

ACAP-POWER-BD (v1.0)

Course Specification

Course Description

This course provides a system-level understanding of power and thermal issues related to designing with the Versal® ACAP. PCB design considerations for the Versal ACAP are also covered.

The emphasis of this course is on:

- Estimating power using power analysis
- Managing thermal design
- Understanding Versal device packaging
- Implementing proper pin-to-board connection
- Using the Versal PCB Schematic Checklist to validate PCB design

What's New for 2022.2

- Power Design Manager (PDM): New module and lab on the replacement tool for XPE
- All labs have been updated to the latest software versions

Level – ACAP 2

Course Details

- 1 day live instructor led training (in person or online)
- 15 lectures
- 2 labs
- 1 On-Demand demo

Price – \$800 or 8 Xilinx Training Credits

Course Part Number – ACAP-POWER-BD

Who Should Attend? – Hardware designers and system architects wanting to develop an effective power distribution network for the Versal ACAP.

Prerequisites

- *Designing with the Versal ACAP: Architecture and Methodology* course
- Familiarity with the Vivado® Design Suite

Software Tools

- Vivado Design Suite 2022.2
- Power Design Manager tool 2022.2

Hardware

- Architecture: Versal ACAPs

Check with [Morgan Advanced Programmable Systems, Inc.](http://www.morgan-aps.com) for the specifics of the in-class lab board or other customizations.

After completing this comprehensive training, you will have the necessary skills to:

- Design an efficient power distribution network for a Versal ACAP design
- Leverage the Power Design Manager tool for power estimation
- Dynamically manage power consumption
- Solve thermal challenges
- Apply PCB design guidelines for Versal ACAP board interfaces

Course Outline

- **Versal ACAP Architecture Overview for Existing Users**
Introduces to students who already have familiarity with AMD Xilinx architectures the new and updated features found in the Versal ACAP devices. {Lecture}
- **Power Solutions Overview**
Introduces key power concepts and explores some of capabilities of the Versal ACAP devices and introduces the power distribution network flow. {Lecture}

- **Packaging and Power Integrity**
Describes key elements when modeling a PDN and dives deeper into packaging considerations. {Lecture}
- **Thermal Solutions Overview**
Introduces key thermal concepts and explores some of capabilities of the Versal ACAP devices. {Lecture}
- **Power Management**
Discusses power domains and how they can be controlled along with basic techniques used to lower overall power consumption. {Lecture, Demo}
- **Power Design Manager**
Discusses using the new Power Design Manager tool, including import and export functions. {Lecture, Lab}
- **Power Supply Backgrounder**
Reviews linear and switching power supplies and common terms used to specify power supply characteristics. {Lecture}
- **Board System Design Overview**
Introduces PCB design topics. {Lecture}
- **Designing the Power Supply**
Consolidates the thermal management concepts of the course for achieving a successful design. {Lecture}
- **Designing PL Interfaces**
Focuses on bank structure and physical organization of the PL package pins. {Lecture}
- **Designing PS Interfaces**
Covers the unique features of the dedicated PS I/O interface along with pin-planning techniques. {Lecture}
- **Designing Memory Interfaces**
Discusses high-speed connections, routing, and design guidelines for DDR memories. {Lecture}
- **Designing Transceiver Interfaces**
Describes the serial transceiver organization and proper trace requirements. {Lecture}
- **Board System Design Guidance**
Outlines the steps and documentation for specific PCB topics. {Lecture}
- **PCB Design Verification – Versal ACAP Schematic Checklist**
Reviews PCB design verification using the Schematic Checklist. {Lecture, Lab}

Register Today

Morgan Advanced Programmable Systems, Inc. (Morgan A.P.S.) delivers public and private courses in locations throughout the central US region; including Iowa, Illinois, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, and Wisconsin.

Visit morgan-aps.com/training, for full course schedule and training information.



You must have your tuition payment information available when you enroll. We accept credit cards (Visa, MasterCard, or American Express) as well as purchase orders and Xilinx training credits.

Student Cancellation Policy

- Student cancellations received more than 7 days before the first day of class are entitled to a 100% refund. Refunds will be processed within 14 days.

- Student cancellations received less than 7 days before the first day of class are entitled to a 100% credit toward a future class.
- Student cancellations must be sent [here](#).

Morgan A.P.S. Course Cancellation Policy

- We regret from time-to-time classes will need to be rescheduled or cancelled.
- In the event of cancellation, live on-line training may be offered as a substitute.
- Morgan A.P.S. may cancel a class up to 7 days before the scheduled start date of the class; all students will be entitled to a 100% refund.
- Under no circumstances is Morgan A.P.S. responsible or liable for travel, lodging or other incidental costs. Please be aware of this cancellation policy when making your arrangements.
- For additional information or to schedule a private class contact us [here](#).

Online training with real hardware

During the Covid-19 period, some companies do not allow their staff to participate in live in-person training.

- Consequently, Morgan Advanced Programmable Systems, Inc. has set up a training VPN where engineer participants can take classes online using the same computers and devCards used during in-person training.
- Even better, and upon request, you can use these computers after hours on training days to experiment with labs. This is not possible for in-person training.
- Additionally, just like in-person training, the laptops and devCards, tools, OS, and licensing are set up in advance.
- In some ways, live online-training is better than in-person...for example, you can grant the instructor permission to look at your Vivado, PetaLinux terminal, or Vitis for extended periods of time if your lab is not going exactly as planned to a missed step.
- This is often more comfortable than two engineers crowding around a laptop screen.
- Taking remote training also allows you to learn some tips and tricks for working remote. Whether your devCard is in the lab down the hall, or across the world via VPN, you can control your Xilinx based device quickly and efficiently.