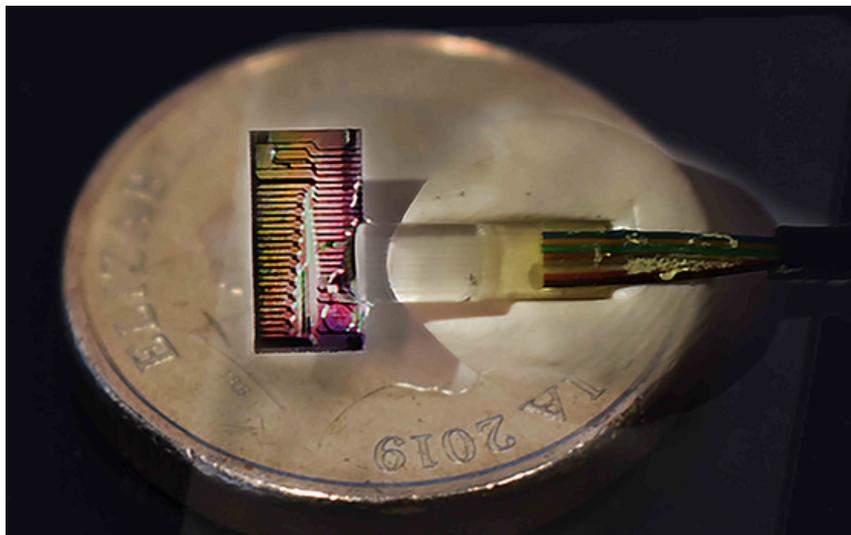


## Researchers Set Internet Speed Record

Written by Alice Marshall  
27 May 2020

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Australian researchers create an internet connection with speeds reaching up to 44.2 terabits per second, a record achieved over 75km of glass fibre using a single optical chip.



Hailing from Monash, Swinburne and RMIT universities, the researchers managed to create such a connection using a "micro-comb." According to the paper detailing the experiment, the micro-comb "generates very sharp and equidistant frequency lines in a tiny microphotonic chip." In a few words, the micro-comb loops light around a ring to produce 80 beams at various infrared wavelengths. Each beam carries a stream of data, and since all the wavelengths of light are all correlated, the data streams could be "packed" tightly together using nearly all the available light spectrum.

The actual micro-comb test involved the transmission of "randomised test patterns" over 75km to a receiver. The 44.2Tbps figure is raw bit rate, and the researchers admit adding overhead will slow it down to around 39Tbps. Such velocity is still very impressive, mind, considering the fastest average internet speed in Europe clocks at around 45Mbps.

"We're currently getting a sneak-peak of how the infrastructure for the internet will hold up in two to three years' time, due to the unprecedented number of people using the internet for remote work, socialising and streaming. It's really showing us that we need to be able to scale the capacity of our internet connections," team member Dr Bill Corcoran says. "What our research demonstrates is the ability for fibres that we already have in the ground, thanks to the NBN project, to be the backbone of communications networks now and in the future."

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In the long term, the researchers hope to create integrated photonic chips to enable such data rates over existing optical fibre infrastructure with minimal costs. Initially such technology would find use in datacentres, before it becomes low cost and compact enough for commercial use by the general public.

Go [Australian Researchers Record World's Fastest Internet Speed from a Single Optical Chip](#)