ST Technology Days

Innovations in Connectivity

LIVE June 16, 2021

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Time (PT)	Presentation Title	Abstract	Speaker
Connectivity protocols overview - 9:00 - 10:20			
9:00 AM	Overview of the versatile BlueNRG-LP series	The 3rd-generation Bluetooth low energy 5.2-certified BlueNRG-LP SoC (System-on-Chip) offers improved features and communication range, throughput and security, and up to 128 concurrent connections combined with exceptional power management.	Julio Sanchez
9:20 AM	Showcase of the STM32 WB with multi-protocol connectivity and the STM32WL for SubGhz connectivity	Discover the STM32WB Bluetooth 5.2 SoC's key features, including STM32WB Nucleo board video examples. Plus an overview of the flexibility of the STM32WL SoC, the ecosystem of hardware and software tools available and how to jumpstart your application development.	Colin Ramrattan
10:00 AM	Dock-n-Play Wireless USB link with ST60	Discover ST60 - STMicroelectronics's latest breakthrough in short-range RF connectivity. Learn how to build connector-free USB devices for seamless dock-n-play application and enable modular designs.	Shray Khullar
Industrial IoT - 10:30 - 11:50			
10:30 AM	New hybrid power line communication & RF connectivity	ST hybrid connectivity solution combines PLC and RF to enable applications with the best coverage in any network conditions and topologies.	Ricardo Freitas
10:50 AM	Concurrent Bluetooth® LE connections with BlueNRG-LP	BlueNRG-LP long-range multi-link: unleash your imagination with a low latency, low power and small memory footprint multinode network.	Julio Sanchez
11:10 AM	Long range Bluetooth® enabled by BlueNRG-LP	Learn how to go further with Bluetooth Low Energy Coded Phy.	Julio Sanchez
11:30 AM	Long range connectivity with Sub-1 GHz transceiver	An overview of ST's high performance, ultra low power Sub-1GHz transceiver for Sigfox asset tracking solutions.	Julio Sanchez
NFC for Industrial Applications 12:00 - 12:40			
12:00 PM	Versatility of NFC for consumer and industrial applications	Identify and update settings using NFC reader and NDEF Tags including accessories identification, parameters settings, brand protection, targeted marketing, user interaction, up selling, and cross promoting.	Jim Barlow
12:20 PM	Optimize manufacturing and logistics operations with ST RFID/NFC + ST Partner FEIG electronics	Firmware upgrade & settings programing using NFC technology up to 1 cubic meter range allows configuration of multiple devices prior to shipment - even when boxed and/or palletized.	Jie Weng

ST Technology Days

Innovations in Sensors

LIVE June 17, 2021

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Time (PT)	Presentation Title	Abstract	Speaker
2D & 3D Sensing technologies - 9:00 - 10:20			
9:00 AM	Touchless system activation	Touchless gesture controls for a wide variety of devices are enabled with ST's FlightSense sensors. Learn how easy it can be!	Ruchi Upadhyay
9:20 AM	Content management	Detection of contents in a wide variety of applications, from retail such as vending machines & shelving, to containers and smart lockers, smart appliances and even trash and recycling containers. All with the simplicity of ST's FlightSense sensor.	John Kvam
9:40 AM	User detection/ system activation	Improve efficiency in a wide variety of devices by detecting user presence with Time of Flight sensors.	Armita Abadian
10:00 AM	Ambient light sensors	Introducing Ambient Light Sensing (ALS), the latest innovation in image sensing. An overview of the technology and introduction of a unique use case: color detection.	Dominque Barbier
Personal electronics - 11:00 - 12:30			
11:00 AM	Laser beam scanning for Augmented Reality wearable applications	Laser beam scanning solution for AR wearable applications enabled by integration of ST's MEMS ScanAR technologies with ultra-small laser diode module coupled into diffractive waveguides.	Bharath Rajagopalan Marco Angelici
11:20 AM	ST's IMU: continuous innovation with MLC and 32G	New 6-axis IMU, ideal for wearable devices: How to explore the latest trends in Sensors by leveraging augmented IMUs with 32g Full Scale and embedded Machine Learning Core.	Thiago Reis
11:40 AM	Enabling 3D Geo Location with ST Pressure Sensors	ST and ST Partner Nextnav SW solution provide urban and indoor vertical positioning in major US cities during emergency calls to first responders (E911).	Simon Callewaert
12:00 PM	ST's Accelerometers: how to pick the perfect fit	MEMS Accelerometers are where inertial sensors started 20 years ago. A look at latest innovations in and applications for these very versatile devices.	Alexandra Gogonea
Industrial IoT - 1:30 - 2:50			
1:30 PM	Jumpstart your asset tracking applications using sensors and solutions	ST's sensors technology enable cost effective, high performance asset tracking applications. Evaluation boards can address various asset tracking applications using different connectivity options with data collection. Proof of concept with a sandbox turn key asset tracking application, logging and visualizing sensor data through a cloud dashboard.	Kirby Atwater
1:40 PM	Sensors and Solutions enabling Condition Monitoring in IIoT	Addressing the challenges for today's IIoT applications: Industrial grade sensors - what do you need and why? How to log sensor data from the nodes and tools to move from condition monitoring to predictive maintenance with AI & Machine Learning.	Tom Bocchino
2:00 PM	Industrial fan monitoring: an example of Sensor to Cloud application	How to use an industrial development kit to build an end-to-end application for remote monitoring using the example of a cooling system in a data center rack server.	Steve Bakker
2:20 PM	MEMS inclinometers in static and dynamic applications	Explore the latest innovative inclinometers with a 10-yr longevity commitment: a high precision static inclinometer enabling applications in industrial and structural monitoring systems and a dynamic inclinometer with embedded MLC and extended temperature range.	Jay Esfandyari

ST Technology Days

Innovations in Power

LIVE June 22 & 23, 2021

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Day 1 - LIVE June 22

Time (PT)	Presentation Title	Abstract	Speaker
Gallium Nitride (GaN) - 9:00 - 10:20			
8:30 AM	GaN technology: The future of power electronics	A PowerGaN technology overview focusing on both G-FET and G-HEMT product lines, their innovative packaging, and an example application in a 2.5kW Totem-Pole PFC.	Alfredo Arno
8:50 AM	GaN demonstrated: Ultra compact AC/DC solutions for low power and high efficiency	Introducing a GaN G-FET enabled demonstration board for a 65W USB-PD solution. The board utilizes an active-clamp forward enabled by d-mode GaN for a small wall adapter battery charger.	Jeff Halbig
9:10 AM	Introducing STi²GaN: A new integrated & intelligent GaN power solution	Discover how combining the advantages of GaN technology with traditional semiconductor materials, benefits a large variety of power applications in terms of size, performance, reliability and cost. This includes applications such as wireless chargers, 48/12V bidirectional DC-DC converters, LiDAR, On-Board Chargers, Class-D amplifiers, and power supplies.	Aravind Mathsyaraja
9:30 AM	Increased power density for high voltage converters	Learn about an integrated high voltage GaN Half bridge device which integrates high and low side gate drivers in the same IC as a high voltage half bridge, increasing power density. We will also show MasterGaN as an enabling technology for a 250W converter.	Ryan Metivier
9:50 AM	Applications for high voltage converters using integrated wide bandgap half bridge devices	Further explorations of applications and topologies for GaN based HV converters. This session will highlight a high voltage buck converter featuring MasterGaN.	Ryan Metivier
Silicon Carbide (SiC) - 10:30 - 11:30			
10:30 AM	Advancements in Silicon Carbide MOSFETs: STPower 3rd generation technology and packaging	A look at how STPower 3rd generation SiC MOSFETs improve power density and an introduction to new innovative packaging to optimize system performance with SiC.	Alfredo Arno
10:50 AM	STPower SiC versus the field: A study in DC/AC power	A performance comparison between STPower 3rd generation SiC MOSFETs and competition devices in one of the leading applications for SiC devices - Power inverters.	Giovanni Tomasello
11:10 AM	Totem-Pole PFC application enhanced by SiC for EV On-Board Charging	An analysis of the advantages of STPower 3rd generation SiC MOSFETs in totem-pole PFCs for electric vehicle on-board chargers.	Giovanni Tomasello
Industrial power 11:30 - 12:50			
11:30 AM	Gate Drivers for Wide Bandgap devices	An overview of the options for single chip gate drivers designed for wide band gap semiconductors: the STDRIVEG600 and the STGAP2SiC. The STDRIVEG600 is a single chip half-bridge gate driver for GaN high electron mobility transistors for power conversion applications such as SMPS, high voltage PFC, DC-DC converters, active clamp converters, UPS systems and solar power applications. The STGAP2SiC is an isolated gate driver designed primarily for the industrial applications which require safer and more efficient devices and can also be used in motor driver inverters and power conversion applications.	Jiri Keprda
11:50 AM	MDmesh K6, the new reference technology for >800V rated MOSFETs	An introduction to the new MDmesh K6 series of superjunction MOSFETs, rated at 800V and above, including the key technical features & innovations.	Gabriel Seitz
12:10 PM	Fast recovery diode evolution in super-junction MOSFETs: MDMesh DM2 to MDMesh DM6	Fast-Recovery Super-Junction MOSFETs are tailored for applications that require a robust diode to handle dynamic dV/dt. A comparison between the latest fast recovery diode series shows the most effective switching behaviors of the MDmesh DM6 versus the MDmesh DM2.	Jeff Fedison
12:30 PM	New SMT Module package for high power discretes	An introduction to STPower components in the new modular ACEPACK SMIT form factor for high power applications.	Hary Radakichenane
IGBTs for Industrial & Automotive - 1:30 - 2:30			
1:30 PM	STPower IGBTs in SMT Modules for automotive power applications	The STGSB200M65DF2AG is the first automotive-grade STPOWER IGBT in the surface-mount, top side cooled ACEPACK™ SMIT package. Learn about the main features, benefits and applications.	Gianluca Aureliano
1:50 PM	New Integrated Power Modules for industrial applications	An overview of the SLLIMM (Small Low-Loss Intelligent Molded Module) Family, focused on the latest innovation: 50A, 650V rated SLLIMM HP STGIK50CH65T for industrial applications, describing its main features and benefits.	Wayne Salata
2:10 PM	New IGBT technologies for motor drive and induction cooking: The STPower M and IH series	STPower is enlarging its innovative IGBT technology offerings with new 1700V, 50A discrete M series devices for motor drives and 650V discretes rated from 20A to 50A optimized for induction heating applications. Find out the features, benefits, and benchmarks of these technologies in their respective applications.	Wayne Salata

ST Technology Days

Innovations in Power

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Day 2 - LIVE June 23

Time (PT)	Presentation Title	Abstract	Speaker
Industrial power supply applications - 9:00 - 10:20			
9:00 AM	Wireless charging solutions enable power transfer up to 50W	Introducing STWLC88 and STWBC2, STs latest wireless charging devices. Learn more about how ST is pushing wireless power transfer technologies for all devices from wearables to power tools.	Ryan Metivier
9:20 AM	Augmenting the VIPerPlus family of high voltage converters with GaN and next gen silicon MOSFETS.	VIPerGaN and ViperP3 are pushing the limit of what can be achieved with integrated high voltage conveters. VIPERGaN45 is capable of 45W, while VIPerP3QR7S is rated to 30W for wide input range applications.	Ryan Metivier
9:40 AM	New very high voltage MOSFET K6 technology validation in 100W LED Lighting Driver	A review of the new STEVAL-ILL008V1 evalution board - A 100W LED lighting driver enabled by STPower K6 MOSFET technology.	Michael Felato
10:00 AM	Linear region operation of a 1200V superjunction MOSFET	Check out the Simulation data on Automotive Graded 1200V MDmesh K5 MOSFET working as active discharge circuit	Jeff Fedison
Digital Power Control - 10:30 - 11:15			
10:30 AM	Digital Power Supply Control with Innovative STM32G4 Features and Biricha Design Tools	Learn how digital power supply controls can be implemented with innovative STM32G4 features such as the FMAC accelerator, improved high resolution timer and slope compensation. You will also learn how the Biricha design tools can help to simplify the development process in this live technical session.	Gregg Gumkowski (ST) Ali Shirsavar (Biricha)
Power for Cloud Computing, Networks & Data Centers - 11:30 - 12:10			
11:30 AM	48V to 12V Conversion Using STBUCK with Coupled Inductor	STBuck (Stacked Buck) is an ST innovative topology converting 48V to 12V regulated power with scalable and modular architecture up to 3.2KW power. The topology further maximizes efficiency and power density thanks to the coupled inductor adoption.	David Bates
11:50 AM	12V Innovative Multiphase Power Delivery using TLVR Technology	TLVR topology, combined with STVCOT control loop, enables superior dynamic performances to address the most demanding digital loads (CPU, GPU, ASIC) requirements. STVCOT applied to TLVR maximizes the system GPBW performances offering significant BOM savings.	David Bates
Power & Motor Control - 12:30 - 1:30			
12:10 PM	Isolated Gate Driver Solution with Isolated Power Supply	We are presenting a gate driver solution which also includes the isolated power supply for high voltage motor drives and power conversion systems. Based on the isolated gate driver STGAP-2SiC, which is optimized for systems with SiC MOSFETs, and the isolated flyback controller L6986i, the developed solution is designed for the evaluation of the half bridge topology systems with a galvanic isolation which require high voltage, high efficiency, high frequency and high density. This solution allows the implementation of distributed power supply for a gate driver in inverter's applications reducing the noise coupling and routing challenges in the system with a high voltage and galvanic isolation.	Jiri Keprda
12:30 PM	Minimizing solution size in next generation constant conduction power factor correction circuits.	The L4986 Power Factor Correction controller simplifies PFC design and reduces overall BOM count by integrating high voltage startup. Unique multiplier "emulator" minimizes THD and maximizes performance of this CCM PFC controller.	Ryan Metivier
12:50 PM	ACEPACK DRIVE power module for automotive inverters	Introducing the main specifications of the ACEPACK DRIVE: a very compact, direct liquid cooled, six-pack module optimized for hybrid and electric vehicles. This power module is implemented with state-of-the art 1200V and 750V Silicon Carbide Power MOSFETs for EV traction inverters.	Ardershir Esmaeli