



# AMD Vitis™ Subsystem (AI Engine + PL) Co- Simulation Using Vivado™ XSIM

# What is an AMD Vitis™ Subsystem (VSS)?

## What is VSS?

- VSS is a platform-independent, reusable design subsystem
- Self-contained package of interconnected AI Engine and programmable logic (PL) components
- Targets a specific part
- VSS can be linked to any hardware platform (as long as the platform targets the same part as VSS)
- Delivered as a packaged directory

## What does a VSS Package Contain?

- PL content: .xo files, IP repo
- AI Engine content: libadbf.a files
- Metadata specification (.vss), including internal connectivity
- Simulation models and other generated design sources

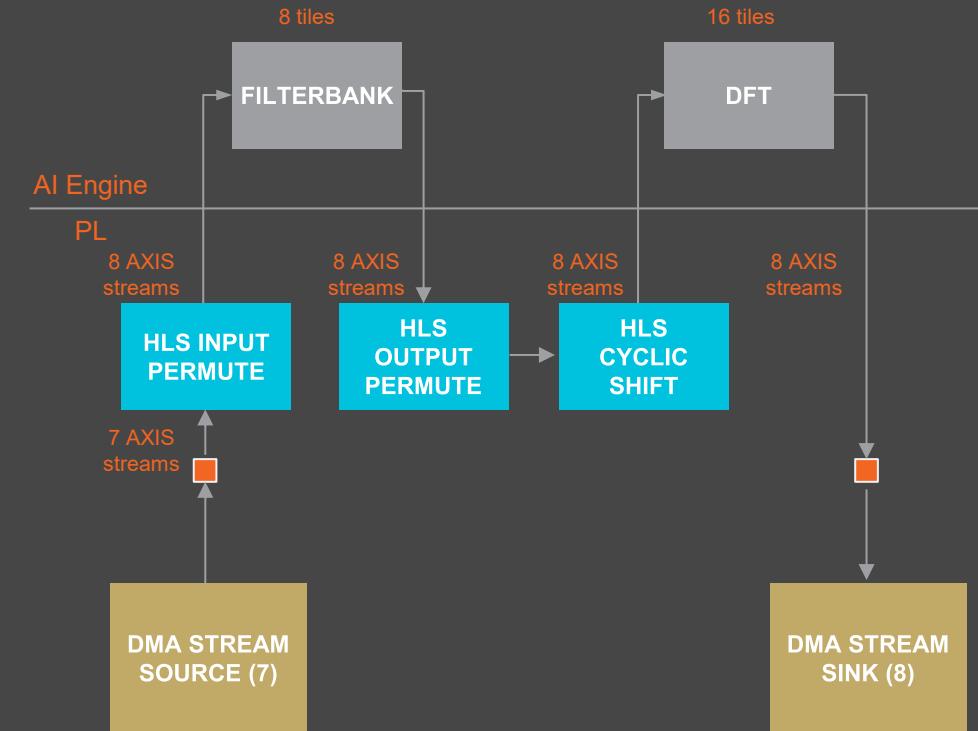
# Why AI Engine +PL Subsystem?

Most algorithmic/DSP functions are implemented as a combination of AI Engine and PL

Natural algorithmic ensemble

Model, simulate, and validate in HW together

AI Engine + PL Polyphase Channelizer



# Why use a VSS in the Design Flow?

## HDL Simulation without Platform or HW Emulation

- **Benefit:** Simulate the VSS without needing a platform or hardware emulation
- **Impact:** Faster and more flexible testing

## Reuse Existing RTL Verification Environment

- **Benefit:** Functions can be migrated from AI Engine to PL faster
- **Impact:** Easier to improve design efficiency

## Hierarchical Design

- **Benefit:** Enables hierarchical design approaches
- **Impact:** Modular and reusable

## Packaging and Distribution

- **Benefit:** Allows packaging and distribution of subsystems
- **Impact:** Efficient deployment

Watch the demonstration video of the AI Engine and PL co-simulation using VSS. This video will be centered around the XSIM simulator.

[https://youtu.be/Yb\\_hY\\_T3T3c](https://youtu.be/Yb_hY_T3T3c)

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