Press Release

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Socionext takes part in Record-breaking Transmission Field Trial of 38.4Tbps over 762 kilometers

Langen/Germany, 30 June, 2015 --- Socionext's latest generation of ultra high-speed digital-to-analog (DAC) and analog-to-digital (ADC) converters, featuring sampling rates up to 92 GSa/s and high analog bandwidth, have been integrated into state-of-the-art coherent receivers and transmitters that were used in a record-breaking field trial.

For the first time, several tens of terabits per second have been transported over a 762-kilometer Lyon-Marseille-Lyon fiber optic link in the Orange optical transport network.

Socionext were part of a team of advanced technology engineers from Orange, Coriant, Ekinops and Keopsys who successfully demonstrated the highest ever C-band transmission capacity using 24 x 1 Tbps/DP-16 QAM (i.e. 24 Tbps), 32 x 1 Tbps /DP-32 QAM (i.e. 32 Tbps) and 32 x 1.2 Tbps/DP-64 QAM (i.e. 38.4 Tbps) modulation formats in a 'live' networking environment. A record-setting transmission reach of 762 kilometers in the same 'live' environment was achieved, which is more than twice the distance of any previous field records for 32 QAM, and the first ever regional transmission for 64 QAM. These achievements represent an important milestone in the research and development of highly scalable, spectrally-efficient optical networking technologies for future network growth.

As part of ongoing technology collaboration, Socionext provided key technology and components, in the form of development kits, to enable partners the evaluation and optimization of higher-order modulation techniques and next–generation algorithms. The new generation of transmitters and receivers used to establish the transmission record were based on ultra high speed digital-to-analog and analog-to-digital converters designed and developed by Socionext Network SoC Business Unit using a standard 28 nm CMOS technology. The converters cover a broad sampling range with a maximum rate of 92 GSa/s. The high effective resolution and analog bandwidth characteristics, greater than 20 GHz, makes scalable architectures for multiple wavelengths and high modulation formats on a single device possible. On-chip implementation of the converters using advanced packaging technologies along with very low power consumption are additional features that are mandatory for future long-haul, metro and access applications.

"We are excited to be able to contribute again to a world record in optical transport with our advanced ADC and DAC technology. Our 3rd and 4th generation DAC and ADC IP optimized for network applications will help system vendors to address the exponential growth of global and metropolitan internet traffic" says Manfred Mettendorff, Senior Director with Socionext Europe. "Having already supported the launch of the leading

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100Gbit, 200Gbit and 400Gbit technology we are confident that highly power efficient, economic single chip Terra-bit systems are also within reach."

This record-breaking field trial was conducted using the latest advances in ultra-high capacity optical communications. The aim for Socionext, Coriant, Ekinops and Keopsys was to validate the compliance of their most advanced optical transport solutions with the real operation constraints of a 'live' capital transport network. Whilst Orange was able to demonstrate its legacy fiber infrastructure was able to transport such multi-terabit capacity.

Photo 1: Socionext´s Rotta (ADC) / Oola (DAC) Development Kit designed and developed within the framework ofCeltic-Plus SASER project. (view larger image)

The field trial was performed within the framework of the European Celtic-Plus SASER (Safe and Secure European Routing) project funded jointly by the BMBF (Bundesministerium für Bildung und Forschung) and DGE (Direction Générale des Entreprises), and supported by the IDEALIST project (Industry-Driven Elastic and Adaptive Lambda Infrastructure for Service and Transport Networks).

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About Socionext Inc.

Socionext is a new, innovative enterprise that designs, develops and delivers System-on-Chip products to customers worldwide. The company is focused on imaging, networking and other dynamic technologies that drive today's leading-edge applications. Socionext combines world-class expertise, experience, and an extensive IP portfolio to provide exceptional solutions and ensure a better quality of experience for customers. Founded in 2015, Socionext Inc. is headquartered in Yokohama, and has offices in Japan, Asia, United States and Europe to lead its product development and sales activities. For more information, visit socionext.com.