



Travel Light and Game Heavy

Intel® Thunderbolt™ 3 External Graphics Enables Powerful GPUs for Game Play and Other Applications

With Thunderbolt™ 3 External Graphics (eGFX), gamers and heavy graphics users who are mobile, now have more, easy-to-use choices to get the graphics experiences they want. They can enjoy their choice of a high-performance graphic card they love with the latest thin-and-light laptops, allowing them to game and work with one machine. External Graphics enables thin-and-light laptops with the latest Thunderbolt 3 connectivity to bring desktop-level gaming and powerful graphics for demanding applications such as Adobe Photoshop*, Premier Pro*, and AutoCAD*.

It's All About Flexibility and Choice

Today's mainstream laptops have an Intel® Core™ processor with Intel® HD or UHD graphics or, in addition, have a light dedicated GPU inside to support entry-level or mainstream gaming experiences. Those who want a richer mobile gaming experience (higher resolution, higher quality, and/or high frame rates) from their portable machines have to choose more expensive rigs with dedicated higher-end mobile GPUs inside. But, these machines are not portable for everyday use. With Thunderbolt 3 eGFX, gamers, video editors, and heavy graphics users now can enjoy the best of both worlds – easy portability on the road and screaming graphics from their favorite GPU – on the same machine, simply by plugging in a Thunderbolt 3 based eGFX device. Today the discerning user has even more choices of eGFX devices, laptops, and graphics cards.

Convenient Plug-and-Play Connectivity

Unlike the external graphics solutions of the past, Thunderbolt 3 eGFX solutions are designed to be fast and easy to connect, like using a USB thumb drive. There's no reboot or restart required – simply plug in the eGFX device, and the system detects the external GPU and loads the drivers. It's "game on," or time to run your favorite graphics application. When it's time to disconnect, a system tray agent lets you quickly stop your eGFX applications, so you can simply disconnect the external GPU and go back to being mobile – fast and easy. Safeguards are built into the GPU drivers to help prevent system crashes in the event you accidentally disconnect the external GPU without using the system tray agent.

Choose the Best Solution for the Experiences You Want

Thunderbolt 3 eGFX means more choices for discerning users to tune their notebook graphics solution to their desired experiences. Below are three possible options for graphics experiences.

High Portability with long battery-life and desktop-like graphics performance with eGFX



Choose among the latest thin-and-light laptops or mainstream laptops with Thunderbolt 3 support (make sure it utilizes four PCIe lanes for the Thunderbolt 3 connection for best performance), and add a Thunderbolt 3-certified eGFX enclosure with your choice of a compatible high-performance GPU card.

Near-desktop gaming/graphics performance in a laptop wherever you go



Consider a laptop with an advanced discrete GPU built-in. You can expect better graphics performance than that of a standard thin-and-light laptop but you will be limited by the laptop environment – bigger size and weight and other factors.

Maximum performance for gaming/graphics



Consider a large core count desktop with dedicated, high-power GPU card.

Pairing for Best eGFX Performance

The eGFX performance depends on many variables such as the GPU/CPU architecture and power, amount of graphics memory/memory bus width, clock frequencies, PCIe lanes for Thunderbolt 3 connection and the application design itself. However, generally speaking, the 7th Gen Intel® Core™ processor family or later (U and H processors) will provide adequate performance for gaming and other graphics intensive applications. Since the eGFX solution is qualified with a variety of graphics cards, you have plenty of options to find a good balance between performance and affordability at various levels. And you can extend your gaming/graphics experience even more with an external top-end graphics card.

Finding the Right Experience

While the variety of Thunderbolt 3 eGFX device options are expanding and creating richer choices, the eGFX eco-system is still in the early stages of development. Consequently, interoperability experiences may vary. Like all technology purchases, it is best to research for the right solution that will provide the experiences you want. Here are some tips:

- **Check compatibility:** The eGFX enclosure manufacturers provide lists of PC systems and GPUs compatible with their solutions for plug-and-play eGFX experience. Intel recommends you review their websites before purchasing your laptops.
- **Thunderbolt 3 connection:** Ensure that your laptop and eGFX device support Thunderbolt 3 connection, and the laptop uses four lanes of PCIe for the Thunderbolt 3 interface.
- **Recommend using a Thunderbolt 3 cable** supporting 40Gbps for best performance.
- **Enclosure or dock:** If you want maximum flexibility and upgradeability, choose an eGFX enclosure rather than an eGFX dock that has a built-in GPU.
- **Windows® 10 only:** At present, Thunderbolt 3 certified eGFX solution is available for Windows 10 only. Please check the thunderbolttechnology.net website for Intel-approved eGFX device solutions.

Get the best of mobile portability and rich, desktop-like graphics experiences with flexible, easy-to-use Thunderbolt 3 based eGFX solutions.

Learn more at <https://thunderbolttechnology.net/egfx>

