Energy-Efficient Multi-Terabit/s Photonic Interconnects

From 2012-01-01 to 2016-12-31, closed project

Objective

The rapid growth of data traffic requires radically new approaches for high-speed data transmission to increase the bandwidth and power efficiency by orders of magnitude. The proposed research aims at novel system and device concepts for low-energy high-capacity optical interconnects in data centers. Data rates of 10 Tbit/s and beyond are envisaged by coherent multicarrier transmission. Parametric frequency conversion in high-Q Kerr-nonlinear resonators will be used to generate broadband combs of frequency-locked optical carriers. Integrated silicon photonic systems will allow for power-efficient multichannel modulation and detection. Novel reconfigurable optical signal processors will avoid excessive digital post-processing and hence reduce overall energy consumption.

Related information

Result In Brief
Revolutionising optical communication networks

Report Summaries
Final Report Summary - ENTERAPIC (Energy-Efficient Multi-Terabit/s Photonic Interconnects)

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EU contribution: EUR 1 498 800

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Beneficiaries

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Subjects

Aerospace Technology - Physical sciences and engineering - Space and satellite research

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