

G-Pulse and Silicon Mobility Announce Collaboration on High Power Multiphase Interleaving Bidirectional DC-DC Converter for New Energy Vehicles

Shanghai, China, and Sophia Antipolis, France (November 4th, 2021) - [G-Pulse](#), a leading automotive electronic control unit solution and service provider, and [Silicon Mobility](#), a solution provider of digital control for electrified powertrain, today announced their collaboration on the design of a **high power multiphase interleaving bidirectional DC-DC converter** platform dedicated to new energy vehicles (NEV), including fuel cell electric vehicles (FCEV), battery electric vehicles (BEV), hybrid electric vehicles (HEV) and Plug-in hybrid electric vehicles (PHEV). The DC-DC converter platform is a fast design start for energy-efficient vehicle projects. It is based on Silicon Mobility [OLEA®](#) control technology together with the latest SiC power module, and benefits from G-Pulse's engineering expertise on automotive system solutions.

A high efficiency and fast response DC-DC converter

The expansion of electrified vehicle platforms adds increasing diversity of powertrain topologies, different type of electric motors and wide range of DC-link voltages from 300V to 900V. The powertrain system elements in the various NEV applications may require a wide range of DC-link voltage adaptation between the DC-Link, the battery pack or the fuel cell with a dynamic and fast response to varying power demand.

Shanghai G-Pulse Electronics Technology Company Limited, a wholly-owned subsidiary of Intron Technology Holdings Limited, and Silicon Mobility are collaborating to address this need for high power/high voltage adaption by designing a new DC-DC converter platform. The platform system is a SiC-based, 4 phases interleaving, bidirectional DC-DC converter allowing an automatic boost/buck control through current sensing. It supports a 250V~450V wide input voltage and a 750V typical output voltage. This DC-DC converter enables the modularization of the inverter and e-motor design and improves the system performance and efficiency.

Designed by G-Pulse for high efficiency systems with fast power response, the platform integrates Silicon Mobility's [OLEA® FPCU](#) chip and control application developed with [OLEA® COMPOSER](#) model-based design framework using the [OLEA® LIB DC-DC](#) functions library. The safe, flexible and parallel processing capability of the [OLEA® FPCU](#) chip hosts current/voltage double closed-loop control with 4 independent current loops, and control parameters self-adapted at high frequency power devices switching. Combined with SiC power devices, which reduce the switching and conductive losses of the power module, the high frequency control enables the downsizing of the passive elements, increasing power density, reducing voltage/current ripple, and improving stability margin

A rapid design starts for every NEV applications

The platform aims at delivering to carmakers and automotive tier1s a system enabling performance evaluation, proof of concept design and fast application development starts. Compliant with ISO 26262 standard, the platform includes all the required safety protection functions such as over-voltage, over-current, over-heating and short circuit detection.

“This collaboration will allow us to integrate Silicon Mobility’s advanced controls technology, which will help us to continue our path of introducing innovative DC-DC converter systems,” says Mr. Sam Qin, Technical Director of G-Pulse. “By working together, we will pursue our goal to secure a position as a leading solution provider in the automotive electronics industry.”

“Together with G-Pulse, one of the most recognized providers of automotive electronics solutions and engineering services in China, we are combining advanced control technology and system knowledge to further improve the efficiency of NEV,” said Khaled Douzane VP of Products of Silicon Mobility. “It is a very exciting project to control a SiC-based DC-DC converter using high-performance OLEA FPCU technology, creating jointly a leading reference system for energy efficient e-powertrain”.

The resulting DC-DC platform is planned to be made available for customers end of Q4’2021. More information about the platform is available by contacting G-Pulse: samqin@g-pulse.net or Silicon Mobility: contact@silicon-mobility.com. More information about [OLEA® FPCU](#), [OLEA® COMPOSER](#) and [OLEA® LIB DC-DC](#) are available on the company’s website: <http://www.silicon-mobility.com>.

Stay safe

Press Contacts

David Fresneau
Silicon Mobility
Phone: +1 415 513 2426
david.fresneau@silicon-mobility.com

Eiko Xu
Intron Technology/ G-Pulse
ir@intron-tech.com

About Intron Technology/ G-Pulse

Intron Technology Holdings Limited (stock code: 1760.HK) is a fast-growing automotive electronics solutions provider in China focuses on providing solutions targeting critical automotive electronic components applied in New Energy, Automated Driving, Connectivity, Body Control, Safety and Powertrain systems. The Group utilises its research and development and engineering capabilities to provide solutions incorporating advanced semiconductor devices to help OEMs achieve industry leading performance.

Shanghai G-Pulse Electronics Technology Company Limited is a wholly-owned subsidiary of Intron Technology Holdings Limited. G-Pulse provides customers with the R&D, testing and validation, production quality management as well as technical services for each stage of the R&D and production cycle of automotive electronic products, to help customers in value creation.

About Silicon Mobility



Silicon Mobility is a technology leader inventor of the FPCU semiconductor architecture for ultra-fast and critically safe real-time control. Silicon Mobility accelerates all e-mobility transitions in the cleanest, safest, secure, and smartest way. The company designs, develops, and sells flexible, real-time, safe, and open semiconductor solutions for the automotive industry used to increase energy efficiency and reduce pollutant emissions while keeping passengers safe.

Silicon Mobility's products control electric motors, battery, and energy management systems of hybrid and electric vehicles. By using Silicon Mobility's technologies, manufacturers improve the efficiency, reduce the size, weight, and cost of electric motors, and increase the battery range and durability. Its technologies and products accelerate the car's powertrain electrification for OEMs. Silicon Mobility is headquartered in Sophia-Antipolis, France, with a global presence in Germany, Silicon Valley, CA., China, and Japan. For more information, visit: www.silicon-mobility.com