Enabling 4-Lane Based 400 G Client-Side Transmission Links with MultiCAP Modulation - DTU Orbit (16/01/2019)

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We propose a uniform solution for a future client-side 400 G Ethernet standard based on MultiCAP advanced modulation format, intensity modulation, and direct detection. It employs 4 local area networks-wavelength division multiplexing (LAN-WDM) lanes in 1300 nm wavelength band and parallel optics links based on vertical cavity surface emitting lasers (VCSELs) in 850 nm wavelength band. Total bit rate of 432 Gbps is transmitted over unamplified 20 km standard single mode fiber link and over 40 km link with semiconductor optical amplifier. 70.4 Gb/s transmission over 100 m of OM3 multimode fiber using off-the-shelf 850 nm VCSEL with 10.1 GHz 3 dB bandwidth is demonstrated indicating the feasibility of achieving 100 Gb/s per lane with a single 25 GHz VCSEL. In this review paper we introduce and present in one place the benefits of MultiCAP as versatile scheme for use in a number of client-side scenarios: short range, long range, and extended range.

General information
State: Published
Organisations: Department of Photonics Engineering, Metro-Access and Short Range Systems, High-Speed Optical Communication, Huawei Technologies Co., Ltd.
Number of pages: 9
Publication date: 2015
Peer-reviewed: Yes

Publication information
Journal: Advances in Optical Technologies
Article number: 935309
ISSN (Print): 1687-6393
Ratings:
Web of Science (2019): Indexed yes
Scopus rating (2017): CiteScore 0.66 SJR 0.214 SNIP 0.622
Web of Science (2017): Indexed yes
Scopus rating (2016): CiteScore 0.52 SJR 0.168 SNIP 0.636
Scopus rating (2015): CiteScore 0.76 SJR 0.305 SNIP 0.668
Web of Science (2015): Indexed yes
Scopus rating (2014): CiteScore 0.99 SJR 0.595 SNIP 0.985
Scopus rating (2013): CiteScore 0.91 SJR 0.6 SNIP 1.222
Scopus rating (2012): CiteScore 1.45 SJR 0.653 SNIP 1.911
Scopus rating (2011): CiteScore 1.94 SJR 0.873 SNIP 3.506
Scopus rating (2010): SJR 1.304 SNIP 1.322
Scopus rating (2009): SJR 0.735 SNIP 1.154
Original language: English
Electronic versions:
935309_3_.pdf
DOIs:
10.1155/2015/935309

Bibliographical note
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Source: PublicationPreSubmission
Source-ID: 114558425
Research output: Research - peer-review › Journal article – Annual report year: 2015