Christophe Basso
France
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Education

MS 2008 *Electrical Engineering*, Institut Polytechnique de Toulouse, France.
Research project: power supply small-signal modeling and simulations

BS 1985 *Electrical Engineering*, Montpellier Science University, Montpellier, France

Industry Experience

1985-87: Customer Engineer, Hewlett-Packard, Courbevoie, France.

1987-88: Electronics instructor in the Navy, military duty, Saint-Mandrier, France

1988-97: European Synchrotron Radiation Facility, Grenoble, France. Electronic study of the Beam Position Monitor Project, including low-noise hardware designs driven by C and Pascal programs that I developed. Development of a complete range of high current class-D amplifiers to drive steering magnets. These magnets were assembled along the tube to guide the electron beam while operating the particles accelerator.

1997- 99: Motorola Semiconductor in Toulouse, France. Application engineering for the wireless market with specs definitions for various applications including dc-dc conversion, RF power management and linear regulators. “Diamond Quill” award obtained in less than 2 years for more than 25 articles published.

1999: ON Semiconductor in Toulouse, France. Product Engineering Director in the field of power conversion. I am responsible for a 5-engineer team dedicated to the power electronics field. I have introduced the NCP1200 series of controllers which have set the pace for low standby offline power converters (more than 100 millions parts sold since its inception in 2000). Since then, I have introduced more than 20 popular circuits, ranging from hard switching devices to quasi-resonant and full resonant architectures. These circuits serve both the industrial and the consumer markets. I also developed high performance ASICs for world-class power supply manufacturers like Delta Electronics, Liteon etc. I have published regularly in power electronics trade magazines like EDN, How2Power, ECN, PCIM, PET etc. I participate in large scale worldwide seminars at customer locations to teach various topics in power electronics such as loop control and small-signal modeling. I filed 30 US patents, 15 are issued.

Teaching Professional Advancement Courses

I have taught the following professional advancement courses in power electronics. This course was offered as a public course in the Polytechnic Institute in Toulouse in 2004.

Introduction to the field of Power Electronics, 1 day

IEEE Conference Professional Seminars

Professional seminar for Applied Power Electronics Conference 2009 in Washington (APEC 09): "Loop Control Design in Switching Converter"

Professional seminar for Applied Power Electronics Conference 2010 in Austin (APEC 10): "Designing Compensators for the Control of Power Supplies"

Professional seminar for Applied Power Electronics Conference 2011 in Fort Worth (APEC 11): "The Dark Side of Flyback Converter"

Professional seminar for Applied Power Electronics Conference 2012 in Orlando (APEC 12): "The Dark Side of Loop Control Theory"

Professional seminar for Applied Power Electronics Conference 2013 in Long Beach (APEC 13): "Small Signal Modeling and Analytical Analysis of Power Converters"

Professional seminar for Applied Power Electronics Conference 2014 in Fort Worth (APEC 14): "Small Signal Modeling at Work with Power Converters"

Part-time teaching experience

I have taught at several engineering schools in France (ESEO Angers, INP Toulouse) covering small-signal modeling, loop control and power supply design.

Membership: IEEE Senior Member

Date of Birth: June 22nd, 1965

PUBLICATIONS

Books

1. “Le bus IEEE-488, principes et mise en œuvre”, Dunod Editions, 1996
2. “Switch-Mode Power Supply SPICE Cookbook”, McGraw-Hill, 2001
3. “Switch-Mode Power Supplies SPICE Simulations and Practical Designs", McGraw-Hill, 2008 ”
4. “Designing Control Loops for Linear and Switching Power Supplies: a Tutorial Guide”, Artech House, 2012

Papers in Technical Journals

1. “Average simulations of flyback converters”, PCIM, December 1996
2. “Write your own generic controllers SPICE models”, PCIM, April/May 1997
3. “A tutorial introduction to simulating current mode power stages”, PCIM, October 1997
4. “Spice predicts differential conducted EMI from switching power supplies”, EDN, February 1997
5. “Get the Best From your LDO designs”, EDN, February 1999.
6. “Critical mode Stabilizes Switch-Mode Power Supplies”, EDN, April 1998
7. “How Spice can help us in Switch-Mode Power Supply designs?”, PCIM, February 2002
8. “In-line equations describe circuits in a snap-shot”, PCIM, April 2002
9. “Lossy Models offer realistic average simulations”, PCIM, July 2002
10. “EMI conducted analysis with SPICE”, PCIM, January 2003
11. “Ramp compensation for current-mode converters”, PCIM, April 2004
12. “Analyzing power supply stability in multiloop systems”, Power Management Design Line, July 2008
13. “Eliminate the guesswork in cross over frequency”, PET, August 2008
14. Numerous articles published in the on-line newsletter www.how2power.com

More than 12 “design ideas” published in EDN and Electronic Design since 1994
First articles published in the defunct French newspaper “Electronique Radio Plans” in 1982.

Papers at National and International Conferences

1. Christophe Basso, “Motorola solutions to lowering standby power”, International Energy Agency Conference, Paris, January 1999

2. Christophe Basso, “Lowering the standby power: skip cycle or frequency foldback”, PCIM Nuremberg, 2002

3. Christophe Basso, “A quasi resonant SPICE model eases feedback loop designs”, PCIM Nuremberg, 2003

4. Christophe Basso, “New approaches to meet emerging power supply efficiency requirements”, CPSS China power conference, Beijing, 2004

5. Christophe Basso, “The PWM switch concept in mode transitioning SPICE models”, PCIM Nuremberg, 2005

6. Christophe Basso, “New solutions to improve the efficiency and standby power in modern converters”, Salon Hyper, Paris, October 2008

Patents

Currently, 15 issued, 30 filed

6,385,060 - 05/07/2002 - Circuit and method for controlling a power supply
This patent introduces the concept of latch-off phase to generate a hiccup during a short-circuit or a fault in a SMPS

6,469,567 - 10/22/2002 - Power Supply Circuit and method
This patent describes a method to clamp the gate-drive voltage excursion of a MOSFET driver supplied from an extended dc supply without added power dissipation.

6,469,484 - 10/22/2002 - Power Supply Circuit and Method to Detect Demagnetization of the Power Supply.
This patent offers a novel way to detect the core reset state of a transformer used in a flyback configuration.

6,850,044 - 02/01/2005 - Hybrid Regulator with Switching and Linear Sections
This method describes a way to dynamically reduce the voltage headroom on a RF amplifier used in portable applications.

6,800,961- 10/05/2004 - Apparatus and Method for Controlling a Power Supply
A way to detect a standby mode coming from the secondary side without the help of an optocoupler.

6,452,368 - 09/17/2002 - Circuit and Method of Operating a Low-Noise On-Demand Regulator in switched or Linear Mode
A switch-mode regulator is turned into a linear regulator if a low-noise operation is required.