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## STMicroelectronics Honored with Prestigious IEEE Milestone for Historical “Multiple Silicon Technologies on a Chip” Achievement

*IEEE Milestone plaque recognizes the pioneering work that enabled engineers to combine high-power components, precise analog functions, and the complex digital logic to control them onto a single piece of silicon, a capability that has now been sold in 40 billion chips*

**Geneva, Switzerland and Agrate, Italy, May 18, 2021 – STMicroelectronics (NYSE: STM)**, a global semiconductor leader serving customers across the spectrum of electronics applications, today announced that the Institute of Electrical and Electronics Engineering (IEEE) presented the Company with an IEEE Milestone for its groundbreaking work in the super-integrated silicon-gate semiconductor process technology combining the high-precision analog transistors from a Bipolar process, with the high-performance digital switching transistors from a CMOS process, and with the high-power DMOS (BCD) transistors onto a single chip for complex, power-demanding applications. Over the years, the [BCD process technology](#) has enabled revolutionary developments in such end applications as hard disk drives, printers, and the full range of automotive applications, among many others.

During a live / virtual ceremony held at ST’s plant in Agrate Brianza, Giambattista Grusso, IEEE Italy Section Humanitarian Activities Committee Coordinator and past Secretary, and Jean-Marc Chery, President and CEO of STMicroelectronics, unveiled the IEEE Milestone plaque. The plaque will be mounted in two ST locations around Milan, Italy, where the development work on the Multiple Silicon-Gate Multipower BCD work was performed: at the main entrances to two ST sites: Agrate (located in Agrate Brianza, Italy) and Castelletto (Cornaredo, Milan, Italy). The inscription on the plaques reads:

IEEE Milestone  
Multiple Silicon Technologies on a Chip, 1985

SGS (now STMicroelectronics) pioneered the super-integrated silicon-gate process combining Bipolar, CMOS, and DMOS (BCD) transistors in single chips for complex, power-demanding applications. The first BCD super-integrated circuit, named L6202, could control up to 60V-5A at 300kHz. Subsequent automotive, computer, and industrial applications extensively adopted this process technology, which enabled chip designers flexibly and reliably to combine power, analog, and digital signal processing.

IEEE established the Milestones Program in 1983 to recognize the technological innovation and excellence for the benefit of humanity found in unique products, services, seminal papers and patents. Each milestone recognizes a significant technical achievement that occurred at least twenty-five years ago in an area of technology represented in IEEE and having at least regional impact. Currently about 220 IEEE Milestones have been approved and dedicated around the world.

In the early 1980s, ST engineers began work to reliably address a broad range of electronic applications by pioneering the ability to integrate heterogeneous transistors and diodes on a single die. Focused on customer needs across multiple market segments, the engineers' objective was to deliver electric power in the range of hundreds of Watts under the control of digital logic that could scale with Moore law. The target devices would also support precise analog functions and minimize power consumption to eliminate heat-sinks.

Those efforts launched a new integrated Silicon-Gate technology. The Bipolar, CMOS, DMOS (BCD) technology allowed the integration, onto a single chip, of diodes, bipolar linear, complex CMOS logic, and multiple DMOS power functions with complex interconnections. The first chip, the L6202 full-bridge motor driver, operated at 60V, delivering 1.5A, switching power at 300kHz and meeting all its design goals. The new reliable process technology enabled chip designers to flexibly combine power, analog, and digital signal processing on a single die.

Since launching the BCD process, ST has sold 40 billion devices using ST Silicon-Gate Multipower BCD and is soon to begin production of the 10th generation of the technology. The technology used in front- and back-end manufacturing sites in Europe and Asia is ubiquitous in the market and can be found across a range of automotive subsystems, in smartphones, home appliances, audio amplifiers, hard disks, power supplies, printers, pico-projectors, lighting, medical equipment, motors, modems, displays, and more.

*“Blending together the high-precision capabilities of Bipolar transistors with the digital control of CMOS, and the high-power benefits of DMOS in the early 80s was an exceptional achievement. It could only have been done by an incredibly talented technical team operating within an organization that had the vision and foresight to recognize the value of smart power, which was then a completely unique concept,”* said Jean-Marc Chery, President and CEO, STMicroelectronics. *“Now, we are 35 years, 9 technical generations, 5 million wafers, and 40 billion chips sold later – almost 3 billion delivered last year. We proudly welcome this IEEE Milestone plaque, which recognizes ST’s BCD invention among the select group of technologies that have advanced mankind.”*

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### **About IEEE**

IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity. Through its highly cited publications, conferences, technology standards, and professional and educational activities, IEEE is the trusted voice in a wide variety of areas ranging from aerospace systems, computers, and telecommunications to biomedical engineering, electric power, and consumer electronics. Learn more at <http://www.ieee.org>.

### **About STMicroelectronics**

At ST, we are 46,000 creators and makers of semiconductor technologies mastering the semiconductor supply chain with state-of-the-art manufacturing facilities. An independent device manufacturer, we work with more than 100,000 customers and thousands of partners to design and build products, solutions, and ecosystems that address their challenges and opportunities, and the need to support a more sustainable world. Our technologies enable smarter mobility, more efficient power and energy management, and the wide-scale deployment of the Internet of Things and 5G technology. Further information can be found at [www.st.com](http://www.st.com).

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