PT

Boost productivity with two new Dell displays

21% less time to complete a task in dual-display configuration*

Save power

Use 22% less power in single-display configuration*

Ergonomic flexibility

15% smaller single-display footprint* saves desk space and lets you position displays at 50-100 cm for preferred viewing conditions[1]

*compared to a two-generations-old Dell™ display in single-display configuration

Improve productivity with the new Dell P-Series displays in a dual-display configuration

Plus, save power, gain flexibility, and give employees more room to work in

Executive summary

Modern professional displays have the potential to boost employee productivity and provide a better user experience for employees. We conducted a study of the improvements the latest Dell P-series displays offer over the previous generation of Dell displays. We looked at productivity, energy costs, and ergonomics and found the following:

- Participants completed a complex office task in 21 percent less time on average using on a dual-display configuration of the new Dell 24 Monitor - P2419H with Dell Display Manager versus an older model in a single-display configuration.

- Workstation setup took up to 72 percent less time with the Dell 24 USB-C Monitor - P2419HC versus a model lacking USB-C connectivity.

- The 15 percent smaller base of the Dell 24 Monitor - P2419H increases users' chances of obtaining the recommended viewing position of 50 to 100 cm.

- The new Dell 24 Monitor - P2419H in a single-display configuration consumed 22 percent less electricity than the older model, which translates to cost savings.

Read on to see how these advantages make the Dell P-Series displays a great choice for users and organizations looking to boost employee productivity.

About Dell Display Manager

Our dual-display configuration used Dell Display Manager, a Microsoft® Windows® application supported by select Dell models. According to the Dell Display Manager User's Guide,[2] it allows users to manually adjust the displayed image, assign automatic settings, manage energy usage, organize windows, rotate images, and more. The "Easy Arrange" feature lets users efficiently position all open windows in a predefined or custom layout.
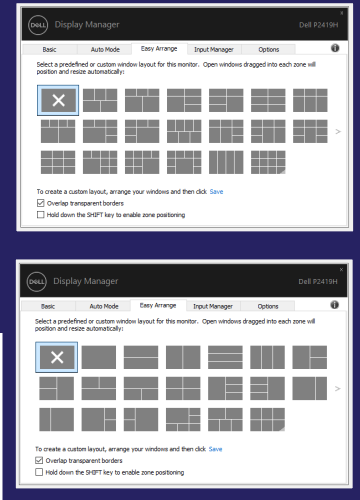
Selecting a display that addresses multiple business needs

Imagine the IT purchasing department for an organization with thousands of employees, many of whom spend all or part of their work lives in front of computer screens. When employees start complaining about their aging displays, the buyers investigate new alternatives. For all purchases, they must consider evergreen concerns, such as improving productivity and reducing unnecessary costs, and emerging organizational initiatives such as employee wellness.

Not every purchase will satisfy all these goals, but how cool would it be to find a display that checked every box? We conducted a series of tests and learned the following:

1. Two new displays are better than one old display. The median participant in a panel of five users completed a complex office task in 6.1 seconds less time, or a savings of 21 percent, on a dual-display configuration of the new Dell 24 Monitor - P2419H with Dell Display Manager versus the older model in a single-display configuration.

2. Workstation setup took 72 percent less time on the Dell 24 USB-C Monitor - P2419HC. We connected a mouse, keyboard, and two USB drives to the USB-C-enabled display instead of the laptop. We then used a single USB-C cable as the main connection instead of dealing with an HDMI cable, USB data cable, two USB drives, and a power adapter every time we connected and disconnected the laptop to and from the older display.

3. The base of the new Dell 24 Monitor - P2419H is 15 percent smaller than that of the older model. Moving to the single-display configuration of this display would give the organization the option of selecting desks with smaller work surfaces and/or allowing workers to place the display closer to the wall, increasing their chances of obtaining the recommended viewing position of between 50 and 100 cm and freeing up valuable desk space for other purposes.[3]

4. The new Dell 24 Monitor - P2419H in a single-display configuration consumed 22 percent less electricity than the older display, which translates to cost savings.

Read on to learn more about how the Dell P-Series display can help your company meet its goals.

Ergonomics

Dell P-Series displays offer an array of adjustment options that make it easier for users to position the display for a comfortable viewing experience. These include full height adjustability, tilt, pivot, and swivel. Dell P-Series displays also include ComfortView, a feature designed to minimize blue light emission. (Note: We did not test ComfortView.)

Goals for new displays:

☑ Boost productivity

☑ Work on smaller desks

☑ Help with ergonomics

☑ Lower power usage

For productivity, two is better than one

Certain tasks require office workers to move back and forth between multiple applications or documents. Many office workers use multiple applications. With one display, this can mean choosing between two mediocre alternatives: (1) jumping back and forth between windows or (2) shrinking windows to an annoyingly small size to position them side by side. Would equipping these folks with dual-display setups allow them to work more efficiently?

The goal:

Boost employee productivity

How the Dell 24 Monitor - P2419H in a dual-display configuration with Easy Arrange helps:

Employees can organize and view the docs they need side-by-side. In our tests, the median user, Participant 2, completed tasks 21% more quickly.

How the organization benefits:

Workers waste less time switching between windows and accomplish more during each shift, leading to productivity gains per employee.

We had five users complete a report by copying and pasting material from different source documents in Microsoft Office applications. Each participant performed the same task twice: once using Dell 24 Monitor - P2419H P-Series displays in dual-display configuration with the Dell Display Manager Easy Arrange feature and once using an older Dell 24 Monitor - P2414H in single-display configuration.

As the chart below shows, every participant completed the task in less time using the dual-display setup than using a single display. Some completed the task faster on both configurations, while others required more time, based on personal ability. The median time to complete the tasks was 23.7 minutes on the Dell 24 Monitor - P2419H dual-display configuration and 29.8 minutes on the Dell 24 Monitor - P2414H single-display configuration. So, Participant 2, our median user, completed the task in 21 percent less time on the dual-display configuration.

Time to complete the task (minutes)

(Less time is better)

Participant	Single-display (P2414H)	Dual-display (P2419H)
Participant 1	33.5	31.2
Participant 2	29.8	23.7
Participant 3	27.8	22.3
Participant 4	31.8	27.0
Participant 5	24.1	20.0

One Dell 24 Monitor - P2414H in single-display configuration
Two Dell 24 Monitor - P2419H displays in dual-display configuration with Dell Display Manager
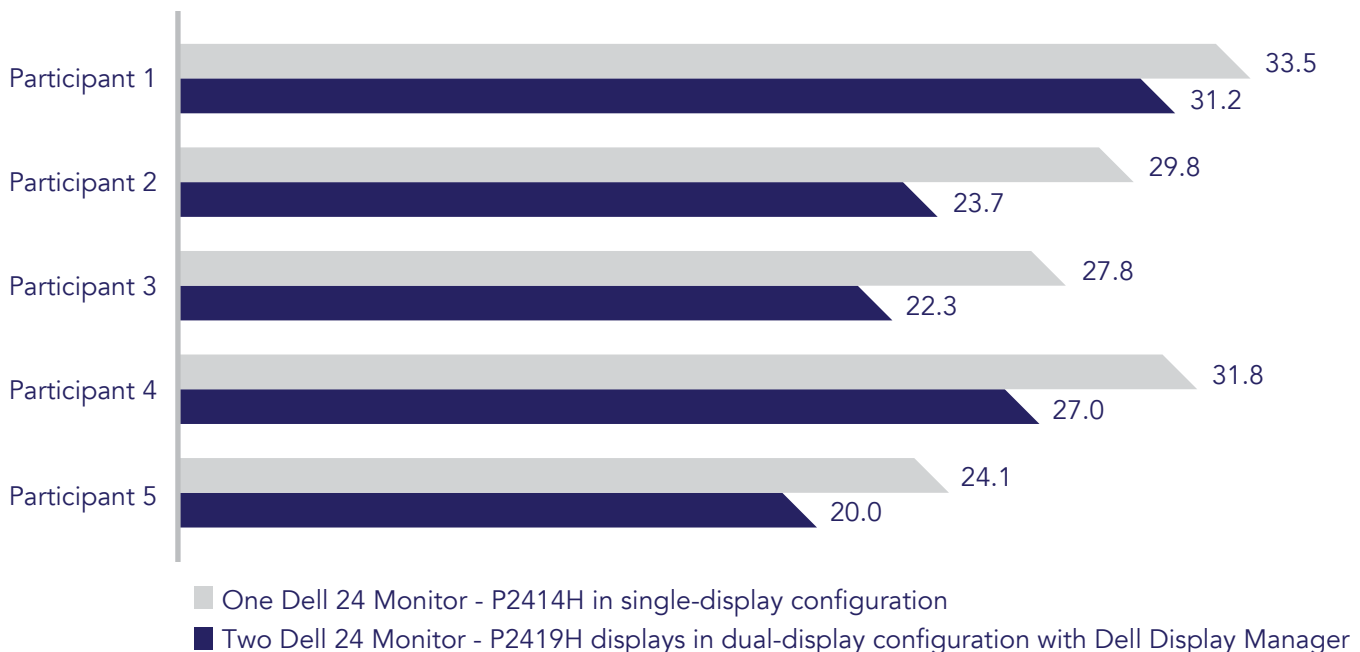
How the productivity savings could add up

While four or five minutes—the average time our testers saved—might not sound like much, the time adds up. Some employees spend most of their workdays moving between applications, while others do so less often. For example, say a worker completes a task such as the one we tested once per workday. In a typical five-day work week, that employee would save 23 minutes with the new Dell display—that's over 2.4 workdays each year.[4] Across 2,000 employees, that time savings would equal 4,792 days per year. Based on the U.S. Department of Labor average compensation costs for professional employees, that productivity translates to a gain of $2,314,183.[5]

On average, save 4.6 minutes performing a half-hour task once daily	Save 23 minutes weekly	Save 2.4 workdays annually	Save $1,157.09 annually, based on $60.37 average hourly costs (salary + benefits)

With 2,000 workers, this savings would add up to $2,314,183 annually.

No such thing as an "average worker"

We based potential savings on an hourly total compensation cost of $60.37 (including wages and benefits), the U.S. Department of Labor average for civilian workers across the country in the "Management, professional, and related" occupational group. That figure varies greatly depending on factors such as location, industry, and occupational group. Depending on these and other factors, companies may realize greater or lesser savings than those we quote.

A peek into our testing

We randomized the order in which the participants worked on each display configuration and provided two different sets of documents to make sure that familiarity with the material didn't give them an edge the second time. Learn more about our testing in the science behind this test.
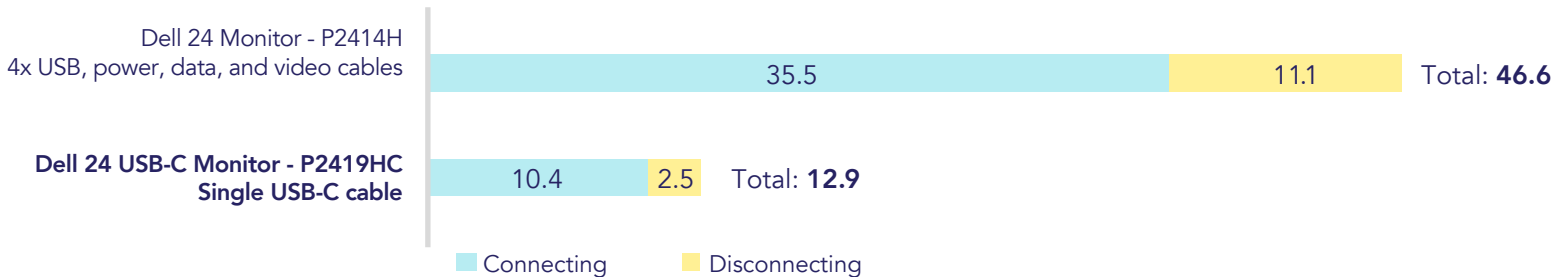
How USB-C connectivity saves time

In this scenario, we measured the time differences between connecting and disconnecting a laptop and accessories to and from the new Dell 24 USB-C Monitor - P2419HC, a variant of the standard model that includes USB-C connectivity, compared to the older Dell 24 Monitor - P2414H. This is important because many users connect their laptops not only to displays, but also to peripheral accessories such as keyboards, mice, and external storage. For those who unplug their laptops to attend face-to-face meetings, connecting and disconnecting cables repeatedly during the workday can be a hassle.

Setting up a workstation on the older Dell 24 Monitor - P2414H required connecting an HDMI cable, a USB data cable, two USB drives, and a power adapter to the laptop. With the new Dell 24 USB-C Monitor - P2419HC, we connected the mouse, keyboard, and two USB drives to the display instead of the laptop, using a single USB-C cable as the main connection. This meant we had only one cable to deal with every time we connected and disconnected the laptop instead of multiple cables and accessories. USB-C connectivity, which can deliver not just video and audio signals but also data and power to charge your notebook, makes this arrangement possible.

As the chart below shows, connecting and disconnecting a laptop and peripheral accessories took up to 72 percent less time on the Dell 24 USB-C Monitor - P2419HC.

Time to connect/disconnect a laptop and accessories (seconds)
(Less time is better)

Dell 24 Monitor - P2414H 4x USB, power, data, and video cables	35.5 · 11.1	Total: **46.6**
Dell 24 USB-C Monitor - P2419HC **Single USB-C cable**	10.4 · 2.5	Total: **12.9**

■ Connecting   ■ Disconnecting

To see how those 33 seconds of regained time make a difference over the course of a year, let's consider a manager who brings his laptop to two meetings each day. He'd carry out the task of plugging in and unplugging three times daily (Once when arriving/leaving work, and once per meeting). If, over the course of a year, he connected to and disconnected from the Dell 24 USB-C Monitor - P2419HC instead of the older model, he would gain up to 6.3 hours to be more productive. Across 2,000 professional employees, those productivity gains could translate to a time savings equaling $760,662.[6]

33 sec	**1:39** min:sec	**8:15** min:sec		**$**
Save 33 seconds connecting/ disconnecting a single cable	Save 1 minutes 39 seconds daily (performing task 3 times)	Save 8 minutes 15 seconds weekly	Save 6.3 hours annually	Productivity gain $380.33 annually, based on $60.37 average hourly costs (salary + benefits)

With 2,000 workers, this savings would add up to $760,662 annually.

Dell 24 Monitor - P2414H

7.08 in.

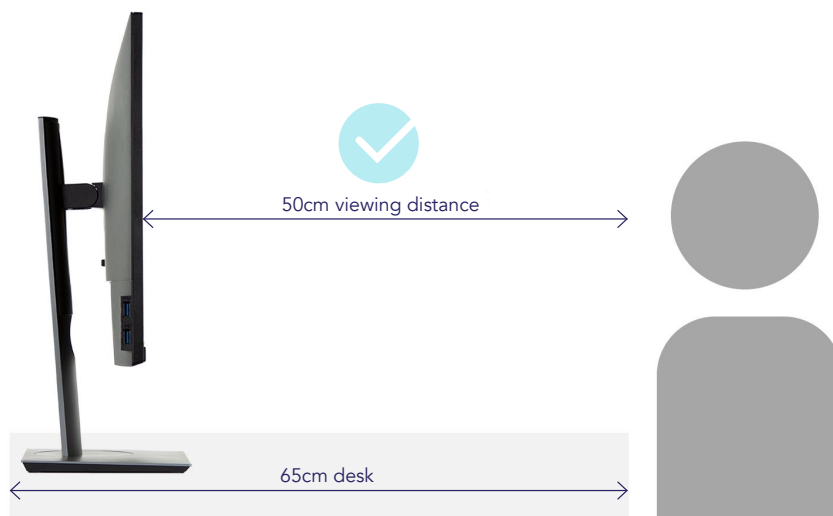Dell 24 Monitor - P2419H

6.54 in.

Footprints—important to office workers as well as detectives

The long hours that many employees spend at their computers each day can threaten their physical well-being. According to The Vision Council, an independent authority in the optical industry, 32.6 percent of Americans report eye strain from their digital devices. Americans also report the following experiences:[7]

- eye strain (reported by 32.6 percent)
- dry eyes (reported by 22.7 percent)
- headache (reported by 21.4 percent)
- blurred vision (reported by 22.0 percent)
- neck and shoulder pain (reported by 30.8 percent)

Positioning displays correctly can help make workstations more ergonomic and prevent digital eye strain. The U.S. Occupational Safety and Health Administration (OSHA) states that the preferred viewing distance is between 20 and 40 inches (50 and 100 cm).[8] Since 2010, the amount of office space per U.S. employee has been declining steadily.[9] As offices shrink and desks follow suit, a smaller display footprint becomes increasingly important to help workers achieve this optimal distance.[10]

A user with a desk 65cm deep could position the Dell 24 Monitor - P2419H at the optimal viewing distance of 50 cm or greater.

50cm viewing distance

65cm desk

The Dell 24 Monitor - P2419H offers tilt, swivel, and pivot display position adjustments to customize setups. Plus, it has a smaller base than previous models. Its footprint of 53.2 square inches is 15 percent smaller than the 62.7 square inches the older Dell 24 Monitor - P2414H. Creative office environments that incorporate "hot desking," where multiple workers share a single desk on a rotating schedule, and "benching," where a group of employees use a single large table rather than individual desks, are growing in popularity.[11] A smaller footprint in these environments allows users to use the table for other purposes. The smaller base of the Dell 24 Monitor - P2419H means users can move their displays farther away, increasing the viewing distance for optimal ergonomics.

The goals:

- Maximize limited office space throughout the campus.
- Support employee wellness through ergonomics.

How the Dell P-Series display contributes:

The newer display has a 15% smaller footprint.

How the organization benefits:

- They can buy smaller desks and still have room for displays.
- Employees have greater flexibility to position their displays in the optimal location.

Power savings

When we tested the overall energy consumption of the two display models—out of the box, with default settings, and with no accessories attached—the new Dell 24 Monitor - P2419H used 18.25 watts per hour—22 percent less power than the 23.34 watts per hour the older Dell 24 Monitor - P2414H used.
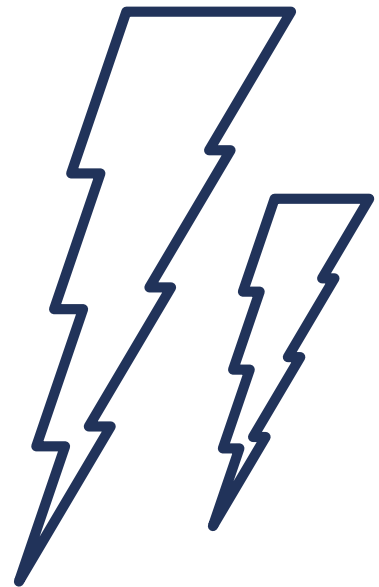
Conclusion

All buyers have choices when selecting the displays that the employees across their organization will use. As we've seen, selecting a Dell P-Series display offers many advantages over the older Dell model we tested.

- When we asked users to perform a complex task involving multiple applications, the new Dell 24 Monitor - P2419H, in dual-display configuration, allowed the median user to get the job done in 21 percent less time compared to the older model in a single-display configuration. Across 2,000 employees, this time savings would add up to substantial productivity gains.

- The USB-C-enabled Dell 24 USB-C Monitor - P2419HC model streamlined the chore of connecting and disconnecting multiple cables every time employees take their laptops somewhere else, letting users spend an average of 72 percent less time fussing with cables compared to the older Dell 24 Monitor - P2414H. Across 2,000 employees, the productivity gains would add up to thousands of dollars annually.

- We also found the base of the new Dell 24 Monitor - P2419H is 15 percent smaller than the older model, which means it fits more comfortably on a smaller desktop and gives users extra flexibility when positioning their screen.

- The new display also used 22 percent less power, contributing to company-wide savings.

These numbers give IT buyers a great deal to think about as they shop for displays.

1   "Computer Workstations eTool," accessed July 9, 2018, https://www.osha.gov/SLTC/etools/computerworkstations/components_moni-tors.html

2   "Dell Display Manager User's Guide," accessed July 9, 2018, https://downloads.dell.com/manuals/all-products/esuprt_display_projector/esuprt_display/dell-u2415_user%27s%20guide2_en-us.pdf

3   "Computer Workstations eTool."

4   Based on a 46-week work year per employee, which include holidays, vacation, and sick leave. Source: Robert W. Van Giezen, "Paid leave in private industry over the past 20 years," accessed July 9, 2018, http://www.bls.gov/opub/btn/volume-2/paid-leave-in-private-industry-over-the-past-20-years.htm

5   "Employer costs for Employee Compensation—March 2018," accessed July 9, 2018, https://www.bls.gov/news.release/pdf/ecec.pdf

6   "Employer costs for Employee Compensation—March 2018."

7   Digital Eye Strain," accessed July 20, 2018, https://www.thevisioncouncil.org/content/digital-eye-strain

8   "Computer Workstations eTool."

9   Adrian Ponsen, "Trends in Square Feet per Office Employee: An Update," accessed July 9, 2018, https://www.naiop.org/en/Maga-zine/2017/Fall-2017/Marketing-Leasing/Trends-in-Square-Feet-per-Office-Employee-An-Update

10 Adrian Ponsen, "Trends in Square Feet per Office Employee: An Update."

11 Adrian Ponsen, "Trends in Square Feet per Office Employee: An Update."

Read the science behind this report at http://facts.pt/ksh1m1 ▶

Principled Technologies®

Facts matter.®

This project was commissioned by Dell Technologies.