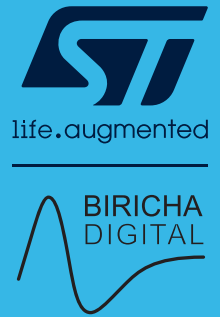# Digital Power Supply

PSU/PFC Design Workshop with STM32 MCUs

STM32

Learn to design MCU controlled digital power supplies and PFCs in just four days

Learn how to design digital power supplies from ground up quickly and easily with this in-depth laboratory based design workshop.

The workshop is 4 days long and is aimed at analog PSU designers and embedded systems engineers who need to design high performance stable digital power supplies and Digital PFCs.

During the workshop you will learn how to design stable analog and digital control loops in both voltage mode and current mode for DC/DC and Off-Line Applications.

You will then design, code, implement and test several digital power supplies in our well-equipped laboratory during days 1 to 3.
On the 4th day, design and implementation of digital PFCs is covered in detail to address the most recent needs of our industry.

First the engineering concepts, theoretical material and step-by-step design procedures are thought in the class and then these are all put into practice with numerous laboratory exercises. The design practices taught in the class can be applied to any MCU with all labs based on ST's Arm® based STM32G474.

ALL ATTENDEES WILL RECEIVE:

- 4 days of intensive engineering training and lab based exercises
- All necessary software templates and easy to program exercises to start you on your digital power projects
- Workshop material, lab notes, lunch and refreshments

Authorized Partner

www.st.com/biricha

BIRICHA DIGITAL

For over 10 years, Biricha has provided world-leading industrial training and consulting services to the power industry. The comapny specializes in digital PSU and PFC design workshops which are aimed at power supply designers and embedded systems engineers who need to design digital power supplies and PFC stages.

Training schedule

Day 1: Introduction to Digital Power Programming

• Fundamentals of digital power design

• Closed loop control of switch mode power supplies in both analog & digital

• Number formatting for digital compensator, design with various architectures including 16- & 32-bit

• Fixed point format, floating point & Arm® Hands-on labs based on STMicroelectronics' new range of Arm® processors

Day 2: Digital Power Supply Design

• Detailed discussion and design of digital power control loops

• Implementing a stable digital voltage mode controller for your digital power supply

• 2p2z and 3p3z compensator design and coefficient calculation

• Hands-on labs based on STMicroelectronics' new range of Arm® processors

Day 3: Peak Current Mode Control

• Detailed review analog peak current mode design

• Digital peak current mode controller design

• Analog and digital slope compensation

• Hands-on labs based on STMicroelectronics' new range of Arm® processors

Day 4: Digital PFC Design & Implementation

• Single Phase and interleaved CCM Boost PFC topology operation & design

• Step-by-step digital PFC control loop design (voltage loop and current loop)

• Voltage feed-forward & filter design in digital domain

• Hands-on design exercises and live demos
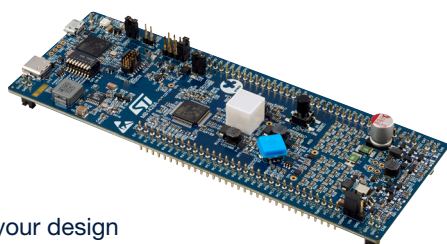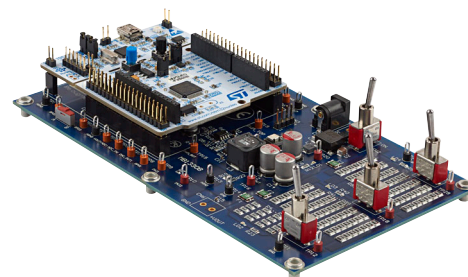
Take your design one step further with B-G474E-DPOW1

DIGITAL POWER WEBPAGE

Discover a complete set of resources from hardware, software and embedded firmware to training resources and documentation designed to support and accelerate the design of digital power applications.
st.com/stm32-digital-power

New Biricha's software free available

Biricha has teamed up with STMicroelectronics to provide a special release of "PLD - PFC Loop Design Tool" and "WDS - Power Supply Design Tool" for use with the STM32 range of MCUs from STMicroelectronics. Those ST PLD and ST WDS design tools are free-to-use and allows the user to quickly stabilize their digital PFC stage or digital power supply controlled using an STM32 MCU.

• ST WDS - Power Supply Design Tool for STM32 from Biricha at www.biricha.com/st-wds

• ST PLD - PFC Loop Design Tool for STM32 from Biricha at www.biricha.com/st-pld

life.augmented

Order code: FLPOWERSTBD0620

For more information on ST products and solutions, visit www.st.com/stm32-digital-power