

Ila step through

Vivado 2017.4 (on lcls-pc83236)

**VIVADO**  
HLx Editions

**XILINX**  
ALL PROGRAMMABLE.

### Quick Start

- Create Project >
- Open Project >
- Open Example Project >

### Tasks

- Manage IP >
- New IP Location... >
- Open IP Location... >

### Learning Center

- Documentation and Tutorials >
- Quick Take Videos >
- Release Notes Guide >

#### Recent Projects

- TimeToolKcu1500\_project  
/u1/sioan/build/TimeToolKcu1500
- project\_xsim  
/u1/sioan/simulation\_tutorial/project\_xsim/project\_xsim

#### Recent IP Locations

- ila\_temp  
/u1/sioan

Tcl Console  
Open the IP Catalog and view available IP. Create and customize IP to be used in a new project or open previously customized IP to make changes.

```

reg/neh/home5/sioan/Desktop
t.srscs/sources_1/ip/ila_0/ila_0_stub.vhdl
t.srscs/sources_1/ip/ila_0/sim/ila_0.v
t.srscs/sources_1/ip/ila_0/ila_0.xml
t.srscs/sources_1/ip/ila_0/ila_0_stub.v
t.srscs/sources_1/ip/ila_0/ila_0_sim_netlist.vhdl
t.srscs/sources_1/ip/ila_0/synth/ila_0.v
t.srscs/sources_1/ip/ila_0/ila_0.xci
t.srscs/sources_1/ip/ila_0/ila_0.veo
t.srscs/sources_1/ip/ila_0/hdl/verilog/ila_v6_2_5_ila_in.vh
t.srscs/sources_1/ip/ila_0/hdl/verilog/ila_v6_2_5_ila_lib_fn
t.srscs/sources_1/ip/ila_0/hdl/verilog/ila_v6_2_5_ila_ver.vh
t.srscs/sources_1/ip/ila_0/hdl/verilog/ila_v6_2_5_ila_param.
t.srscs/sources_1/ip/ila_0/hdl/verilog/ila_v6_2_5_ila_lparam
t.srscs/sources_1/ip/ila_0/hdl/ila_v6_2_syn_rfs.v
t.srscs/sources_1/ip/ila_0/doc/ila_v6_2_changelog.txt
t.srscs/sources_1/ip/ila_0/ila_0.dcp
t.runs/ila_0_synth_1
t.runs/ila_0_synth_1/ila_0_utilization_synth.pb
t.runs/ila_0_synth_1/ila_0_utilization_synth.rpt
t.runs/ila_0_synth_1/ila_0.vds
t.runs/ila_0_synth_1/ila_0.tcl
t.runs/ila_0_synth_1/ila_0.dcp

```

```

^C
(timetoolqt5) [sioan@lcls-pc83236 sioan]$find . -iname ila*^C
(timetoolqt5) [sioan@lcls-pc83236 sioan]$cd lcls2-pcie-apps/
(timetoolqt5) [sioan@lcls-pc83236 lcls2-pcie-apps]$find . -iname ila*
./firmware/applications/TimeTool/coregen/ila_0.xci
(timetoolqt5) [sioan@lcls-pc83236 lcls2-pcie-apps]$

```



### Quick Start

- Create Project >
- Open Project >
- Open Example Project >

### Tasks

- Manage IP >
- Open Hardware Manager >
- Xilinx Tcl Store >

### Learning Center

- Documentation and Tutorials >
- Quick Take Videos >
- Release Notes Guide >

#### New IP Location

Manage IP Settings  
Set options for creating and generating IP.

Part:

Target language:

Target simulator:

Simulator language:

IP location:

```

reg/neh/home5/sioan/Desktop
t.srcs/sources_1/ip/ila_0/ila_0_stub.vhdl
t.srcs/sources_1/ip/ila_0/sim/ila_0.v
t.srcs/sources_1/ip/ila_0/ila_0.xml
t.srcs/sources_1/ip/ila_0/ila_0_stub.v
t.srcs/sources_1/ip/ila_0/ila_0_sim_netlist.vhdl
t.srcs/sources_1/ip/ila_0/synth/ila_0.v
t.srcs/sources_1/ip/ila_0/ila_0.xci
t.srcs/sources_1/ip/ila_0/ila_0.vco
t.srcs/sources_1/ip/ila_0/hdl/verilog/ila_v6_2_5_ila_in.vh
t.srcs/sources_1/ip/ila_0/hdl/verilog/ila_v6_2_5_ila_lib_fn
t.srcs/sources_1/ip/ila_0/hdl/verilog/ila_v6_2_5_ila_ver.vh
t.srcs/sources_1/ip/ila_0/hdl/verilog/ila_v6_2_5_ila_param.
t.srcs/sources_1/ip/ila_0/hdl/verilog/ila_v6_2_5_ila_lparam
t.srcs/sources_1/ip/ila_0/hdl/ila_v6_2_syn_rfs.v
t.srcs/sources_1/ip/ila_0/doc/ila_v6_2_changelog.txt
t.srcs/sources_1/ip/ila_0/ila_0.dcp
t.runs/ila_0_synth_1
t.runs/ila_0_synth_1/ila_0_utilization_synth.pb
t.runs/ila_0_synth_1/ila_0_utilization_synth.rpt
t.runs/ila_0_synth_1/ila_0.vds
t.runs/ila_0_synth_1/ila_0.tcl
t.runs/ila_0_synth_1/ila_0.dcp
  
```

Tcl Console  
Start using Vivado with the IP Catalog as a starting point to more quickly customize and create IP.

```

^C
(timetoolqt5) [sioan@lcls-pc83236 sioan]$find . -iname ila*^C
(timetoolqt5) [sioan@lcls-pc83236 sioan]$cd lcls2-pcie-apps/
(timetoolqt5) [sioan@lcls-pc83236 lcls2-pcie-apps]$find . -iname ila*
./firmware/applications/TimeTool/coregen/ila_0.xci
(timetoolqt5) [sioan@lcls-pc83236 lcls2-pcie-apps]$
  
```

PROJECT MANAGER - xc7k325tffg900-2

Sources

AXIS Infrastructure

- BaselP
- Basic Elements
- Communication & Networking
- Debug & Verification
  - Debug
    - Debug Bridge
    - IBERT 7 Series GTH
    - IBERT 7 Series GTP
    - IBERT 7 Series GTX
    - IBERT 7 Series GTZ
    - IBERT Ultrascale GTH
    - IBERT Ultrascale GTY
    - ILA (Integrated Logic Analyzer)**
    - In System IBERT
    - JTAG to AXI Master
    - System ILA
    - VIO (Virtual Input/Output)
    - Simulation Clock Generator
    - Simulation Reset Generator
  - Digital Signal Processing
  - Embedded Processing
  - FPGA Features and Design

IP Catalog

Cores | Interfaces

Name	AXI4	Status	License	VLNV
Debug Bridge		Production	Included	xilinx.com:ip:debug_bridge:3.0
IBERT 7 Series GTH		Included	Included	xilinx.com:ip:ibert_7series_gth:3.0
IBERT 7 Series GTP		Included	Included	xilinx.com:ip:ibert_7series_gtp:3.0
IBERT 7 Series GTX		Production	Included	xilinx.com:ip:ibert_7series_gtx:3.0
IBERT 7 Series GTZ		Included	Included	xilinx.com:ip:ibert_7series_gtz:3.1
IBERT Ultrascale GTH		Included	Included	xilinx.com:ip:ibert_ultrascale_gth:1.3
IBERT Ultrascale GTY		Included	Included	xilinx.com:ip:ibert_ultrascale_gty:1.2
<b>ILA (Integrated Logic Analyzer)</b>	<b>AXI4</b>	<b>Production</b>	<b>Included</b>	<b>xilinx.com:ip:ila:6.2</b>
In System IBERT		Included	Included	xilinx.com:ip:in_system_ibert:1.0
JTAG to AXI Master		Production	Included	xilinx.com:ip:jtag_axi:1.2
System ILA	AXI4-Stream	Production	Included	xilinx.com:ip:system_ila:1.1
VIO (Virtual Input/Output)		Production	Included	xilinx.com:ip:vio:3.0
Simulation Clock Generator		Production	Included	xilinx.com:ip:sim_clk_gen:1.0
Simulation Reset Generator		Production	Included	xilinx.com:ip:sim_rst_gen:1.0

**Details**

Name: **ILA (Integrated Logic Analyzer)**

Version: 6.2 (Rev. 5)

Interfaces: AXI4, AXI4-Stream

Description: The Integrated Logic Analyzer (ILA) core is a customizable logic analyzer core that can be used to monitor any internal signal of your design. The ILA core includes many advanced features of modern logic analyzers, including Boolean trigger equations, customizable data capture buffer depth, and optional trigger input/output ports. Because the ILA core is synchronous to the design being monitored, all design clock constraints that are applied to your design are also applied to the components inside the ILA core. Run-time interaction with this core requires the use of the Vivado logic analyzer feature.

Status: **Production**

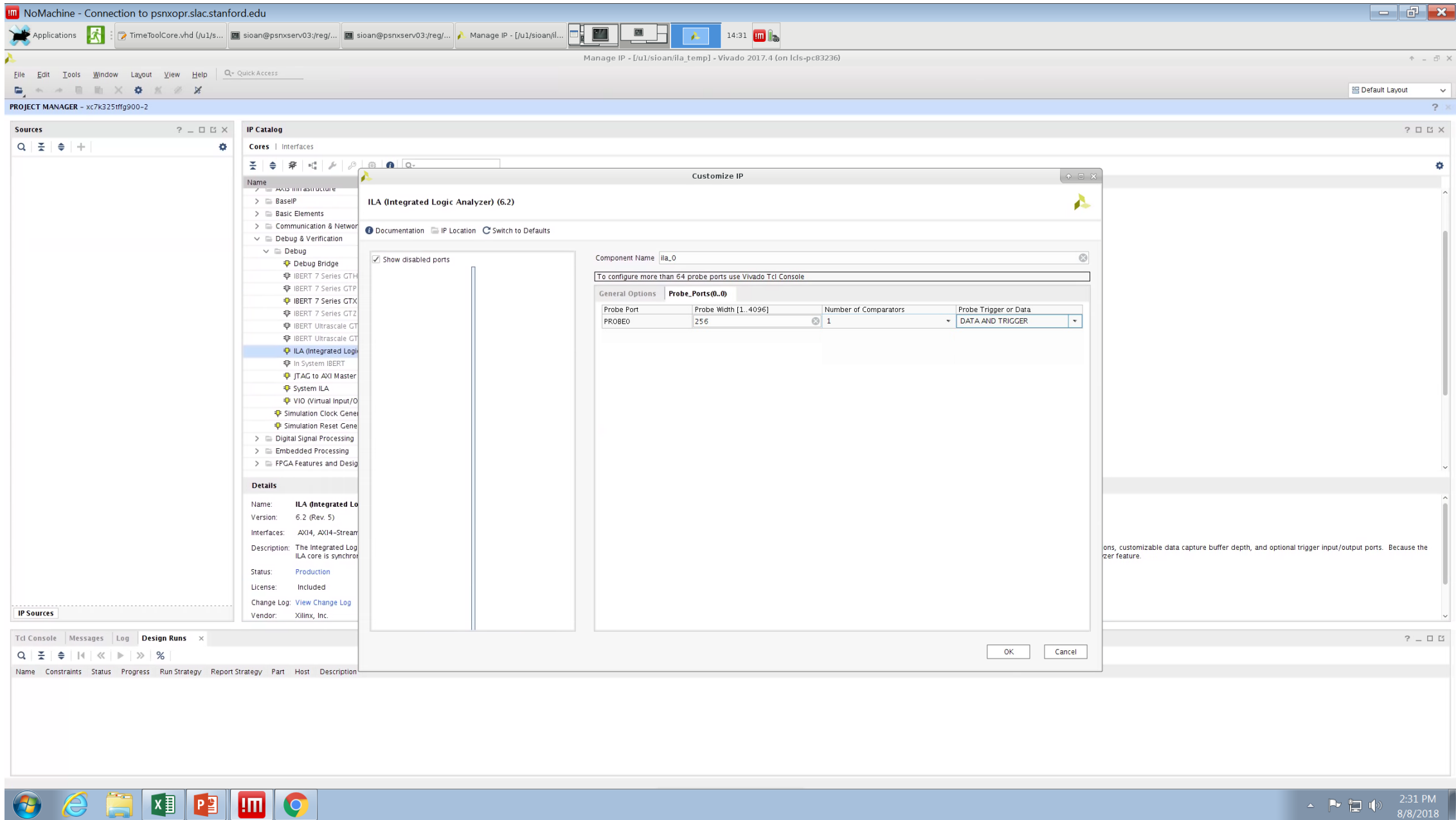
License: **Included**

Change Log: [View Change Log](#)

Vendor: Xilinx, Inc.

Tcl Console | Messages | Log | Design Runs

Name Constraints Status Progress Run Strategy Report Strategy Part Host Description



IP Catalog

- Cores | Interfaces
  - Name
  - AXI4 Infrastructure
  - BaseIP
  - Basic Elements
  - Communication & Network
  - Debug & Verification
    - Debug
      - Debug Bridge
      - IBERT 7 Series GT4
      - IBERT 7 Series GTP
      - IBERT 7 Series GTX
      - IBERT 7 Series GT2
      - IBERT Ultrascale GT
      - IBERT Ultrascale GT
      - ILA (Integrated Logic Analyzer) (6.2)**
      - In System IBERT
      - JTAG to AXI Master
      - System ILA
      - VIO (Virtual Input/Output)
      - Simulation Clock Generation
      - Simulation Reset Generation
    - Digital Signal Processing
    - Embedded Processing
    - FPGA Features and Design
- Details
- Name: **ILA (Integrated Logic Analyzer) (6.2)**
- Version: 6.2 (Rev. 5)
- Interfaces: AXI4, AXI4-Stream
- Description: The Integrated Logic Analyzer (ILA) core is synchronous and can capture data from any point in the design. It provides a wide range of features, including customizable data capture buffer depth, and optional trigger input/output ports. Because the core is synchronous, it can capture data from any point in the design.
- Status: Production
- License: Included
- Change Log: [View Change Log](#)
- Vendor: Xilinx, Inc.

Customize IP

**ILA (Integrated Logic Analyzer) (6.2)**

Documentation IP Location Switch to Defaults

Show disabled ports

Component Name:

To configure more than 64 probe ports use Vivado Tcl Console

General Options **Probe Ports(0..0)**

Probe Port	Probe Width [1..4096]	Number of Comparators	Probe Trigger or Data
PROBE0	256	1	DATA AND TRIGGER

OK Cancel

ons, customizable data capture buffer depth, and optional trigger input/output ports. Because the zero feature.

NoMachine - Connection to psnxopr.siac.stanford.edu

Applications TimeToolCore.vhd (/u1/s... sioan@psnxserv03:/reg/... sioan@psnxserv03:/reg/... Manage IP - [/u1/sioan/il... 14:39

Manage IP - [/u1/sioan/ila\_temp] - Vivado 2017.4 (on lcls-pc83236)

File Edit Tools Window Layout View Help Quick Access

PROJECT MANAGER - xc7k325tffg900-2

Sources IP (1) ulla\_0 (35)

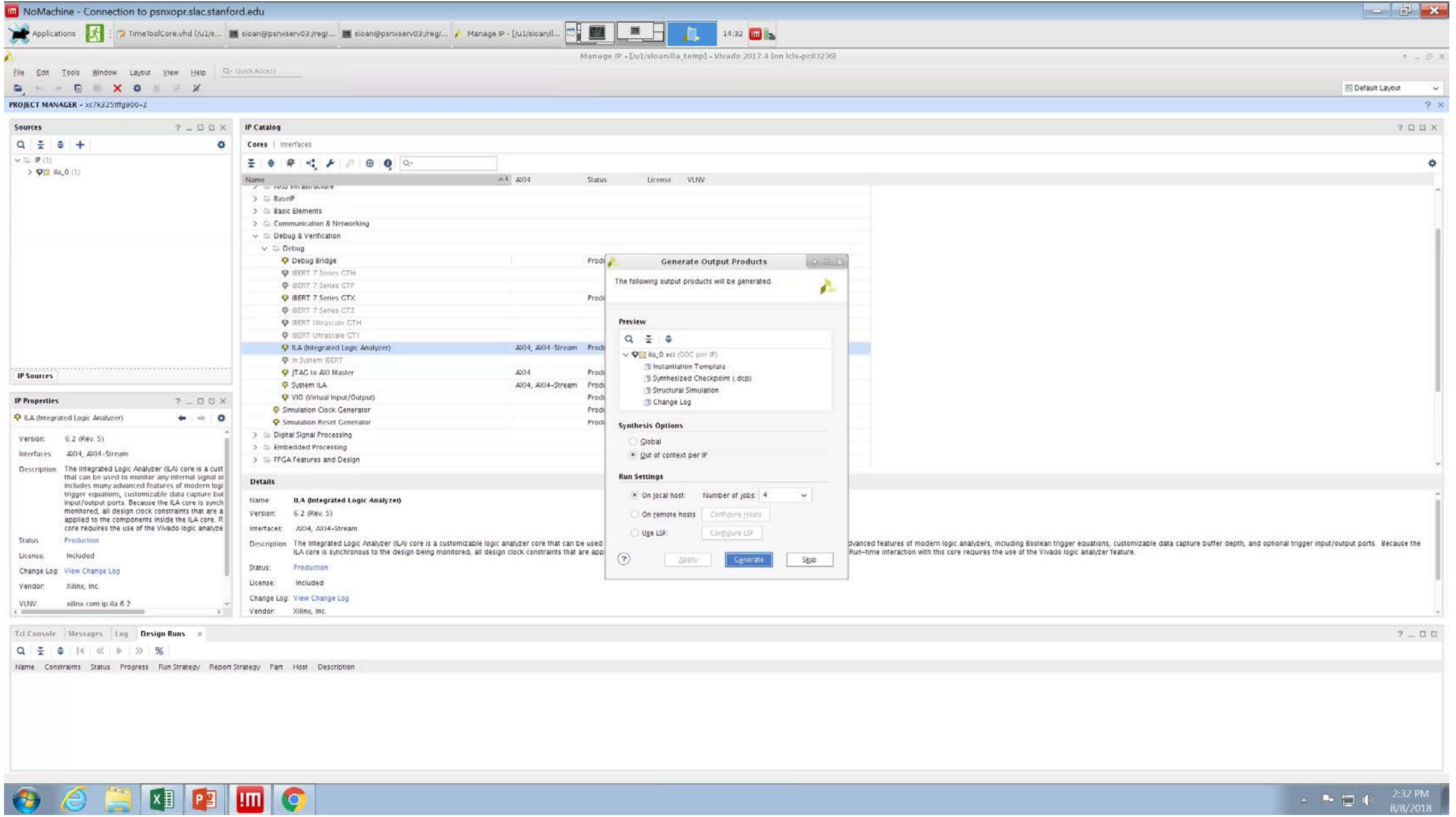
IP Sources IP Properties ILA (Integrated Logic Analyzer) Version: 6.2 (Rev. 5) Interfaces: AXI4, AXI4-Stream Description: The Integrated Logic Analyzer (ILA) core is a cust that can be used to monitor any internal signal of includes many advanced features of modern logi trigger equations, customizable data capture but input/output ports. Because the ILA core is synch monitored, all design clock constraints that are applied to the components inside the ILA core. R core requires the use of the Vivado logic analyze Status: Production License: Included Change Log: View Change Log Vendor: Xilinx, Inc. VLNv: xilinx.com:ip:ila:6.2

IP Catalog Cores | Interfaces Name AXI4 Infrastructure BaselP Basic Elements Communication & Networ Debug & Verification Debug Debug Bridge IBERT 7 Series GTH IBERT 7 Series GTP IBERT 7 Series GTX IBERT 7 Series GTZ IBERT Ultrascale GT IBERT Ultrascale GT ILA (Integrated Logi In System IBERT JTAG to AXI Master System ILA VIO (Virtual Input/O Simulation Clock Gene Simulation Reset Gene Digital Signal Processing Embedded Processing FPGA Features and Design Details Name: ILA (Integrated Lo Version: 6.2 (Rev. 5) Interfaces: AXI4, AXI4-Stream Description: The Integrated Log ILA core is synchron Status: Production License: Included Change Log: View Change Log Vendor: Xilinx, Inc.

Customize IP ILA (Integrated Logic Analyzer) (6.2) Documentation IP Location Switch to Defaults Component Name ulla\_1 To configure more than 64 probe ports use Vivado Tcl Console General Options Probe\_Ports(0..0) Monitor Type Native AXI Number of Probes 1 [1...1024] Sample Data Depth 1024 Same Number of Comparators for All Probe Ports Number of Comparators 1 Trigger Out Port Trigger In Port Input Pipe Stages 2 Trigger And Storage Settings Capture Control Advanced Trigger GUI configuration mode is limited to 64 probe ports. OK Cancel

Tcl Console Messages Log Design Runs Out-of-Context Module Runs ulla\_0\_synth\_1 ulla\_0 synth\_design Complete! 100% Vivado Synthesis Defaults (Vivado Synthesis 2017) Vivado Synthesis Default Reports (Vivado Synthesis 2017) xc7k325tffg900-2 lcl... Vivado Synthesis Defaults

Windows taskbar: 2:39 PM 8/8/2018



Sources

Tree view showing IP components under 'IP (1)' and 'ila\_0 (1)'. Includes search and filter icons.

IP Sources

IP Properties

Properties for ILA (Integrated Logic Analyzer): Version: 6.2 (Rev. 5), Interfaces: AXI4, AXI4-Stream, Description: The Integrated Logic Analyzer (ILA) core is a cust that can be used to monitor any internal signal of includes many advanced features of modern logi trigger equations, customizable data capture bui input/output ports. Because the ILA core is synch monitored, all design clock constraints that are a applied to the components inside the ILA core. R core requires the use of the Vivado logic analyze

IP Catalog

Table listing IP cores with columns: Name, Interfaces, Status, License, VLNV. Includes categories like 'Cores | Interfaces', 'Basic Elements', 'Communication & Networking', 'Debug & Verification', 'Debug Bridge', 'IBERT 7 Series', 'System ILA', 'VIO (Virtual Input/Output)', 'Simulation Clock Generator', 'Simulation Reset Generator', 'Digital Signal Processing', 'Embedded Processing', 'FPGA Features and Design'. The 'ILA (Integrated Logic Analyzer)' core is highlighted.

Generate Output Products dialog box. Preview: ila\_0.xci (DOC per IP), Installation Template, Synthesized Checkpoint (.dcp), Structural Simulation, Change Log. Synthesis Options: Global, Out of context per IP. Run Settings: On local host, Number of jobs: 4. Buttons: Apply, Generate, Sign.

Table with columns: Name, Constraints, Status, Progress, Run Strategy, Report Strategy, Part, Host, Description. The table is currently empty.