



STMicroelectronics and TSMC Collaborate to Accelerate Market Adoption of Gallium Nitride-Based Products

- *Accelerates the development and delivery of advanced power GaN solutions to market*
- *Leverages Automotive-market expertise of ST and the foundry leadership of TSMC*
- *Improves wide bandgap efficiency for better energy efficiency in power conversion applications*

Geneva, Switzerland and Hsinchu, Taiwan R.O.C., Feb. 20, 2020 – STMicroelectronics (NYSE:STM), a global semiconductor leader serving customers across the spectrum of electronics applications, and TSMC (TWSE:2330, NYSE: TSM), the world’s largest dedicated semiconductor foundry, are collaborating to accelerate the development of Gallium Nitride (GaN) process technology and the supply of both discrete and integrated GaN devices to market. Through this collaboration, ST’s innovative and strategic GaN products will be manufactured using TSMC’s leading GaN process technology.

GaN is a wide bandgap semiconductor material which offers significant benefits over traditional Silicon-based semiconductors for power applications. These benefits include greater energy efficiency at higher power, leading to a substantial reduction in parasitic power losses. GaN technology also allows the design of more compact devices for better form factors. Additionally, GaN-based devices switch at speeds as much as 10X faster than Silicon-based devices while operating at higher peak temperatures. These robust and intrinsic material characteristics make GaN ideally suited for broad-based adoption in evolving automotive, industrial, telecom, and specific consumer applications across both the 100V and the 650V clusters.

Specifically, Power GaN and GaN IC technology-based products will enable ST to provide solutions for medium and high-power applications with better efficiency compared to silicon technologies on the same topologies, including automotive converters and chargers for hybrid and electric vehicles. Power GaN and GaN IC technologies will help accelerate the megatrend of the electrification of consumer and commercial vehicles.

“As a leader in both wide bandgap semiconductor technology and in power semiconductors for the demanding automotive and industrial markets, ST sees significant opportunity in accelerating the development and delivery of GaN process technology and bringing power GaN and GaN IC products to the market. TSMC is a trusted foundry partner that can uniquely meet the challenging reliability and roadmap evolution requirements of ST’s target customers,” said Marco Monti, President of STMicroelectronics’ Automotive and Discrete Group. “This cooperation complements



our existing activities on power GaN undertaken at our site in Tours, France and with CEA-Leti. GaN represents the next major innovation in Power and Smart Power electronics, as well in process technology.”

“We look forward to collaborating with ST and bring the applications of GaN power-electronics to Industrial and Automotive Power Conversion,” said Dr. Kevin Zhang, Vice President of Business Development at TSMC. “TSMC’s leading GaN manufacturing expertise, combined with ST Microelectronics’ product design and automotive-grade qualification capabilities, will deliver great energy efficiency improvement for industrial and automotive power conversion applications that are more eco-friendly and help accelerate the electrification of vehicles.”

ST expects the delivery of first samples of power GaN discrete devices to its key customers later this year, followed by GaN IC products within a few months.

About STMicroelectronics :

ST is a global semiconductor leader delivering intelligent and energy-efficient products and solutions that power the electronics at the heart of everyday life. ST’s products are found everywhere today, and together with our customers, we are enabling smarter driving and smarter factories, cities and homes, along with the next generation of mobile and Internet of Things devices. By getting more from technology to get more from life, ST stands for life.augmented. In 2019, the Company’s net revenues were \$9.56 billion, serving more than 100,000 customers worldwide. Further information can be found at www.st.com.

About TSMC

TSMC pioneered the pure-play foundry business model when it was founded in 1987, and has been the world’s largest dedicated semiconductor foundry ever since. The company supports a thriving ecosystem of global customers and partners with the industry’s leading process technology and portfolio of design enablement solutions to unleash innovation for the global semiconductor industry.

TSMC serves its customers with global capacity of about 13 million 12-inch equivalent wafers per year in 2020, and provides the broadest range of technologies from 2 micron all the way to foundry’s most advanced processes, which is 7-nanometer today. TSMC is the first foundry to provide 7-nanometer production capabilities and the first to commercialize Extreme Ultraviolet (EUV) lithography technology in delivering customer products to market in high volume. TSMC is headquartered in Hsinchu, Taiwan. For more information about TSMC please visit <http://www.tsmc.com>.



ST Investor Relations

Céline Berthier
Group VP,
Investor Relations
Tel: +41 22 929 58 12
celine.berthier@st.com 1

ST Media Relations:

Alexis Breton
Corporate External
Communications
Tel: + 33 6 59 16 79 08
alexis.breton@st.com

TSMC Media Contacts:

Nina Kao
Head of PR Department
Tel: 886-3-5636688 ext.7125036
Mobile: 886-988-239-163
E-Mail: nina_kao@tsmc.com

Michael Kramer
PR Department
Tel: 886-3-5636688 ext.7125031
Mobile: 886-988-931-352
E-Mail: pdkramer@tsmc.com