

# VIVADO High Level Synthesis in CLAS12 Trigger System Design

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- CLAS12 Trigger System overview
- VIVADO HLS usage for Trigger System design: motivation, experience, results
- Recommendations for HLS development

# VIVADO High Level Synthesis in CLAS12 Trigger System Design – VIVADO HLS Experience

- Advantages: involve programmers from offline data processing community, adopt existing reconstruction algorithms, perform development and validation inside offline data processing framework
- Features underlined: conversion C/C++ to HLS C++, communication with HDL surrounding, different clock domains, project size and organization, different HLS versions and cross-project dependencies, HLS and VIVADO settings
- Recommendations: multi-clock domain support, subroutine calls improvement (by allowing option to fully registered paths between modules), state machine logic improvement (separate state machines for separate routines)