

VER2-MMEDIA (v1.0)

**Course Specification**

**Course Description**

Learn how to build and deploy complex multimedia applications targeting AMD Versal™ AI Edge Series Gen 2 and Prime Series Gen 2 adaptive SoCs.

This course focuses on the architecture and capabilities of key multimedia blocks, including the Video Codec Unit 2 (VCU2), Image Signal Processor (ISP), Graphics Processing Unit (GPU), Display Controller (DC), and connectivity IPs. You will learn how to leverage these architectural enhancements to design efficient streaming pipelines using the VCU2 software stack and the open-source GStreamer framework for high-performance, real-time multimedia processing.

The emphasis of this course is on:

- Understanding the multimedia solutions offered by AMD
- Working with the multimedia blocks available in Versal AI Edge Series Gen 2 and Prime Series Gen 2 adaptive SoCs
- Explaining the functionality of the video encoder and decoder within the Video Codec Unit 2 (VCU2)
- Describing the capabilities and processing pipeline of the Image Signal Processor (ISP)
- Explaining the features and operational modes of the integrated Graphics Processing Unit (GPU)
- Identifying and understanding the various connectivity and processing soft IPs provided by AMD
- Exploring the VCU2 software stack, including its control layers and OpenMAX™ integration
- Using GStreamer plugins to develop and implement efficient video streaming pipelines

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**Course Outline**

**Day 1**

▪ **Multimedia Overview and Solutions**

Provides an overview of multimedia trends and the system architectures required to support them. Also evaluates the multimedia solutions offered by AMD. {Lecture}

▪ **Multimedia Hard Blocks**

Covers the multimedia-specific hard IP blocks in the Versal AI Edge Series Gen 2 and Prime Series Gen 2 devices and outlines the high-speed multimedia interfaces they support. {Lecture, Lab}

▪ **Video Codec Unit 2 (VCU2)**

Provides an overview of why codecs are essential, explains the architecture and configuration of the VCU2, and outlines the key use cases for the VCU2. {Lecture}

▪ **Image Signal Processor (ISP)**

Explains the ISP core architecture, differentiates its operating modes and software stack, and details the configuration steps for the Versal ISP Subsystem IP. {Lecture}

▪ **Graphics Processing Unit (GPU)**

Highlights the significance of the Arm® Mali™-G78AE GPU in the Versal AI Edge Series Gen 2 and Prime Series Gen 2 devices and summarizes its key features. {Lecture}

▪ **Multimedia Connectivity and Processing IPs**

Reviews the different input and output subsystems that are used to capture and display audio and video data. The corresponding connectivity and processing IPs provided by AMD are also covered. {Lecture}

▪ **VCU2 Software Stack**

Explains the layered structure of the VCU2 software stack for the Versal AI Edge Series Gen 2 and Prime Series Gen 2 devices. {Lecture}

▪ **Streaming Pipeline Using GStreamer**

Describes in detail the streaming pipeline application flow using GStreamer, including how to build a GStreamer application. {Lecture}

▪ **Using the AMD Embedded Development Framework (EDF)**

Discusses the AMD Embedded Development Framework (EDF) and its role in accelerating platform-level development. Also explains the developer personas in the EDF. {Lecture}

**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.

**Level – MMEDIA 3**

**Course Details**

- 1 day instructor led training (online or in person)
  - 9 lectures
  - 1 lab

**Price – \$800 or 8 AMD Training Credits**

**Course Part Number – VER2-MMEDIA**

**Who Should Attend? –** Anyone who needs to develop multimedia application targeting Versal AI Edge Series Gen 2 and Prime Series Gen 2 adaptive SoCs

**Prerequisites**

- Basic knowledge of video technology
- Basic knowledge of a generic video codec unit (VCU)
- Basic knowledge of the Versal AI Edge Series Gen 2 and Prime Series Gen 2 architecture

**Software Tools**

- [Vivado™ Design Suite 2025.2](#)
- [Vitis™ Unified IDE 2025.2](#)

**Hardware**

- Architecture: Versal AI Edge Series Gen 2 and Prime Series Gen 2 adaptive SoCs

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

- Identify the multimedia solutions offered by AMD
- Utilize the multimedia blocks available in AMD Versal AI Edge Series Gen 2 and Prime Series Gen 2 adaptive SoCs

Visit [morgan-aps.com/training](https://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 AMD 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 or in person training with real hardware**

- 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 AMD based device quickly and efficiently.