

Does a gigabit fiber optic cable support a 100Mbps router



Overview

Can I use my existing router with fiber?

While many existing routers can connect to a fiber network, there are several scenarios where upgrading your route.

Key Takeaways

Gigabit fiber optic cables can physically connect to 100Mbps routers, but the link will operate at the router's maximum speed of 100Mbps, not at Gigabit speeds. Compatibility Overview

100Mbps routers are designed to operate with Fast Ethernet standards such as 100BASE-TX (copper) or 100BASE-FX (fiber), . If you attempt to connect a 100Mbps router to a fiber optic cable rated for Gigabit speeds (1000BASE-X), the connection will not automatically run at 1Gbps because the router's hardware and SFP modules are limited to 100Mbps. The physical fiber type (single-mode or multimode) may be compatible, but the transceiver must match the router's speed.

Fiber Transceivers



For fiber connections, routers use SFP (Small Form-factor Pluggable) modules. A 100Mbps router requires a 100BASE-FX SFP, which supports 100Mbps over multimode fiber at 1310nm and distances up to 2 km . Gigabit SFPs (1000BASE-SX/LX) are designed for 1Gbps operation and are not backward compatible with 100Mbps ports. Therefore, even if the fiber cable itself is rated for Gigabit speeds, the router will only transmit at 100Mbps if the SFP module is 100BASE-FX.

Practical Considerations

- **Cable Type:** Multimode fiber (OM1, OM2, OM3) can support both 100Mbps and 1Gbps, but the maximum distance depends on the fiber grade and wavelength. Single-mode fiber is typically used for longer distances and higher speeds.
 - **SFP Selection:** Ensure the SFP module matches the router's speed. Using a Gigabit SFP in a 100Mbps router is generally incompatible.
 - **Auto-Negotiation:** Copper Gigabit ports (10/100/1000BASE-T) can auto-negotiate down to 100Mbps, but fiber links require the correct SFP type for the desired speed .
- #### Summary

You can use Gigabit-rated fiber cables with 100Mbps routers, but the connection will be limited to 100Mbps. The key requirement is to use a 100BASE-FX SFP module compatible with the router. Gigabit SFPs or transceivers will not function at 100Mbps, so proper module selection is essential for stable operation . This setup is common in legacy networks or industrial environments where fiber infrastructure exists but older Fast Ethernet devices are still in use.

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Tested with the cable directly in the PC, works great, I get 1000 Mbps. I bought an ASUS AC55U router, which claims

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