

# Multigigabit over UTP Copper: Assessing Cisco Catalyst 3850 and 4500E Multigigabit Performance

Can conventional UTP (unshielded twisted pair) cabling support bi-directional data transmission at data rates over 1 gigabit/s? It turns out it can, and depending on cable type, as much as 10 gigabit/s, using Cisco’s new Multigigabit technology, or mGig.

In this fascinating study, Miercom tested the data-carrying capacity of UTP – including widely installed Cat5e (Category 5 enhanced) cable – at data rates above and beyond 1 gigabit/s.

Cisco mGig technology is offered in the form of standard line modules for various Catalyst switching systems.

## What We Measured

Miercom’s job was to independently validate the performance of Cisco’s Multigigabit technology. Our test bed was devised to ascertain the maximum bi-directional data rate that could be auto-negotiated and sustained over copper-cable environments:

- Cat6a UTP cable is the newest form of copper transmission infrastructure.

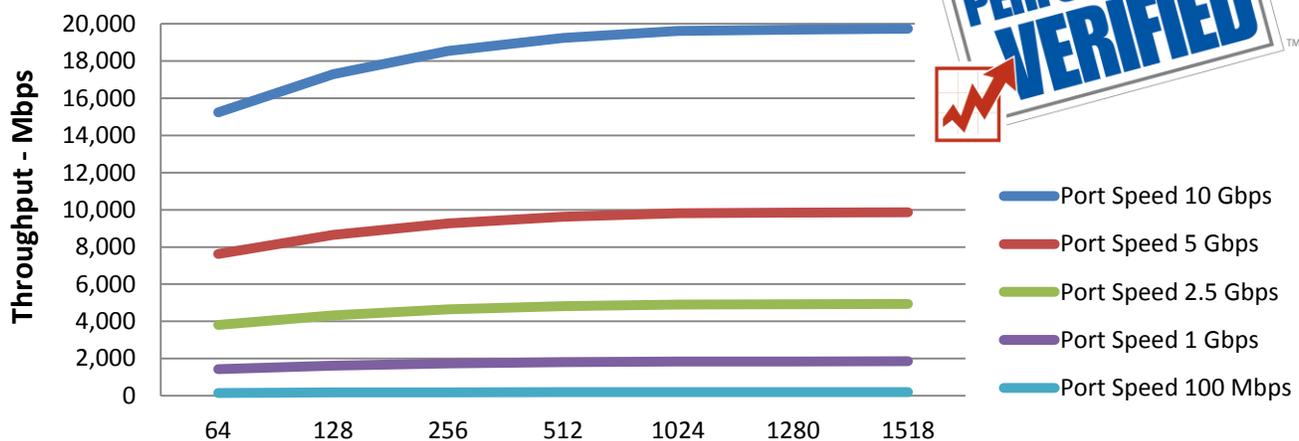
- Cat6 UTP cable, a slightly older copper transmission infrastructure.

- Cat5e UTP cable, a vast portion of earlier, already installed copper transmission infrastructure.

## Key Findings

- With Cat6a cable, the Multigigabit ports auto-negotiate and operate at the full 10-gigabit/s rate in each direction – yielding 20 gigabit/s of combined bi-directional bandwidth.
- A 100-meter run of Cat5e and Cat6 UTP cable, connecting Multigigabit port on Catalyst 4500E and 3850 switches can support 10 Gbps of full-duplex transmission (5 gigabit/s in each direction).
- RJ-45 Multigigabit ports support all the same in-line power options: including standard PoE, PoE+, and delivery of 60W of power via Cisco Universal Power over Ethernet (UPOE).

Cisco Catalyst 4500E ↔ 3850 mGig-port Connection via 100m Cat6a Cable  
Bi-directional Throughput



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