Build System: Vivado Support

Presentations

Standards

- Revision Control Standards
- Hardware Standards
- Firmware Standards
- Software Standards

GIT

- An Introduction to GIT and Github
- An introduction to GIT Branching, Merging & Pull Request

SURF

- An Introduction to SURF
- Ethernet Library

RUCKUS

- An Introduction to Ruckus
- Using ruckus in Windows via "Ubuntu on Windows"
- HowTo include and build Microblaze
- How to use "make release"

Rogue

- An Introduction to Rogue
- How to firmware co-simulate with Rogue

MISC

- How to use VNC to access the build servers from Windows
- How to build/configure Vivado for Ubuntu

Ruckus Support Summary Table:

Green Fileed = Supported

Red Filled = Not Supported

Yellow Filled = In progress of testing or adding support

	Vivado Support																			
Major Version Number	2014.x			2015.x			2016.x			2017.x		2018.x	2019.x		2020.x	2021.x	2022.x		2023.x	
Minor Version Number	1	2	3~4	1~2	3	4	1~2	3	4	1	2~4	1~3	1	2	1~2	1~2	1	2	1	2
PROM generation	G	G	G	G	G	G	G	G	G	R	G	G	G	G	G	G				
ILA Debug generation	G	G	G	G	G	G	G	G	G	R	G	G	G	G	G	G				
VCS script generation	G	G	G	G	G	G	G	G	G	R	G	G	G	G	G	G				
Incremental Compile	R	R	R	R	G	G	G	G	G	G	G	G	G	G	G	G				
Dynamic Function eXchange (DXF)	R	R	R	G	R	G	R	R	G	R	G	G	G	G	G	G				
Vitis HLS	G	R	G	G	G	G	G	G	G	G	G	G	G	G	G	G				
model_composer (A.K.A. sysgen)	R	G	G	G	R	G	G	G	G	R	G	G	G	G	G	G				
Vitis/SDK	R	G	G	G	G	G	R	G	G	R	G	G	G	G	R	G				

Vivado Notes

- We are not supporting any Vivado version before 2014.1
- Xilinx has dropped 32-bit support for version 2015.1 (or later). If you are building on a 32-bit Linux kernel, you will need to use 2014.4 (or earlier).
- We are only supporting "Incremental Compile" for version 2015.3 (or later) <http://www.xilinx.com/video/hardware/incremental-compile-updates-for-2015_3.html>
- We are not supporting Vivado 2017.1. This is due to lots of batch mode related bugs in 2017.1 release, which got fixed in 2017.2.
- Starting 2019.2, Partial Configuration" renamed to Dynamic Function eXchange (DXF)

SDK/Vitis Notes

- We are only going to support SDK for Vivado 2015.4 (or later) because that was the version that we started to support/build SDK in our build system.
- In Vivado 2016.2, the AXI_INTC does not support interrupts that are external port(s) of the .bd module and cause SDK to crash during the build of the .ELF file. Because of this, we decided not to support SDK for Vivado 2016.3
    - Note: In Vivado 2016.2, internal interrupt signals within the .bd module would not cause the AXI_INTC to crash during SDK's building of the .ELF file
- We are NOT supporting Vitis 2019.2

Vivado HLS Notes

- We don't support Vivado HLS for version 2014.2 because requires too many manual soft-links to be created for the library paths to make it work.
- 2021.1 ~ 2022.1 incorrectly mucks up the include paths (A.K.A. CFLAGS env variable)
- 2022.1 synthesis compiler doesn't obey C++syntax
- 2023.2 - **INFO: [HLS 200-2053] The vitis_hls executable is being deprecated. Consider using vitis**

Partial Configuration

- Before Vivado 2016.4, partial configuration was not supported in project mode (only batch mode)

Model Composer (Legacy "System Generator") Notes

- Due to AR# 59236, we are not supporting System Generator before 2014.3
- For 2015.3, there is a bug in System Generator exporting both RTL and .DCP. In both exporting types, System Generator hangs and never generates the output files. This was tested using both Matlab R2014b and R2015b
- System Generator on Ubuntu 20.04
- To execute system generator in Vivado 2021.1 (or later), you will need to use the `model_composer` command (instead of `sysgen`).

SLAC Matlab Licensing:

- How to setup for AFS Matlab Install
- Mathworks - All MATLAB and Simulink Products Available to SLAC Employees
- Answer to "Which versions of System Generator for DSP are compatible with which versions of Vivado Design tools and MATLAB and on what OS?"