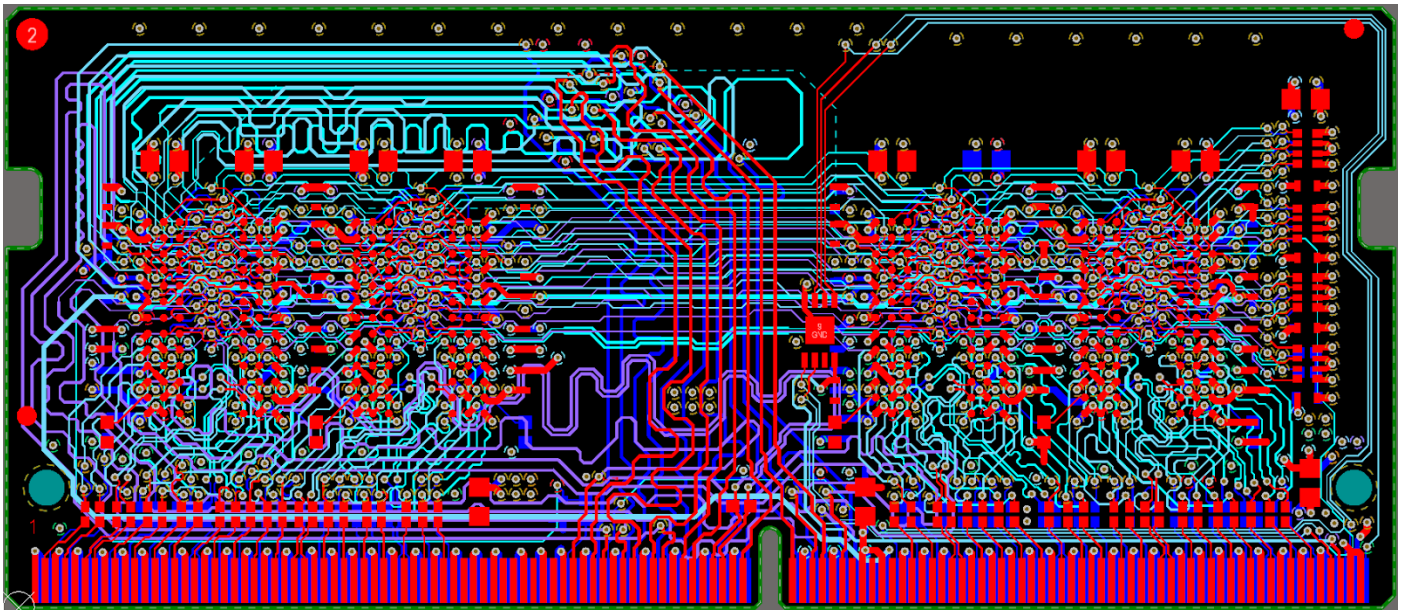
Altium Designer 18

FEATURES AND BENEFITS

- ActiveRoute® - Design the highest quality PCB layouts in a fraction of the time
- Routing styles - Cycle through different routing styles to overcome your specific design challenges
- Editing / modification -- Optimize the last 5% of your traces with intuitive drag and drop modification and redundancy trace removal
- Fully automate the creation of high-speed signal classes for a number of common technologies
- Length tuning - Easily optimize your high-speed nets for today's advanced designs



INTERACTIVE ROUTING

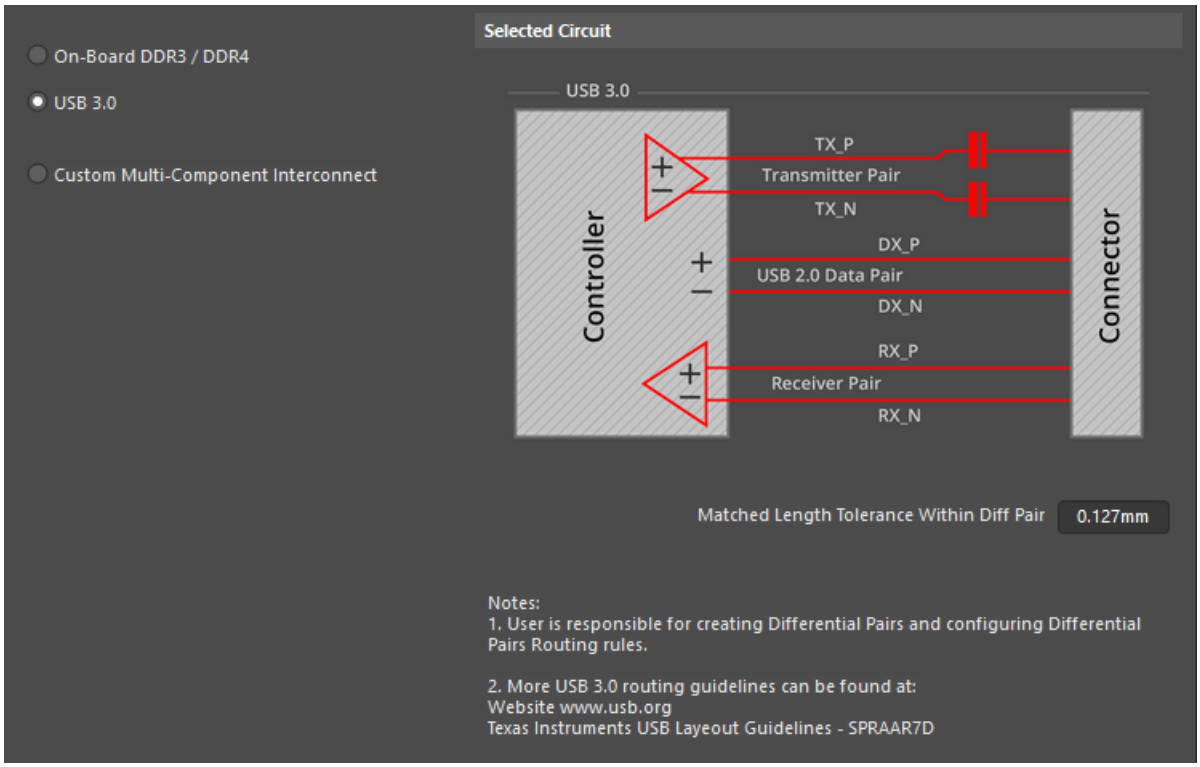
The advanced routing feature set in Altium Designer® allows you to masterfully dance around your board, avoiding obstacles as you go. With much of the process automated, you don't need to waste your time micromanaging each individual trace. Even advanced rules and traces can be created quickly with easy to follow wizards and panels, allowing you to focus on orchestrating your design. The modern routing features in Altium Designer take the pain out of routing.

You can design the highest quality PCB layouts in a fraction of the time with an advanced routing engine that includes push and shove, hug, walk around, and interactive length tuning modes for single and differential pair routes. xSignals delivers fully configurable differential pair routing that carries precise signal lengths across your PCB for high-speed design. ActiveRoute® assisted routing lets you control where and how much automated routing assistance you want on a net connection level up to your whole design. Visual clearance boundaries between traces and components on your board let you visualize design rules and understand your layout at a glance.

Automated High-Speed Signals for High-Speed Topologies

Creating complex high speed rules takes a substantial amount of time away from laying out your board, especially when these rules have to be checked and rechecked for accuracy as they handle important signals. The technology aware xSignals wizard guides you through the process of creating xSignal classes for your specific application requirements. It can route high-speed designs with fully configurable differential pair routings that carry precise signal lengths across the PCB. Common interfaces such as DDR3/4 and USB3.0 signals are automatically identified by the wizard, creating rules to keep all signals in sync and tuned to the correct length.

And with included configurations for match length design rules and differential pairs, you'll never have to worry about staying in compliance with your design constraints. This will minimize timing errors for your design. Furthermore, the xSignals Wizard groups together your signals to ensure organization and traceability while facilitating error correction and precise length tuning.



Automated High-Speed Signals creation

Fast and High-Quality Routing

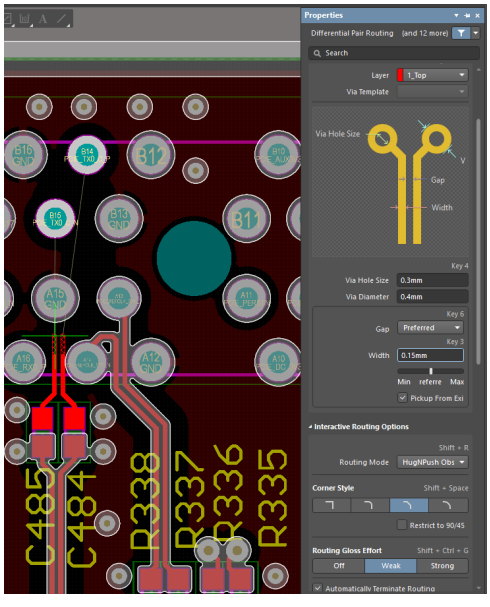
ActiveRoute, included in Altium Designer, lets you select where and how much automation you want to employ along selected nets. The technology in ActiveRoute coupled with user guidance produces high-quality layouts in seconds. ActiveRoute lets you break out and route large, fine-pitch BGAs by instructing it where to route them (i.e. select layers, draw a guide path), and letting it do the heavy lifting for you. Unlike other interactive routing technologies, ActiveRoute works on multiple layers simultaneously while adhering to your design constraints so you don't have to worry about breaking any rules. By routing on multiple layers simultaneously, routing is faster, traces are evenly distributed, and the ability to complete the routes increases significantly. The result: a beautiful, expert, manual-like routing, without the hours of manual work.

ActiveRoute With Length Tuning - Before and After (25 Seconds later!)

Routing Modes

The interactive routing modes in Altium Designer help you lay out boards quickly with precise control over the organization and flow of your board layout. Designers can interactively route their boards with several powerful routing options including walk around, push, hug and push, ignore obstacle, push and shove, and differential pairs. They can even automatically align routing path lengths without ever having to waste time manually adjusting individual nets with interactive length tuning.

You can leverage routing automation to route your designs quickly and accurately while reducing repetitive tasks. This allows designers to spend more time perfecting their designs, leveraging the speed enhancement and implemented design rules of the interactive routing. Combined with design rules and design objects, you can reduce errors, achieve first pass manufacturing, and get to market faster.

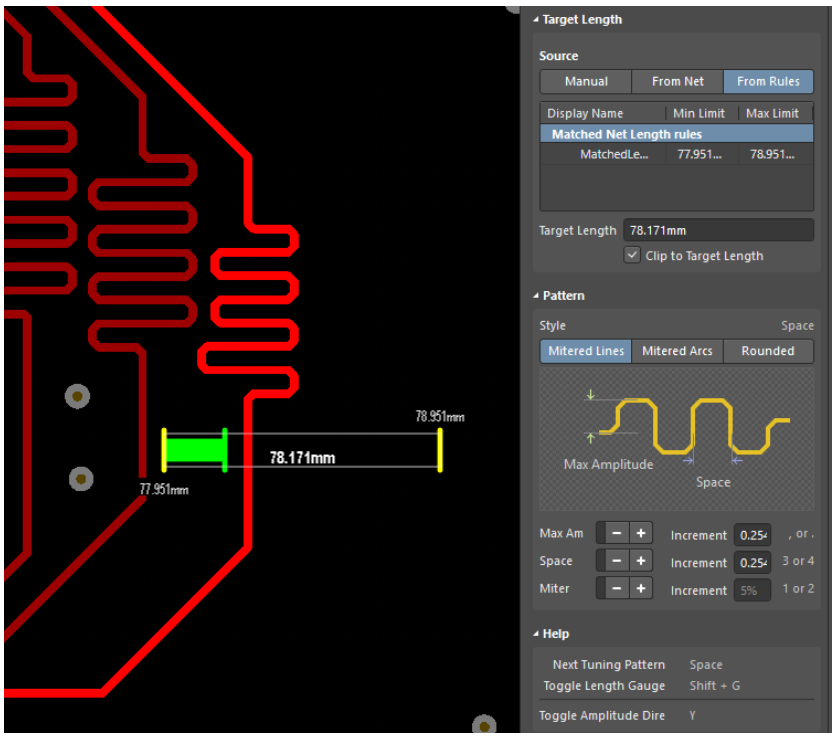


Interactive Routing

Single/Multiple and Differential Pair Length Tuned Traces

With the core challenges in high-speed design remaining around controlling the impedance of the routes, and ensuring you match the length of your critical nets, Altium Designer Interactive length tuning provides a dynamic means to optimize and control net and differential pair lengths. This is implemented by allowing variable amplitude wave patterns to be inserted according to the available space, rules, and obstacles in your design.

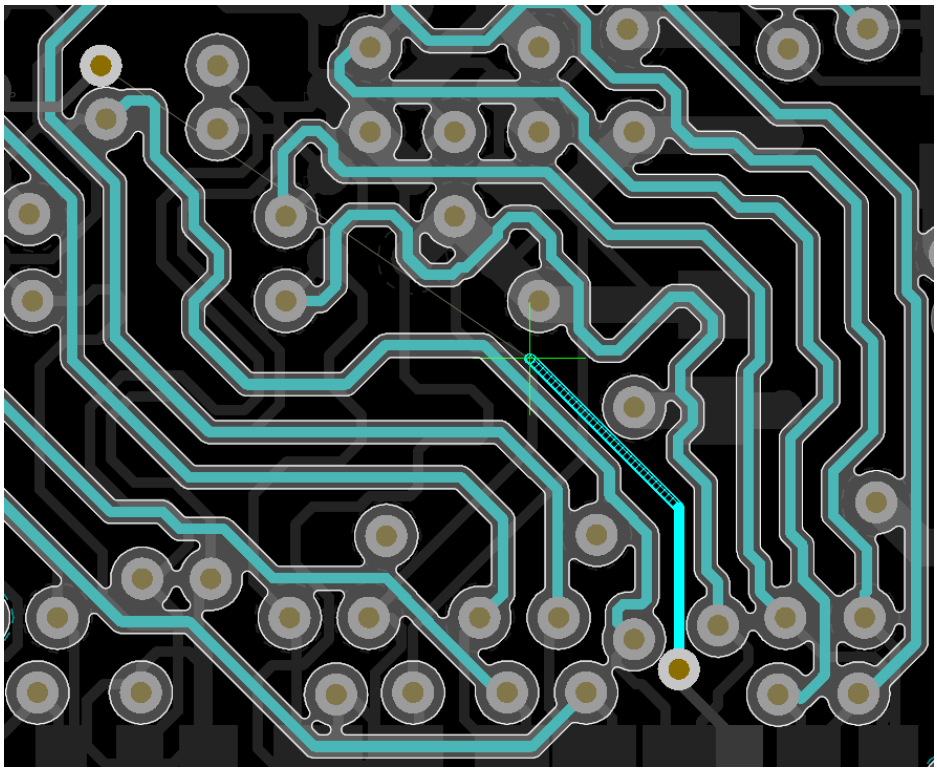
With intuitive control, the length tuning properties can be based on design rules, properties of the net, or values you specify. And with a simple <Tab> key during length tuning, you can easily access and control your net wave patterns (accordion sections). This gives you control over amplitude, gap, corner miter, direction, and more.



Interactive Length Tuning with Target Length & Pattern

Visual Clearance Boundaries

Understanding the impact of your routing decisions in real time alleviates the stress from unclear obstacles in the design process. By being able to see clearance boundaries between traces and components during routing, you're able to dynamically see how much space is available during interactive routing around existing workspace objects. You no longer have to wonder whether a trace will fit within a gap as the no-go space is clearly shown. This enables you to route through high-density areas with certainty that traces fit where they need them. You have immediate feedback on how route placement changes your layout and how it will change future routes.



Routing with Visual Clearance