz	3.10 GHz	24.75 MB	
Intel® Xeon® Gold 6210U Processor	Launched	Q2'19	20	3.90 GHz	2.50 GHz	27.5 MB	
Intel® Xeon® Gold 6212U Processor	Launched	Q2'19	24	3.90 GHz	2.40 GHz	35.75 MB	
Intel® Xeon® Platinum 8253 Processor	Launched	Q2'19	16	3.00 GHz	2.20 GHz	22 MB	
Intel® Xeon® Platinum 8256 Processor	Launched	Q2'19	4	3.90 GHz	3.80 GHz	16.5 MB	
Intel® Xeon® Platinum 8276 Processor	Launched	Q2'19	28	4.00 GHz	2.20 GHz	38.5 MB	

Considerar acentuação ☐ Palavras inteiras ☐ Ocorrência 2 de 50



Test Sponsor	System Name	Base Copies	Processor			Results			Energy		
			Enabled Cores	Enabled Chips	Threads/ Core	Base	Peak	Base	Base	Peak	Peak
Supermicro	A+ Server 4023S-TRT (H11DSU-N, AMD EPYC 7501)	128	64	2	2	261	271	--	--	--	--
Supermicro	SuperServer 2023U-TP-HTR (X11DPT-PS, Intel Xeon Gold 6132)	56	28	2	2	160	164	--	--	--	--
Supermicro	SuperServer 7049P-TRT (X11DPT-NT, Intel Xeon Platinum 8180)	112	56	2	2	235	240	--	--	--	--
Supermicro	SuperServer 2049U-TR4 (X11QPH-, Intel Xeon Gold 6132)	112	56	4	2	321	328	--	--	--	--
Test Sponsor	System Name	Base Copies	Enabled Cores	Enabled Chips	Threads/ Core	Base	Peak	Base	Peak	Base	Peak
Test Sponsor	System Name	Base Copies	Enabled Cores	Enabled Chips	Threads/ Core	Base	Peak	Base	Peak	Base	Peak







Test Sponsor	System Name	Base Config	Processor				Results				Energy	
			Base Config	Enabled Cores	Enabled Chips	Threads/ Core	Base	Peak	Base	Peak	Base	Peak
Supermicro	SuperWorkstation 5039C-I (X11SCA, Intel Celeron G4920)	HTML   CSV   Text   PDF   PS   Config	2	2	1	1	11.8	12.0	--	--	--	--
Supermicro	SuperServer 6029U-TP-HTR (X11DPT-PS, Intel Xeon Gold 6230)	HTML   CSV   Text   PDF   PS   Config	80	40	2	2	204	Not Run	--	--	--	--
Supermicro	SuperWorkstation 5039C-I (X11SCL-F, Intel Celeron G4900)	HTML   CSV   Text   PDF   PS   Config	2	2	1	1	11.5	11.8	--	--	--	--
Supermicro	SuperServer 6029U-TR4 (X11DPU, Intel Xeon Gold 5220)	HTML   CSV   Text   PDF   PS   Config	72	36	2	2	193	199	--	--	--	--
Supermicro	SuperWorkstation 5039C-I (X11SCL-F, Intel Celeron G4920)	HTML   CSV   Text   PDF   PS   Config	2	2	1	1	11.8	12.0	--	--	--	--
Supermicro	SuperWorkstation 5039C-I (X11SCL-F, Intel Pentium Gold G5400T)	HTML   CSV   Text   PDF   PS   Config	4	2	1	1	13.6	13.8	--	--	--	--
Supermicro	SuperWorkstation 7049GP-TRT (X11DPG-QT, Intel Xeon Platinum 8280)	HTML   CSV   Text   PDF   PS   Config	112	56	2	2	277	282	--	--	--	--
Supermicro	SuperWorkstation 5039C-I (X11SCL-F, Intel Pentium Gold G5400)	HTML   CSV   Text   PDF   PS   Config	4	2	1	1	15.4	15.6	--	--	--	--
Supermicro	SuperServer 6029U-TR4 (X11DPU, Intel Xeon Silver 4216)	HTML   CSV   Text   PDF   PS   Config	64	32	2	2	172	176	--	--	--	--
Supermicro	SuperWorkstation 5039C-I (X11SCL-F, Intel Pentium Gold G5500)	HTML   CSV   Text   PDF   PS   Config	4	2	1	1	15.7	16.0	--	--	--	--
Supermicro	SuperWorkstation 5039C-I (X11SCL-F, Intel Pentium Gold G5500T)	HTML   CSV   Text   PDF   PS   Config	4	2	1	1	14.0	14.2	--	--	--	--
Supermicro	SuperWorkstation 5039C-I (X11SCL-F, Intel Pentium Gold G5600)	HTML   CSV   Text   PDF   PS   Config	4	2	1	1	16.0	16.3	--	--	--	--
Supermicro	SuperStorage 6029P-E1CR24H (X11DPT-PS, Intel Xeon Gold 6248)	HTML   CSV   Text   PDF   PS   Config	80	40	2	2	217	221	--	--	--	--
Supermicro	SuperWorkstation 5039C-I (X11SCL-F, Intel Core i3-8100T)	HTML   CSV   Text   PDF   PS   Config	4	4	1	1	24.4	24.8	--	--	--	--
Supermicro	SuperWorkstation 5039C-I (X11SCL-F, Intel Core i3-8100)	HTML   CSV   Text   PDF   PS   Config	4	4	1	1	26.6	27.1	--	--	--	--
Supermicro	SuperWorkstation 5039C-I (X11SCL-F, Intel Core i3-8300)	HTML   CSV   Text   PDF   PS   Config	4	4	1	1	27.5	28.1	--	--	--	--
Supermicro	SuperWorkstation 5039C-I (X11SCL-F, Intel Core i3-8300T)	HTML   CSV   Text   PDF   PS   Config	4	4	1	1	25.5	26.0	--	--	--	--
Supermicro	SuperWorkstation 5039C-I (X11SCL-F, Intel Xeon E-2104G)	HTML   CSV   Text   PDF   PS   Config	4	4	1	1	26.3	26.8	--	--	--	--
Supermicro	SuperWorkstation 5039C-I (X11SCL-F, Intel Core i3-8350K)	HTML   CSV   Text   PDF   PS   Config	4	4	1	1	28.8	29.3	--	--	--	--
Supermicro	SuperWorkstation 5039C-I (X11SCL-F, Intel Xeon E-2124)	HTML   CSV   Text   PDF   PS   Config	4	4	1	1	29.5	30.1	--	--	--	--
Supermicro	SuperWorkstation 5039C-I (X11SCL-F, Intel Xeon E-2124G)	HTML   CSV   Text   PDF   PS   Config	4	4	1	1	30.3	30.9	--	--	--	--
Supermicro	SuperWorkstation 5039C-I (X11SCL-F, Intel Xeon E-2126G)	HTML   CSV   Text   PDF   PS   Config	6	6	1	1	37.4	38.2	--	--	--	--



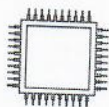
Test Sponsor	System Name	Processor				Results				Energy	
		Base Cores	Enabled Cores	Threads/ Core	Base Peak	Base	Peak	Base	Peak	Base	Peak
Supernmicro	SuperServer 6029U-TR4 (X11DPU, Intel Xeon Gold 6238)	88	44	2	2	216	Not Run	--	--	--	--
Supernmicro	A+ Server 2023US-TR4 (H11DSU-N, AMD EPYC 7702)	128	128	2	2	485	514	--	--	--	--
Supernmicro	A+ Server 2023US-TR4 (H11DSU-N, AMD EPYC 7452)	128	64	2	2	367	400	--	--	--	--
Supernmicro	A+ Server 2023US-TR4 (H11DSU-N, AMD EPYC 7452)	128	64	2	2	332	368	--	--	--	--
Supernmicro	SuperServer 6029U-TR4 (X11DPU, Intel Xeon Gold 6238)	80	40	2	2	190	Not Run	--	--	--	--
Supernmicro	A+ Server 1123US-TR4 (H11DSU-N, AMD EPYC 7262)	32	16	2	2	180	181	--	--	--	--
Supernmicro	A+ Server 2124BT-HTR (H12DST-B, AMD EPYC 7262)	32	16	2	2	178	178	--	--	--	--
Supernmicro	A+ Server 2124BT-HTR (H12DST-B, AMD EPYC 7282)	64	32	2	2	199	214	--	--	--	--
System Name											
Supernmicro	A+ Server 2124BT-HTR (H12DST-B, AMD EPYC 7282)	32	16	1	2	98.7	106	--	--	--	--
Supernmicro	A+ Server 1123US-TR4 (H11DSU-N, AMD EPYC 7352)	96	48	2	2	325	342	--	--	--	--
Supernmicro	A+ Server 1123US-TR4 (H11DSU-N, AMD EPYC 7282)	64	32	2	2	199	214	--	--	--	--
Supernmicro	A+ Server 2124BT-HTR (H12DST-B, AMD EPYC 7252)	32	16	2	2	148	150	--	--	--	--
Supernmicro	SuperServer 6029U-TR4 (X11DPU, Intel Xeon Silver 4214R)	48	24	2	2	147	151	--	--	--	--
Supernmicro	A+ Server 1023US-TR4 (H11DSU-N, AMD EPYC 7322)	32	16	2	2	203	204	--	--	--	--
Supernmicro	A+ Server 1023US-TR4 (H11DSU-N, AMD EPYC 7F52)	64	32	2	2	338	342	--	--	--	--
Supernmicro	A+ Server 1023US-TR4 (H11DSU-N, AMD EPYC 7F72)	96	48	2	2	393	400	--	--	--	--
Supernmicro	A+ Server 1114S-WTRT (H12SSW-NI, AMD EPYC 7F32)	16	8	1	2	101	101	--	--	--	--
Supernmicro	A+ Server 1114S-WTRT (H12SSW-NI, AMD EPYC 7F52)	32	16	1	2	172	173	--	--	--	--
Supernmicro	A+ Server 1114S-WTRT (H12SSW-NI, AMD EPYC 7F72)	48	24	1	2	198	201	--	--	--	--
Supernmicro	SuperServer 6029U-TR4 (X11DPU, Intel Xeon Gold 5220R)	96	48	2	2	236	251	--	--	--	--
Supernmicro	SuperServer 6029U-TR4 (X11DPU, Intel Xeon Gold 6268R)	64	32	2	2	204	212	--	--	--	--



# DELL Technologies

OPTIPLEX 5090 TOWER, SMALL FORM FACTOR AND MICRO

Intelligent, mainstream desktops with right-sized performance & configurations.



## IMPRESSIVELY POWERFUL

Built with 11th generation Intel® up to Core™ i7 processors and doubled max memory from previous generation provides better performance while running multiple or large applications. The 5090 tower is ready to deliver entry commercial VR content experiences with the latest NVIDIA™ 1660 Super and AMD® graphics.



## FASTER USER EXPERIENCES

Select your top five apps and Dell Optimizer ExpressResponse will analyze and boost their performance. New ExpressConnect automatically joins the strongest access point and directs bandwidth to critical applications. Experience speedier multitasking, powerful data analytics and strong connectivity with integrated Intel® Wi-Fi 6 (Wi-Fi 802.11ax).



## SEE AND DO MORE

Drive up to a triple display set up with new Intel® Gen 12 graphics. Achieve better visuals for 3D rendering and 4K monitor use with discrete graphics support for 5090 micro. Connect with ease with two native DisplayPort interfaces with optional VGA, HDMI 2.0b, or USB Type-C® Alt mode.



## SMART DESIGN

Sustainably built with a high ratio of post consumer recyclable (PCR) content and a design to keep your system cool, OptiPlex 5090 is a smart solution. Custom mounts and stands adapt to your workspace while the tool-less chassis provides easy serviceability. Protect your IT investment with TPM 2.0, optional chassis intrusion switch and lockable cable covers. EPEAT Gold and ENERGY STAR qualified on select configurations.



# Recommended Accessories

OPTIPLEX 5090 TOWER, SMALL FORM FACTOR AND MICRO

## CUSTOM STANDS AND MOUNTS



**OPTIPLEX MICRO  
ALL-IN-ONE STAND**

Small footprint mounting solution adapts to your environment, with cable management and monitor height adjustability, tilt, swivel and pivot functions.



**OPTIPLEX MICRO ALL-IN-ONE  
MOUNT FOR DELL  
E SERIES MONITORS**

This mount allows the Micro to be VESA mounted to select Dell E Series displays.



**OPTIPLEX MICRO  
DUAL VESA MOUNT WITH  
ADAPTER BRACKET**

Mount your system between two VESA compatible devices. Includes an adapter box to securely house the system's power adapter.



**OPTIPLEX MICRO  
DVD+/-RW ENCLOSURE**

Mount your system on a wall or under a surface with a VESA-compatible DVD+/-RW enclosure with full optical drive access. Includes an adapter box to securely house the system's power adapter.



**OPTIPLEX MICRO VESA MOUNT  
WITH ADAPTER BRACKET**

Mount your system on a wall or under a desk. Includes an adapter box to securely house the system's power adapter.



**DELL SINGLE MONITOR  
ARM - MSA20**

Minimize your footprint with this arm that offers easy installation and enhanced adjustability while keeping cables neatly hidden from view.



**OPTIPLEX SMALL FORM  
FACTOR ALL-IN-ONE STAND**

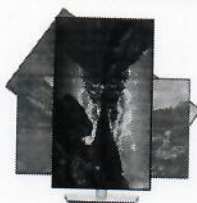
Small footprint mounting solution featuring integrated monitor power and Ethernet cables, as well as monitor adjustability with height, tilt, swivel and pivot functions.

## PURPOSE-BUILT SOLUTIONS



**DELL 24 MONITOR - P2421D**

Optimize your workspace with this efficient 23.8" monitor built with an ultrathin bezel, a small footprint and comfort-enhancing features.



**DELL ULTRASHARP 24  
MONITOR - U2422H**

Take your work to new heights with this 23.8-inch FHD monitor with a wide color coverage. Features ComfortView Plus an always-on built-in low blue light screen, fast connectivity and transfer speeds.



**DELL PROFESSIONAL  
SOUND BAR - AE515M**

Optimize conference calls and multimedia streaming with exceptional audio clarity. Minimize background noise while on calls with the dual mic array and echo cancellation feature.



**DELL PRO WIRELESS KEYBOARD  
AND MOUSE - KM5221W**

Enhance your everyday productivity with a quiet full size keyboard and mouse combo that offers programmable shortcuts and 36 months battery life.



**DELL WIRED MOUSE  
WITH FINGERPRINT  
READER - MS819**

Wired mouse with fingerprint reader offers convenient and secure login and online access without passwords.



**OPTIPLEX CABLE COVERS**

Thermally tested custom cable covers offer an easy to install and attractive way to manage cables and secure ports.



**OPTIPLEX DUST FILTERS**

Custom dust filters safeguard internal components in factory, warehouse, or retail environments.



**DELL PRO WIRED HEADSET -  
WH3022 (COMING SOON)**

Experience exceptional audio clarity with this Teams certified wired headset that allows you to wear the microphone on either side for a customized fit.



# Workforce Modernization

It's more than a concept; it's our approach to modernizing your workforce. Our products, solutions and services support your IT team and help your employees work from home, the office, or a combination of both — simplifying and streamlining their work-life even if they're always on the move.

## Dell Software & Services Solutions

### END USER DEVICES

Provide the right device with the right software for any setting to give employees satisfaction and business perspective.

### SUPPORT

Automatically detect and proactively prevent issues through predictive analytics. Use our AI-driven insights to resolve issues remotely or leave time-consuming support issues in our hands with 24x7 access to our hardware and software experts.

### DEPLOY

Quickly get employees to work and save valuable IT time by provisioning applications at the factory and shipping ready-to-use devices directly to employees wherever they work.

### MANAGE

Take advantage of the console of your choice to set up, configure, monitor and update your entire endpoint fleet. Securely deliver and manage applications from the cloud, giving users smooth access to any device, including from other vendors.

### SECURE

Use intelligent solutions that secure endpoints from both above and below the OS. Prevent, detect and remediate attacks. Detect outside attacks that have altered the BIOS. Encrypt sensitive data on devices and in the cloud. Protect credentials with built-in hardware.



### aaS

You can enjoy modernization through different consumption models: Traditional cash purchase outright or as fixed monthly plan with no upfront investment.

<sup>1</sup>Source: ESG Remote Work Report, 2020

<sup>2</sup>Source: Dell User Group Pulse Survey March 2020



# Features & Technical Specifications

OPTIPLEX 5090 TOWER, SMALL FORM FACTOR AND MICRO

## Feature

### Processors<sup>1</sup>

#### OptiPlex 5090 Technical Specifications<sup>1</sup>

##### Tower, Small Form Factor:

10<sup>th</sup> Generation Intel® Core™ i5-10400, 12MB Cache, 6 Core, 12 Treads, 2.9GHz to 4.3GHz, 65W  
 10<sup>th</sup> Generation Intel® Core™ i5-10500, 12MB Cache, 6 Core, 12 Treads, 3.1GHz to 4.5GHz, 65W  
 10<sup>th</sup> Generation Intel® Core™ i5-10600, 12MB Cache, 6 Core, 12 Treads, 3.3GHz to 4.8GHz, 65W  
 10<sup>th</sup> Generation Intel® Core™ i7-10700, 16MB Cache, 8 Core, 16 Treads, 2.9GHz to 4.8GHz, 65W  
 10<sup>th</sup> Generation Intel® Pentium™ Gold G6405, 4 MB Cache, 2 Core, 4 Threads, Up to 4.1 GHz, 58 W  
 10<sup>th</sup> Generation Intel® Pentium™ Gold G6505, 4 MB Cache, 2 Core, 4 Threads, Up to 4.2 GHz, 58 W  
 10<sup>th</sup> Generation Intel® Core™ i3-10105, 6 MB Cache, 4 Core, 8 Threads, 3.7 GHz to 4.4 GHz, 65 W  
 10<sup>th</sup> Generation Intel® Core™ i3-10305, 8 MB Cache, 4 Core, 8 Threads, 3.8 GHz to 4.5 GHz, 65 W  
 10<sup>th</sup> Generation Intel® Core™ i5-10505, 12 MB Cache, 6 Core, 12 Threads, 3.2 GHz to 4.6 GHz, 65 W  
 11<sup>th</sup> Generation Intel® Core™ i5-11400, 12 MB Cache, 6 Core, 12 Threads, 2.6 GHz to 4.4 GHz, 65 W  
 11<sup>th</sup> Generation Intel® Core™ i5-11500, 12 MB Cache, 6 Core, 12 Threads, 2.7 GHz to 4.6 GHz, 65 W  
 11<sup>th</sup> Generation Intel® Core™ i5-11600, 12 MB Cache, 6 Core, 12 Threads, 2.8 GHz to 4.8 GHz, 65 W  
 11<sup>th</sup> Generation Intel® Core™ i7-11700, 16 MB Cache, 8 Core, 16 Threads, 2.5 GHz to 4.9 GHz, 65 W

##### Micro:

10<sup>th</sup> Generation Intel® Core™ i5-10400T, 12MB Cache, 6 Core, 12 Treads, 2.0GHz to 3.6GHz, 35W  
 10<sup>th</sup> Generation Intel® Core™ i5-10500T, 12MB Cache, 6 Core, 12 Treads, 2.3GHz to 3.8GHz, 35W  
 10<sup>th</sup> Generation Intel® Core™ i5-10600T, 12MB Cache, 6 Core, 12 Treads, 2.4GHz to 4.0GHz, 35W  
 10<sup>th</sup> Generation Intel® Core™ i7-10700T, 16MB Cache, 8 Core, 16 Treads, 2.0GHz to 4.5GHz, 35W  
 10<sup>th</sup> Generation Intel® Core™ i3-10105T, 6 MB Cache, 4 Core, 8 Threads, 3 GHz to 3.9 GHz, 35 W  
 10<sup>th</sup> Generation Intel® Core™ i3-10305T, 8 MB Cache, 4 Core, 8 Threads, 3 GHz to 4 GHz, 35 W  
 10<sup>th</sup> Generation Intel® Pentium G6405T, 4 MB Cache, 2 Core, 4 Threads, 3.5 GHz, 35 W  
 10<sup>th</sup> Generation Intel® Pentium G6505T, 4 MB Cache, 2 Core, 4 Threads, 3.6 GHz, 35 W  
 11<sup>th</sup> Generation Intel® Core™ i5-11400T, 12 MB Cache, 6 Core, 12 Threads, 1.3 GHz to 3.7 GHz, 35 W  
 11<sup>th</sup> Generation Intel® Core™ i5-11500T, 12 MB Cache, 6 Core, 12 Threads, 1.5 GHz to 3.9 GHz, 35 W  
 11<sup>th</sup> Generation Intel® Core™ i5-11600T, 12 MB Cache, 6 Core, 12 Threads, 1.7 GHz to 4.1 GHz, 35 W  
 11<sup>th</sup> Generation Intel® Core™ i7-11700T, 16 MB Cache, 8 Core, 16 Threads, 1.4 GHz to 4.6 GHz, 35 W

### Chipset

Intel® Q570 Chipset

### Operating System Options<sup>1</sup>

Windows 10 Home, 64-bit  
 Windows 10 IoT Enterprise 2019 LTSC (OEM only)  
 Windows 10 Pro, 64-bit  
 Windows 10 Pro Education, 64-bit  
 Kylin Linux Desktop version 10.1 (China only)  
 Ubuntu® Linux® 20.04 LTS, 64-bit  
 Windows 10 CMIT Government Edition 64-bit (China only)

### Video Card<sup>2,14</sup>

#### Tower:

Intel® UHD Graphics 610 for 10<sup>th</sup> Generation Intel® Pentium® Gold G6405 processors  
 Intel® UHD Graphics 630 for 10<sup>th</sup> Generation Intel® Pentium® Gold G6505 and 10<sup>th</sup> Generation Intel® Core™ i3/i5 processors  
 Intel® UHD Graphics 730 for 11<sup>th</sup> Generation Intel® Core™ i5-11400 processors  
 Intel® UHD Graphics 750 for 11<sup>th</sup> Generation Intel® Core™ i5/i7 processors  
 NVIDIA® GeForce® GTX 1660 Super™, 6 GB, GDDR6 (optional)  
 AMD Radeon™ RX640, 4 GB, GDDR5 (optional)  
 AMD Radeon™ 550, 2GB, GDDR5 (optional)  
 AMD Radeon™ 540, 1GB, GDDR5 (optional)

#### Small Form Factor:

Intel® UHD Graphics 610 for 10<sup>th</sup> Generation Intel Pentium G6405 processor  
 Intel® UHD Graphics 630 for 10<sup>th</sup> Generation Intel Pentium G6505 and Intel Core i3/i5 processors  
 Intel® UHD Graphics 730 for 11<sup>th</sup> Generation Intel Core i5-11400 processor  
 Intel® UHD Graphics 750 for 11<sup>th</sup> Generation Intel Core i5/i7 processors  
 AMD Radeon™ RX640, 4 GB, GDDR5 (optional)  
 AMD Radeon™ 550, 2GB, GDDR5 (optional)  
 AMD Radeon™ 540, 1GB, GDDR5 (optional)

#### Micro:

Intel® UHD Graphics 610 for 10<sup>th</sup> Generation Intel® Pentium® Gold G6405T processors  
 Intel® UHD Graphics 630 for 10<sup>th</sup> Generation Intel® Pentium® Gold G6505T and 10<sup>th</sup> Generation Intel® Core™ i3 processors  
 Intel® UHD Graphics 730 for 11<sup>th</sup> Generation Intel® Core™ i5-11400T processors  
 Intel® UHD Graphics 750 for 11<sup>th</sup> Generation Intel® Core™ i5/i7 processors

### Memory<sup>2,3</sup>

#### Tower:

4 GB, 1 x 4 GB, DDR4, 2666 MHz for Intel Pentium and 10<sup>th</sup> Generation Intel Core i3/i5, 2933 MHz for 10<sup>th</sup> Generation Intel Core i7, 3200 MHz for 11<sup>th</sup> Generation Intel Core i5/i7 processors  
 8 GB, 1 x 8 GB, DDR4, 2666 MHz for Intel Pentium and 10<sup>th</sup> Generation Intel Core i3/i5, 2933 MHz for 10<sup>th</sup> Generation Intel Core i7, 3200 MHz for 11<sup>th</sup> Generation Intel Core i5/i7 processors  
 8 GB, 2 x 4 GB, DDR4, 2666 MHz for Intel Pentium and 10<sup>th</sup> Generation Intel Core i3/i5, 2933 MHz for 10<sup>th</sup> Generation Intel Core i7, 3200 MHz for 11<sup>th</sup> Generation Intel Core i5/i7 processors



OPTIPLEX 5090 TOWER, SMALL FORM FACTOR AND MICRO

Qualcomm QCA61x4A, 2x2, MIMO, 867 Mbps, 2.40 Ghz/5 GHz, Wi-Fi 5 (WiFi 802.11ac), Bluetooth 5.0



# Features & Technical Specifications

## OPTIPLEX 5090 TOWER, SMALL FORM FACTOR AND MICRO

### Feature

#### Ports<sup>16</sup>

#### OptiPlex 5090 Technical Specifications<sup>1</sup>

##### Tower:

##### Front:

- 2 USB 2.0 ports
- 1 USB 3.2 Gen 1 Type-A port
- 1 USB 3.2 Gen 2 Type-C® port
- 1 Universal Audio Jack

##### Rear:

- 2 USB 2.0 ports with Smart Power On
- 4 USB 3.2 Gen 1 Type-A port
- 1 RJ45 Ethernet port
- 1 re-tasking Line out/Line in audio port
- 2 DisplayPort 1.4 ports
- 1 VGA Port/DisplayPort 1.4 Port/HDMI 2.0b Port/ USB 3.2 Gen2 Type-C® Port with Alt-mode (optional)
- 1 Serial and 2 PS2 slot (optional)

##### Small Form Factor:

##### Front:

- 1 USB 3.2 Gen 1 Type-A port
- 1 USB 2.0 ports with PowerShare
- 1 USB 2.0 ports
- 1 USB 3.2 Gen 2 Type-C port
- 1 universal audio port

##### Rear:

- 4 USB 3.2 Gen 1 Type-A ports
- 2 USB 2.0 ports
- 1 re-tasking Line out/Line in audio port
- 2 DisplayPort 1.4 ports
- 1 RJ45 Ethernet port

##### Optional Modules:

- 1 VGA port
- 1 DisplayPort 1.4 port
- 1 HDMI 2.0b port
- 1 Serial/PS2 port
- 1 USB 3.2 Gen 2 type-C port with DisplayPort Alt Mode/Power delivery

##### Micro:

##### Front:

- 1 Universal Audio Jack
- 1 re-tasking Line-in/Line out audio port
- 1 USB 3.2 Gen 2x1 Type-C® port
- 1 USB 3.2 Gen 1 Type-A port with PowerShare

##### Rear:

- 1 RJ45 Ethernet port
- 1 Serial/Video port with Serial port/PS2 port/VGA port/DisplayPort 1.4 port/HDMI 2.0 Port/USB 3.2 Gen2 Type-C® Port with DP Alt-mode (optional)
- 1 USB 3.2 Gen 1 Type-A port
- 1 USB 3.2 Gen 1 Type-A port with Smart Power on
- 2 USB 3.2 Gen 1 Type-A ports
- 2 DisplayPort 1.4 ports

#### Optical Drive

**Tower:** 8x DVD-ROM, 8x DVD+/-RW; **Small Form Factor:** 8x DVD+/-RW (Optional); **Micro:** Dell OptiPlex Micro DVD/RW Enclosure Mount

#### Slots

##### Tower:

- 1 SD-card slot (optional)
- 1 full-height Gen 4 PCIe x16 slot
- 1 full-height Gen 4 PCIe x4 slot openend
- 2 full-height PCIe x1 slots
- 1 M.2 2230 slot for Wi-Fi and Bluetooth card
- 1 M.2 2230/2280 slot for SSD
- 4 SATA slots for 2.5-inch HDD/SSD, and slim Optical Drive

##### Small Form Factor:

- 1 half-height Gen 3 PCIe x16 slot
- 1 half-height Gen 3 PCIe x4 slot
- 1 M.2 2230 slot for WiFi and Bluetooth card
- 1 M.2 2230/2280 slot for solid-state drive/Intel Optane
- 3 SATA 3.0 slots for 3.5/2.5-inch hard drive, slim optical drive
- 1 SD 4.0 card slot (optional)

##### Micro:

- 1 M.2 2230 slot for Wi-Fi and Bluetooth card
- 1 M.2 2230/2280 slot for SSD/Intel Optane
- 1 SATA slot for 2.5-inch hard drive
- 1 Kensington cable-lock slot



# Features & Technical Specifications

## OPTIPLEX 5090 TOWER, SMALL FORM FACTOR AND MICRO

### Feature

#### Primary Hard Drive<sup>1,5</sup>

#### OptiPlex 5090 Technical Specifications<sup>1</sup>

##### Tower:

2.5-inch, 500 GB, 5400 RPM, SATA HDD  
2.5-inch, 1 TB, 5400 RPM, SATA HDD  
2.5-inch, 2 TB, 5400 RPM, SATA HDD  
2.5-inch, 500 GB, 7200 RPM, SATA HDD  
2.5-inch, 1 TB, 7200 RPM, SATA HDD  
2.5-inch, 500 GB, 7200 RPM, SATA, HDD, Self-Encrypting, Opal 2.0, FIPS  
3.5-inch, 500 GB, 7200 RPM, SATA, HDD  
3.5-inch, 1 TB, 7200 RPM, SATA, HDD  
3.5-inch, 2 TB, 7200 RPM, SATA, HDD  
3.5-inch, 4 TB, 5400 RPM, SATA, HDD  
M.2 2230, 128 GB, PCIe NVMe Gen3 x4, Class 35 SSD  
M.2 2230, 256 GB, PCIe NVMe Gen3 x4, Class 35 SSD  
M.2 2230, 512 GB, PCIe NVMe Gen3 x4, Class 35 SSD  
M.2 2280, 256 GB, PCIe NVMe Gen3 x4, Class 40 SSD  
M.2 2280, 512 GB, PCIe NVMe Gen3 x4, Class 40 SSD  
M.2 2280, 1 TB, PCIe NVMe Gen3 x4, Class 40 SSD  
M.2 2280, 2 TB, PCIe NVMe Gen4 x4, Class 40 SSD  
M.2 2280, 256 GB, PCIe NVMe Gen3 x4, Class 40 SSD, self-encrypting drive  
M.2 2280, 512 GB, PCIe NVMe Gen3 x4, Class 40 SSD, self-encrypting drive  
M.2 2280, 1 TB, PCIe NVMe Gen3 x4, Class 40 SSD, self-encrypting drive

##### Small Form Factor:

2.5-inch, 500 GB, 5400 RPM, SATA, HDD  
2.5-inch, 1 TB, 5400 RPM, SATA, HDD  
2.5-inch, 2 TB, 5400 RPM, SATA, HDD  
2.5-inch, 500 GB, 7200 RPM, SATA, HDD  
2.5-inch, 1 TB, 7200 RPM, SATA, HDD  
2.5-inch, 500 GB, 7200 RPM, SATA, HDD, Self-Encrypting, Opal 2.0, FIPS  
3.5-inch, 500 GB, 5400 RPM, SATA, HDD  
3.5-inch, 1 TB, 7200 RPM, SATA, HDD  
3.5-inch, 2 TB, 7200 RPM, SATA, HDD  
3.5-inch, 4 TB, 7200 RPM, SATA, HDD  
M.2 2230, 128 GB, PCIe NVMe Gen3 x4, Class 35 SSD  
M.2 2230, 256 GB, PCIe NVMe Gen3 x4, Class 35 SSD  
M.2 2230, 512 GB, PCIe NVMe Gen3 x4, Class 35 SSD  
M.2 2280, 256 GB, PCIe NVMe Gen3 x4, Class 40 SSD  
M.2 2280, 512 GB, PCIe NVMe Gen3 x4, Class 40 SSD  
M.2 2280, 1 TB, PCIe NVMe Gen3 x4, Class 40 SSD  
M.2 2280, 256 GB, PCIe NVMe Gen3 x4, Class 40 SSD, self-encrypting drive  
M.2 2280, 512 GB, PCIe NVMe Gen3 x4, Class 40 SSD, self-encrypting drive  
M.2 2280, 1 TB, PCIe NVMe Gen3 x4, Class 40 SSD, self-encrypting drive

#### Primary Hard Drive<sup>1,5</sup>

##### Micro:

2.5-inch, 1 TB, 5400 RPM, SATA, HDD  
2.5-inch, 2 TB, 5400 RPM, SATA, HDD  
2.5-inch, 500 GB, 7200 RPM, SATA, HDD  
2.5-inch, 1 TB, 7200 RPM, SATA, HDD  
2.5-inch, 500 GB, 7200 RPM, SATA, HDD, Self-Encrypting, Opal 2.0, FIPS  
2.5-inch, 500 GB, 5400 RPM, SATA, HDD  
M.2 2230, 128 GB, PCIe NVMe Gen3 x4, Class 35 SSD  
M.2 2230, 256 GB, PCIe NVMe Gen3 x4, Class 35 SSD  
M.2 2230, 512 GB, PCIe NVMe Gen3 x4, Class 35 SSD  
M.2 2280, 256 GB, PCIe NVMe Gen3 x4, Class 40 SSD  
M.2 2280, 512 GB, PCIe NVMe Gen3 x4, Class 40 SSD  
M.2 2280, 1 TB, PCIe NVMe Gen3 x4, Class 40 SSD  
M.2 2280, 2 TB, PCIe NVMe Gen4 x4, Class 40 SSD  
M.2 2280, 256 GB, PCIe NVMe Gen3 x4, Class 40 SSD, self-encrypting drive  
M.2 2280, 512 GB, PCIe NVMe Gen3 x4, Class 40 SSD, self-encrypting drive  
M.2 2280, 1 TB, PCIe NVMe Gen3 x4, Class 40 SSD, self-encrypting drive

Intel Optane Memory for Tower, Small Form Factor and Micro: Intel® Optane™ Memory H20 32 GB with 512 GB SSD

# Features & Technical Specifications

## OPTIPLEX 5090 TOWER, SMALL FORM FACTOR AND MICRO

### Feature

#### Dimensions

#### OptiPlex 5090 Technical Specifications<sup>1</sup>

##### Tower:

##### US Dimensions

Front Height: 12.77 in. (324.30 mm) Rear Height: 12.77 in. (324.30 mm) Width 6.60 in. (154 mm) Depth 11.54 in. (293.00 mm)  
Weight (min): 11.07 lb (5.03 kg) Weight (max): 15.95 lb (7.24 kg)

##### ROW Dimensions

Front Height: 324.30 mm (12.77 in.) Rear Height: 324.30 mm (12.77 in.) Width: 154.00 mm (6.06 in.) Depth: 292.00 mm (11.5 in.) Weight (min): 5.90 kg (13.01 lb) Weight (max): 7.21 kg (15.90 lb)

##### India Dimensions

Front Height: 324.30 mm Rear Height: 292.00 mm Width: 154.00 mm Depth: 292.00 mm Weight (min): 5.90 kg  
Weight (max): 7.21 kg

##### Small Form Factor:

##### US Dimensions

Height: 11.42 in. (290.00 mm) Width 3.65 in. (92.6 mm) Depth 11.53 in. (292.80 mm) Weight (min): 9.77 lb (4.43 kg)  
Weight (max): 12.53 lb (5.66 kg)

##### ROW Dimensions

Height: 290 mm (11.42 in.) Width: 92.60 mm (3.65 in.) Depth: 292.80 mm (11.53 in.) Weight(minimum): 4.43 kg (9.76 lb) Weight(maximum): 5.65 kg (12.53 lb)

##### India Dimensions

Height: 290 mm Width: 92.60 mm Depth: 292.80 mm Weight(minimum): 4.43 kg Weight(maximum): 5.65 kg

##### Micro:

##### US Dimensions

Height: 7.2 in. (183.00 mm) Width 1.4 in. (36.00 mm) Depth 7.0 in. (178.50 mm) Weight (min): 2.56 lb (1.16 kg) Weight (max): 2.83 lb (1.28 kg)

##### ROW Dimensions

Height: 182 mm (7.16 in.) Width: 178.50 mm (7.02 in.) Depth: 36 mm (1.41 in.) Weight: 1.17 kg (2.58 lb)

##### India Dimensions

Height: 182 mm Width: 178.50 mm Depth: 36 mm Weight: 1.17 kg

#### Power

##### Tower:

260 W typical 85% Efficient PSU, 80 Plus Bronze  
300 W typical 92% Efficient PSU, 80 Plus Platinum  
360 W typical 92% Efficient PSU, 80 Plus Platinum

##### Small Form Factor:

300 W typical 92% Efficient PSU, 80 Plus Platinum  
200 W typical 85% Efficient PSU, 80 Plus Bronze

##### Micro:

90 W AC adapter, 4.5 mm barrel for 35 W CPU (<=6C)  
130 W AC adapter, 4.5 mm barrel for 35 W CPU (8C)

#### Hardware Security

1 Kensington security-cable slot  
1 Padlock loop  
Chassis lock slot support  
Chassis intrusion switch  
Lockable cable covers  
Supply chain tamper alerts  
SafelD including Trusted Platform Module (TPM) 2.0  
Smart card keyboard (FIPS)  
Microsoft 10 Device Guard and Credential Guard (Enterprise SKU)  
Microsoft Windows Bitlocker  
Local hard drive data wipe through BIOS (Secure Erase)  
Self-encrypting storage drives (Opal, FIPS)  
Trusted Platform Module TPM 2.0  
China TPM  
Intel Secure Boot  
Intel Authenticate  
**SafeBIOS:** includes Dell Off-host BIOS Verification, BIOS Resilience, BIOS Recovery, and additional BIOS Controls



# Features & Technical Specifications

## OPTIPLEX 5090 TOWER, SMALL FORM FACTOR AND MICRO

### Feature

#### Recommended accessories

#### OptiPlex 5090 Technical Specifications<sup>1</sup>

**Monitors:** Qualified with select Dell UltraSharp, Professional, and E-series monitors

**Keyboards:** Dell Premier Multi-Device Wireless Keyboard and Mouse, Dell wired keyboard with multimedia functionality, Dell Smart Card keyboard, Dell wireless keyboard

**Mouse:** Dell wired mouse, Dell wireless mouse, Dell Laser mouse, Dell Wired Fingerprint Reader Mouse

**Audio Speakers:** Internal Dell Business audio speaker, Dell stereo speaker systems; Dell sound bar for select flat-panel displays, Dell Wireless Speaker System

**Audio Headsets:** Dell Pro Stereo headsets

**Micro Mounting Options:** Micro Vertical Stand, Micro VESA Mount, Micro Dual VESA Mount, Micro All-in-One Stand, Micro All-in-One Mount for E Series Displays, Micro DVD+/-RW Enclosure

**Small Form Factor Mounting Option:** Small Form Factor All-in-One Stand

Microsoft® Office 30 Day Trial, Microsoft® Office Home and Business 2019, Microsoft® Office Professional 2019

#### Productivity Software

#### Audio and Speakers<sup>1</sup>

##### Tower & Micro:

Stereo speakers with Waves MaxxAudio® Pro, 2 W x 2 = 4 W total

##### Small Form Factor:

Mono speaker with Waves MaxxAudio®, 2 W

#### Systems Management Options<sup>9</sup>

Dell Client Command Suite for In-Band systems management  
Intel® Standard Manageability

#### Regulatory<sup>9,10</sup>

ENERGY STAR qualified configurations available

EPEAT Registered configurations available

TCO 8.0 certified configurations available

CEL

WEEE

Japan Energy Law

South Korea E-standby

EU RoHS

China RoHS

#### Warranty

3 years hardware warranty with on-site service after remote diagnosis

4 years hardware warranty with on-site service after remote diagnosis

5 years hardware warranty with on-site service after remote diagnosis

3 years ProSupport with Next Business Day on-site service

4 years ProSupport with Next Business Day on-site service

5 years ProSupport with Next Business Day on-site service

3 years ProSupport Plus with Next Business Day on-site service

4 years ProSupport Plus with Next Business Day on-site service

5 years ProSupport Plus with Next Business Day on-site service

#### Accidental Damage Services<sup>11</sup>

3 years Accidental Damage Service, 4 years Accidental Damage Service, 5 years Accidental Damage Service

#### Configuration Services

Factory image load, BIOS customization, Hardware customization, Asset Tagging and Reporting



# DELL Technologies

OPTIPLEX 5090 TOWER, SMALL FORM FACTOR AND MICRO

Intelligent, mainstream desktops with right-sized performance & configurations.



Discover professional class desktops at [www.dell.com/OptiPlex](http://www.dell.com/OptiPlex)

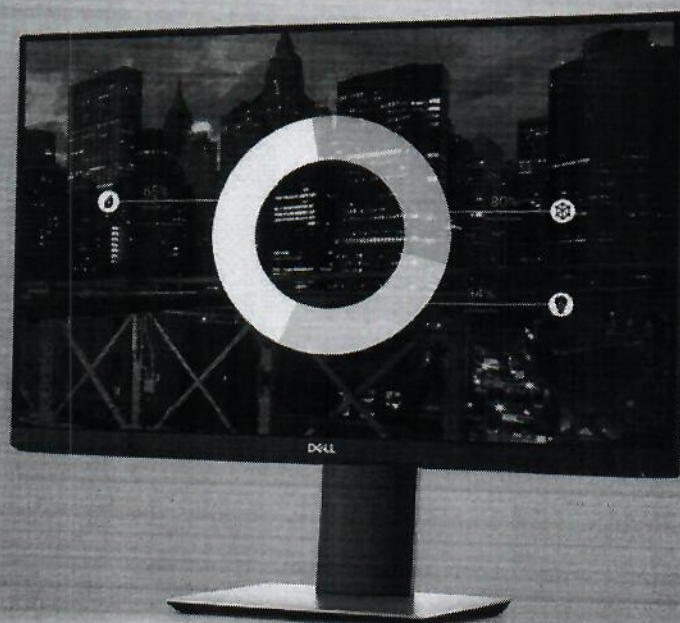
1. Offering may vary by region. Some items may be available after product introduction. For complete details, refer to the Technical Guidebook published on [www.dell.com/support](http://www.dell.com/support).
2. System Memory and Graphics: Significant system memory may be used to support graphics, depending on system memory size and other factors.
3. 4GB or Greater System Memory Capability: A 64-bit operating system is required to support 4GB or more of system memory.
4. Particular versions of Microsoft Windows may not support the full Bluetooth 4.2 functionality.
5. Storage Option: GB means 1 billion bytes and TB equals 1 trillion bytes; actual capacity varies with preloaded material and operating environment and will be less.
6. TPM is available in selected regions.
7. Computrace: Not a Dell offer. Certain conditions apply. For full details, see terms and conditions at [www.lockforlaptops.com](http://www.lockforlaptops.com).
8. Please refer to [www.epeat.net](http://www.epeat.net) for specific country registration rating and participation.
9. Limited Hardware Warranty: For copy of Ltd Hardware Warranty, write Dell USA LP, Attn: Warranties, One Dell Way, Round Rock, TX 78682 or see [www.dell.com/warranty](http://www.dell.com/warranty).
10. on-site service after Remote Diagnosis: Remote Diagnosis is determination by online/phone technician of cause of issue; may involve customer access to inside of system and multiple or extended sessions. If issue is covered by Limited Hardware Warranty ([www.dell.com/warranty](http://www.dell.com/warranty)) and not resolved remotely, technician and/or part will be dispatched, usually within 1 business day following completion of Remote Diagnosis. Availability varies. Other conditions apply.
11. Dell Services: Availability and terms of Dell Services vary by region. For more information, visit [www.dell.com/servicedescriptions](http://www.dell.com/servicedescriptions).
12. For complete listing of declarations and certifications, refer to the Dell Regulatory and Environmental Datasheet found in the Manuals section of Product Support information [www.dell.com/support/home/us/en/19](http://www.dell.com/support/home/us/en/19).





# Transform how you work.

DELL 24 MONITOR | P2419H



## OPTIMIZE YOUR WORKSPACE

Free up valuable desk space with this 23.8" FHD monitor featuring the smallest monitor base in its class.<sup>1</sup> Easily hide away cable clutter with the improved cable management design.



## MAXIMIZE PRODUCTIVITY

The 3-sided ultrathin bezel delivers a seamless view across multiple monitors, while Easy Arrange in Dell Display Manager software helps you stay organized when multitasking.



## WORK COMFORTABLY

Pivot, tilt, swivel and adjust the height of your monitor to your exact preference. Stay focused longer with a flicker-free screen and ComfortView that optimize eye comfort.

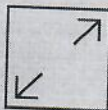


## TRUSTED RELIABILITY

Dell monitors — World's number 1 monitor brand<sup>2</sup>  
Enjoy peace of mind with Dell Premium Panel Exchange, 3 year Advanced Exchange Service<sup>3</sup> and optional ProSupport.<sup>4</sup>



# Maximize productivity



## OPTIMIZED WORKSPACE

**More room to work:** Free up valuable desk space with a thin monitor profile and the smallest monitor base in its class.<sup>1</sup>

**Clutter-free:** Focus on your work while hiding away cable clutter with an improved cable management design.

**Consistent and rich colors:** A wide viewing angle enabled by In-Plane Switching technology lets you see vibrant colors—no matter where you sit.



## MAXIMIZE PRODUCTIVITY

**Expand your efficiency:** The three-sided ultrathin bezel design lets you enjoy an uninterrupted view of your content across multiple monitors. And, with dual monitors, you can increase your productivity by up to 18%.<sup>5</sup>

**More ways to multitask:** Work conveniently across multiple screens and select from predefined templates with the Easy Arrange feature on Dell Display Manager software. Quickly tile and arrange your applications and get back to work faster with Auto-restore, a feature that remembers where you left off.



## WORK COMFORTABLY

**Adjust to your comfort:** Pivot, tilt, swivel and adjust the height of your monitor for a comfortable setup all day long. Or choose from a variety of mounts and stands, including VESA, for even more flexibility.

**Easy on the eyes:** This TÜV<sup>®</sup> Certified monitor has a flicker-free screen with ComfortView, a feature that reduces harmful blue light emissions. It's designed to optimize eye comfort even over extended viewing.



## TRUSTED RELIABILITY

### DELL MONITORS – WORLD'S NUMBER 1 MONITOR BRAND<sup>2</sup>

**Peace of mind:** Dell Premium Panel Exchange allows a free panel replacement during the Limited Hardware Warranty<sup>7</sup> period even if only one bright pixel is found.

**Minimize downtime:** Your monitor comes with a 3-year Advanced Exchange Service<sup>3</sup> so that if a replacement becomes necessary, it will be shipped to you the next business day during your 3-year Limited Hardware Warranty.<sup>7</sup>

**Get a higher level of support:** Upgrade to 24x7, in-region technical phone support from qualified engineers with Dell ProSupport option.<sup>4</sup>



# Features & Technical Specifications

## Monitor

Diagonal Viewing Size  
Active Display Area  
Height  
Width  
Maximum Preset Resolution  
Aspect Ratio  
Pixel Pitch  
Pixel Per Inch (PPI)  
Brightness  
Color Support  
  
Contrast Ratio  
Viewing Angle  
Response Time  
Panel Type  
Backlight Technology  
ComfortView with Flicker-free screen  
Dell Display Manager Compatibility  
Remote Asset Management  
Display Screen Coating

Dell 24 Monitor - P2419H  
60.45 cm (23.8 inches)  
527.04 mm (20.75")  
296.46 mm (11.67")  
1920 x 1080 at 60 Hz  
16:9  
0.275 mm x 0.275 mm  
92  
250 cd/m<sup>2</sup> (typical)  
Color Gamut (typical): 72% (CIE1931)<sup>s</sup>  
Color Depth: 16.7 Million colors  
1000:1 (typical)  
178°/178°  
8 ms (Normal); 5 ms (Fast) - (gray to gray)  
In-Plane Switching Technology  
LED Edgelight System  
Yes  
Yes  
Yes, via Dell Command | Monitor  
Antiglare with 3H hardness

## Connectivity

### Connectors

1 x DisplayPort version 1.2, 1 x HDMI port version 1.4, 1 x VGA port, 1 x USB 3.0 upstream port (bottom), 2 x USB 3.0 downstream ports (side), 2 x USB 2.0 downstream ports (bottom)  
USB 3.0 super-speed hub (with 1 x USB 3.0 upstream port), 2 x USB 3.0 downstream ports, 2 x USB 2.0 downstream ports

### Built-in Devices

## Design Features

### Adjustability

Height-adjustable stand (130 mm), Tilt (-5° to 21°)  
Swivel (-45° to 45°), Pivot (-90° to 90°)  
Security lock slot (cable lock sold separately)  
VESA (100 mm x 100 mm)

### Security

### Flat Panel Mount Interface

## Power

AC input  
voltage/frequency/current  
Power Consumption (Operational)  
Power Consumption Stand by / Sleep

100 VAC to 240 VAC / 50 Hz or 60 Hz ± 3 Hz / 1.5 A (typical)  
18W (typical) / 42W (maximum)<sup>s</sup>  
Less than 0.3W

## Dimensions (with stand)

Height (Compressed ~ Extended)  
Width  
Depth

356.1 mm ~486.1 mm; 14.02" ~19.14"  
537.8 mm (21.27")  
166.0 mm (6.54")

### Weight

Weight (panel only - for VESA mount)  
Weight (with stand)  
Weight (with packaging)

3.26 kg (7.19 lb)  
5.25 kg (11.57 lb)  
7.10 kg (15.65 lb)

## Standard Service Plan

Premium Panel Exchange, 3 Years Advanced Exchange Service<sup>2</sup> & Limited Hardware Warranty<sup>7</sup>

## Optional Service Plan

Dell ProSupport<sup>4</sup>

## Environmental Compliance

ENERGY STAR<sup>®</sup>, EPEAT<sup>®</sup> Gold<sup>®</sup>, RoHS Compliant, TCO-Certified Display, BFR/PVC free monitor (excluding external cables), Arsenic-Free glass and Mercury-Free for the panel only

## What's in the box?

### Components

- Monitor with stand

### Cables

- DisplayPort cable
- USB 3.0 upstream cable
- Power cable

### Documentation

- Quick Setup Guide
- Drivers and documentation media
- Safety and regulatory information



# Adjustability and connectivity

DELL 24 MONITOR | P2419H

Easily adjust the panel to your preferred viewing position.



Back view -  
Cable management slot



Tilt and height adjustable

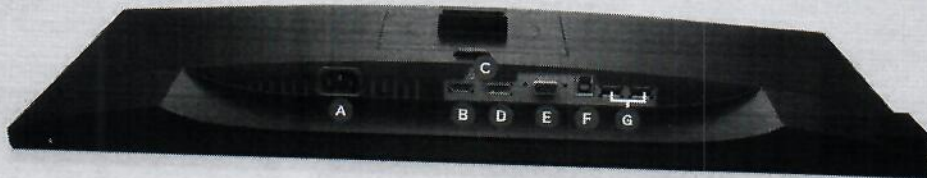


Pivot



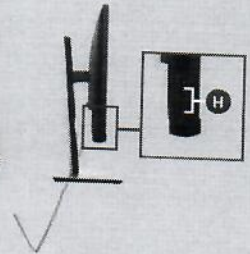
Swivel

## Connectivity



- A Power connector
- B HDMI port
- C Stand lock feature
- D DisplayPort

- E VGA connector
- F USB upstream port
- G USB downstream ports (x2)
- H USB downstream ports (x2)



## RECOMMENDED ACCESSORIES



DELL DUAL MONITOR  
STAND | MDS19

Enjoy toolless monitor installation with Quick Release and the flexibility to pivot, tilt, swivel and adjust the height of each monitor independently. Features a small footprint and neat cable management.



DELL PRO STEREO  
SOUNDBAR | AE515M

Optimize conference calls and multimedia streaming with exceptional audio clarity. Minimize background noise with the dual mic array and echo-cancelling feature.



DELL WIRELESS KEYBOARD  
AND MOUSE | KM636

Elevated and spacious chiclet keys with muted typing sound. Pair up to 6 devices with Dell Universal Pairing.

- 1 Based on Dell Internal analysis comparing the area of the monitor base in competitive 23.8" size monitors as of March 2018.
- 2 Dell monitors are #1 worldwide for 5 consecutive years (2013-2017)! Source: IDC Quarterly PC Monitor Tracker, Q4 2017.
- 3 Advanced Exchange: Dell will send you a replacement monitor the next business day in most cases, if deemed necessary after phone/online diagnosis. Shipping times may vary by location and for monitors 55" and above. Fee charged for failure to return defective unit. See [dell.com/servicecontracts/global](http://dell.com/servicecontracts/global).
- 4 Availability varies, please visit [www.dell.com/support](http://www.dell.com/support) for details.
- 5 Source: "Dell Displays, Productivity and Satisfaction Single vs. Dual Monitors," conducted by SURL, Wichita State University and commissioned by Dell, October 2015.
- 6 TÜV Certified (ID0000051363-Flicker Free / ID0000051370-Low Blue Light Content). For more details, visit [www.tuv.com](http://www.tuv.com).
- 7 For a copy of the Limited Hardware Warranty, write to Dell USA LP, Attn: Warranties, One Dell Way, Round Rock, TX 78682 or see [dell.com/warranty](http://dell.com/warranty).
- 8 Color gamut (typical) is based on CIE1976 (82%) and CIE1931 (72%) test standards.
- 9 Maximum power consumption with max luminance and contrast.
- 10 EPEAT Gold registered in the U.S. EPEAT registration varies by country. See [www.epeat.net](http://www.epeat.net) for registration status by country.

[Dell.com/monitors](http://Dell.com/monitors). Product availability varies by country. Please contact your Dell representative for more information.

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