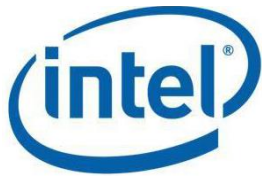


Intel® Trace Hub for WCOS – User Guide

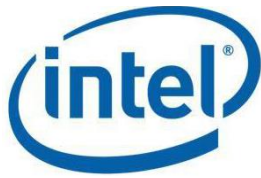
Intel(R) Trace Hub for WCOS – User Guide (CCA/DCI)

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<http://www.intel.com/design/literature.htm>

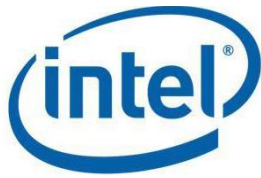
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2 About this Document

This User Guide helps to understand the host-target setup for WCOS platform and the usage of Intel® Trace Hub in debugging with the event traces.

Windows Core OS(WCOS) is a modern version of the Windows operating system and is aimed at making Windows a universal platform for all devices. WCOS platform which we have right now is a pre release version which does not have major user interface like regular windows operating system and doing operations from WCOS is very limited.

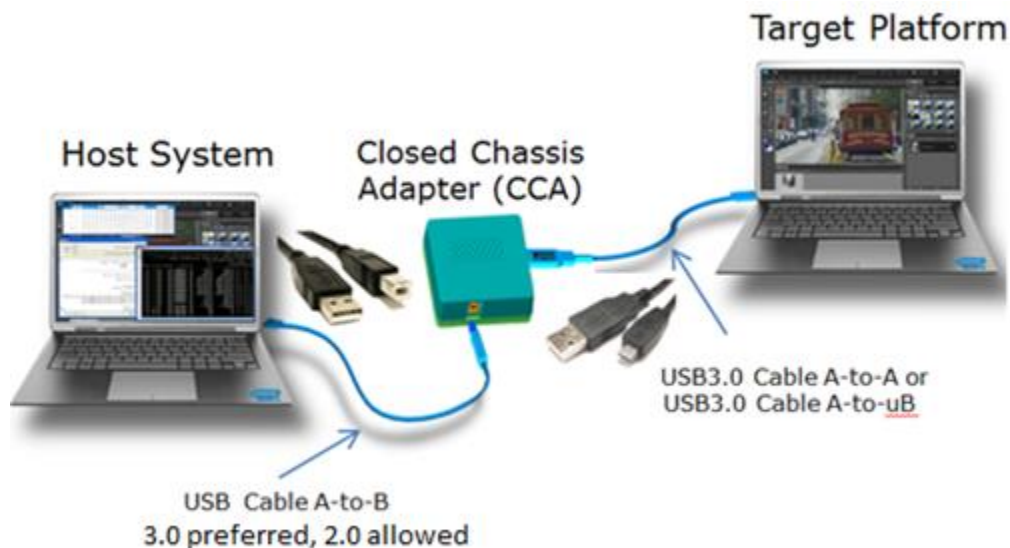
How ever WCOS allows the configurations and interface with Remote sessions using telnet, so most of the operations we will be doing through telnet and command line options.

3 How to setup a Target System

3.1 Prerequisites

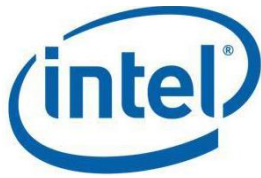
This document currently refers to SKL RVPs as Target Systems.

- Connect the target system to host system with CCA device.



- Connect the target system to a network and disable the windows firewalls.
 - Connect to WCOS system with telnet
 - Copy paste the below command to add exclusion of host ip address & incoming/outgoing of host tcp/ip packets to WCOS

```
netsh advfirewall firewall add rule name="Allow from <host ip address>" dir=in action=allow protocol=ANY remoteip=<host ip address>
```



- Sometimes to check the connection between target and host machine we may need to ping the ip address and check. Ping packets also disabled by default in WCOS. To enable ping command ,copy and execute the below command

```
netsh advfirewall firewall add rule name="Allow incoming ping requests IPv4" dir=in action=allow protocol=icmpv4
```

- Note: Both target and host system should be connected to same network.

Figure 1 Target Setup

BIOS Settings:

- Intel Advanced Menu->PCH-IO Configuration->Trace Hub Configuration Menu->Trace Hub Enable Mode <**Host Debugger**>
- Intel Advanced Menu->CPU Configuration->Debug Interface<**Enabled**>
- Intel Advanced Menu->CPU Configuration->Direct Connect Interface<**Enabled**>
- Intel Advanced Menu->pch IO->eff scs configurations ->*Sd card 3.0 controller<**Disabled**>

3.2 Injecting ITH driver to WCOS

Driver and Service Installation Package: Driver Package will be a part of the respective project BKC Release. Copy the installation package to a local location in target and install. This will install the Intel® Trace Hub Device Driver and the Redirect Service.

For WCOS use ITH **Pre-Silicon** build,since the target and host systems are not connected directly ,instead both are connected to global network.

Prerequisites:

VNC Viewer should be installed on Host, this will help to take server remotely.

OS version/build, Driver which need to be injected.

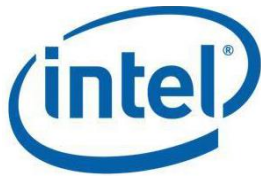
Procedure:

Take the Server into remote via VNC Viewer

Navigate to path (WCOS Server) where the image need driver update (example - [\\wosex\EXTRoot\OSA](#))

Once image is identified then Right click and select Mount option

Now select SetImageGenEnv.cmd and right click and select run as Administrator



Once Command prompt opened type below command

```
>> C:\Workspace>ImageApp.exe C:\Users\Administrator\Desktop\OS-A-Images\18894.19H2_LKF-CENT-WCOS-2019WW20.2.333-Pre.ffu  
/MountAndInstall:C:\Workspace\Installer-Release-64-bit\ITH-PreSi-10.0.17686.73-x64-Release\Drivers;C:\Workspace\DCHUDrivers\Installer-  
Release-64-bit\ ITH-PreSi-10.0.17686.73-x64-Release\Drivers\ITH.inf
```

(Before running the above command please copy necessary files in the location shared in above command. For example paste ffu image in OSA-images folder on desktop, driver which need to update in workspace folder)

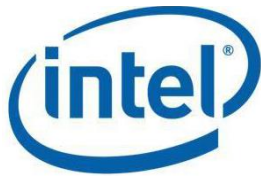
3.3 Verification

i. **Verifying Driver Installation**

- a. Connect to WCOS with telnet
- b. >>sc query ITH
- c. This will display the information about the driver if installed correctly.

ii. **Verifying Service installation**

- a. Connect to WCOS with telnet
- b. >>sc query type =service
- c. This will display list of services installed and their running status. Check for “Intel Redirect Service” and check status for “Running”.
- d. If the service is not in running state you may start it manually by using below command
>>sc start "Intel(R) Trace Redirect Service"



4 How to setup a Host System

4.1 Installing DAL

Use the following instructions to install the PVT software onto the host system:

1. Go to the [PVT Software Download](#) homepage
2. Select the latest release PVT software version or the engineering version that corresponds to your CPU project and save the installer to a directory of your choice.
3. After download is complete, double-click the resulting installer executable to start the installation process; then, follow the Installation Shield Wizard instructions (default option) to install the PVT software. The installation takes approximately 1-2 hours.

Short cuts to each high-level application are shown under the respective folder following the Start -> All Programs -> Intel.

4.3 Verification

Verifying PVT installation:

- Verify Config Console and Python Console are in installed programs.

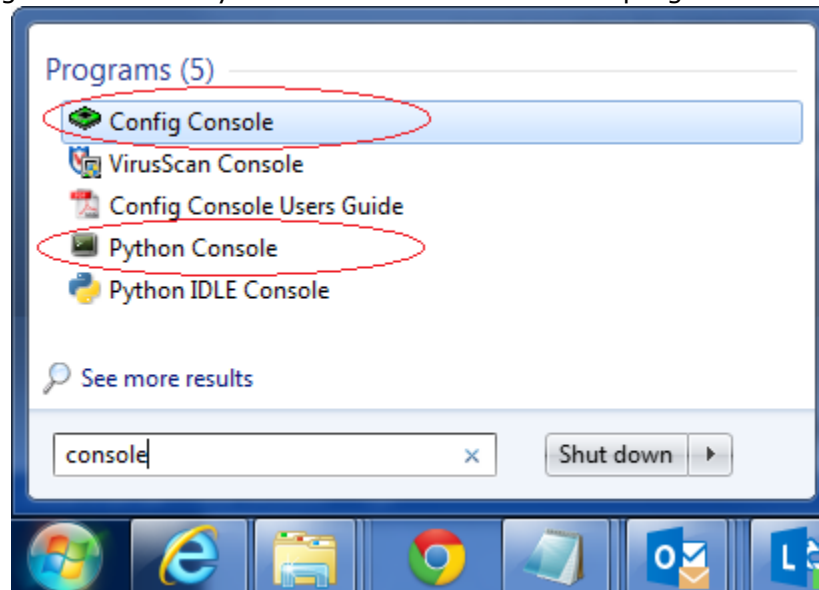
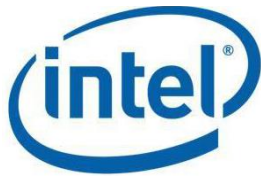


Figure 2 Verifying Config Console and Python Console

4.3 Selecting Platform

- Run Config Console and select SKL_SPT_DCI_ReferenceSettings, apply.



- Once selected, the selection will be set as default.

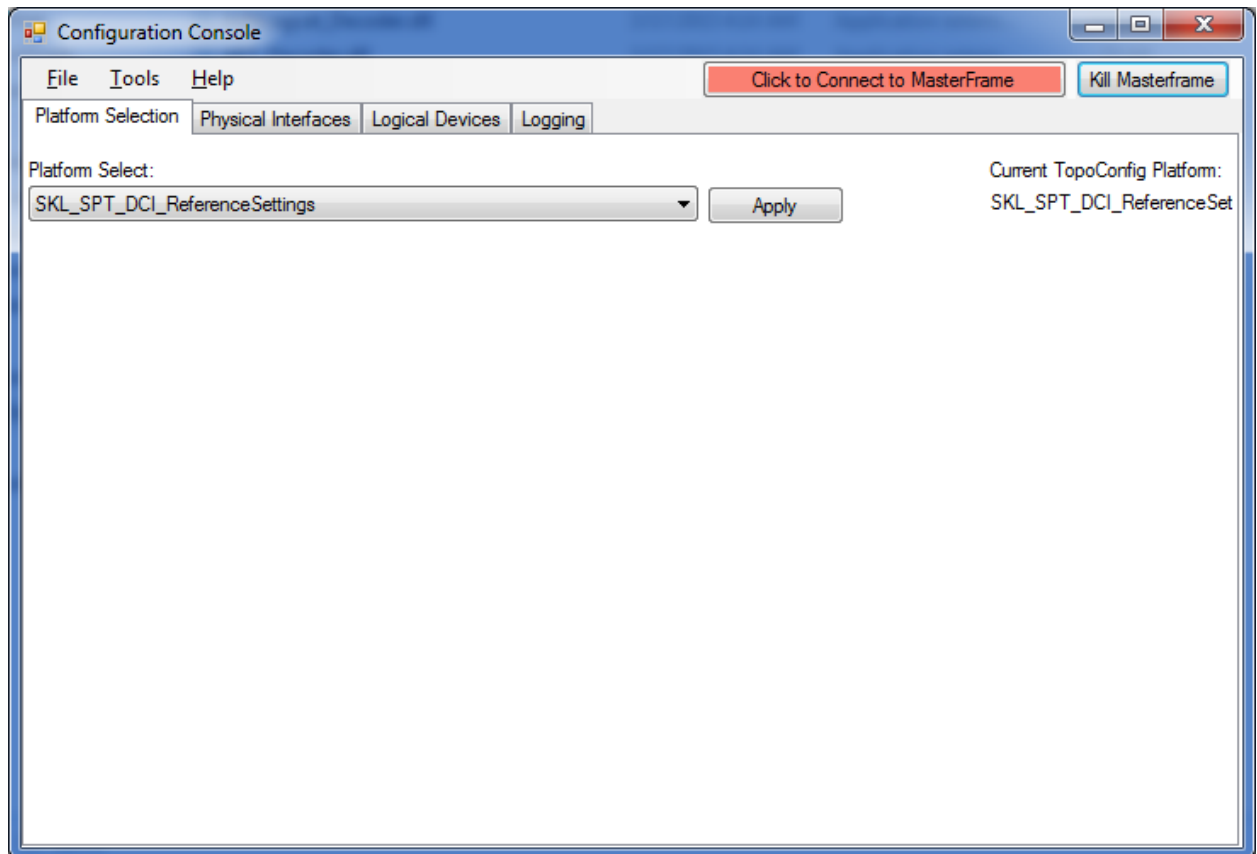
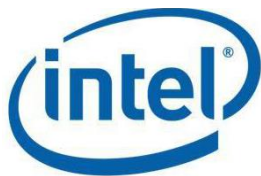


Figure 3 Selecting Platform

Use the following basic commands (in the order listed) to test out the basic function of the DCI:

Sequence & Command	DCI Function
1. itp.devicelist	Lists all the JTAG devices of the system under debug.
2. itp.halt()	CPU enters probemode and saves states.
3. itp.go()	CPU exits probemode and restores states.



```
Administrator: Intel DAL Python CLI
Using Python 2.7.4 (64bit), .NET 2.0.50727.5485, Python.NET 2.0.0.17, pyreadline 2.0-dev1
Using Intel Restricted Secret and Confidential commands
Target Configuration: SKL_SPT_DCI_ReferenceSettings
Note: Power Restore occurred
Note: The 'coregroupsactive' control variable has been set to 'GPC'
Successfully imported "C:\Users\lab_debug007\daluserstartup"
>>> itp.devicelist
DID DP TP SC Alias Type Step Idcode BusType P/D/ C/T Enabled
-----
0 0 0 1 SKL_U_UC0 SKL_U_UC B0 0x1A76D013 JTAG 0/0/ -/- Yes
1 0 0 1 SKL_CB00 SKL_CB0 B0 JTAG 0/0/ -/- Yes
2 0 0 1 SKL_CB01 SKL_CB0 B0 JTAG 0/0/ -/- Yes
3 0 0 1 P0 SKL B0 JTAG 0/0/ 0/0 Yes
4 0 0 1 P1 SKL B0 JTAG 0/0/ 0/1 Yes
5 0 0 1 P2 SKL B0 JTAG 0/0/ 1/0 Yes
6 0 0 1 P3 SKL B0 JTAG 0/0/ 1/1 Yes
7 0 0 0 SPT0 SPT A1 0x1A506013 JTAG 0/0/ -/- Yes
8 0 1 0 SPT_MASTER0 SPT_MASTER A0 0x02080001 JTAG 0/0/ -/- Yes
9 0 2 0 SPT_TPSB0 SPT_TPSB A0 0x00082003 JTAG 0/0/ -/- Yes
10 0 3 0 SPT_NPK0 SPT_NPK A0 0x00082007 JTAG 0/0/ -/- Yes
11 0 4 0 SPT_AGG0 SPT_AGG A0 0x0008000B JTAG 0/0/ -/- Yes

>>> itp.halt()
[SKL_C0_T0] Halt Command break at 0x38:0000000070C6AD97
[SKL_C0_T1] Halt Command break at 0x38:000000000009F1E5
[SKL_C1_T0] Halt Command break at 0x38:000000000009F1E5
[SKL_C1_T1] Halt Command break at 0x38:000000000009F1E5
>>> itp.go()
>>>
```

Figure 4 Testing DAL Installation

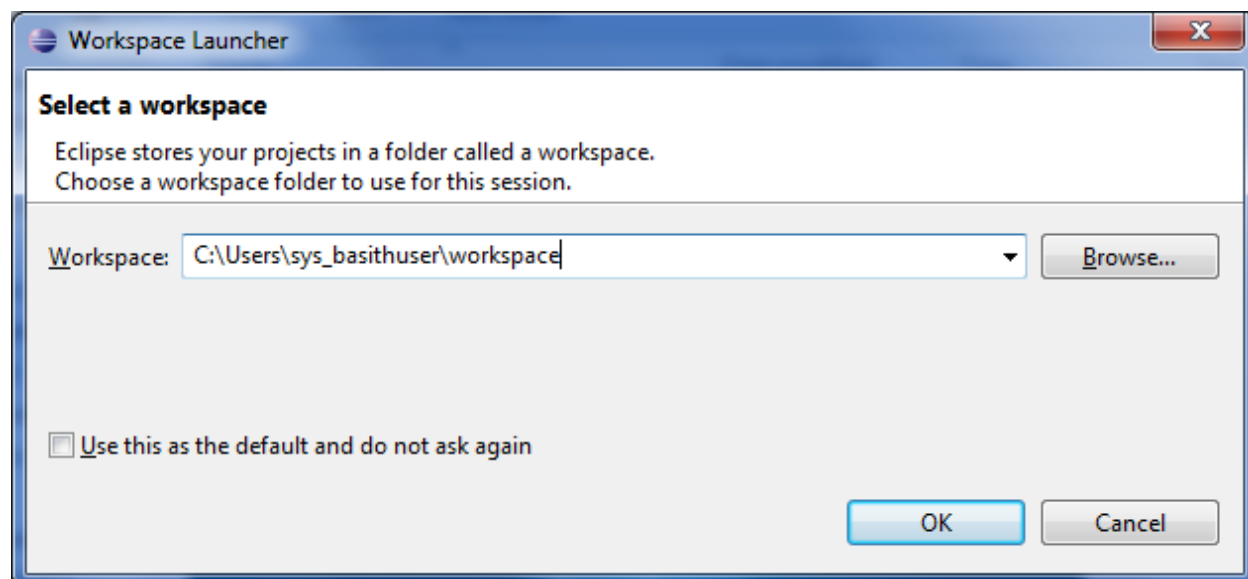
Now the target and Host are ready with all connections and installations. The next step is to use Eclipse GUI to start tracing.

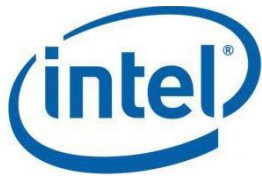
5 Start using Eclipse UI

5.1 Launching Eclipse

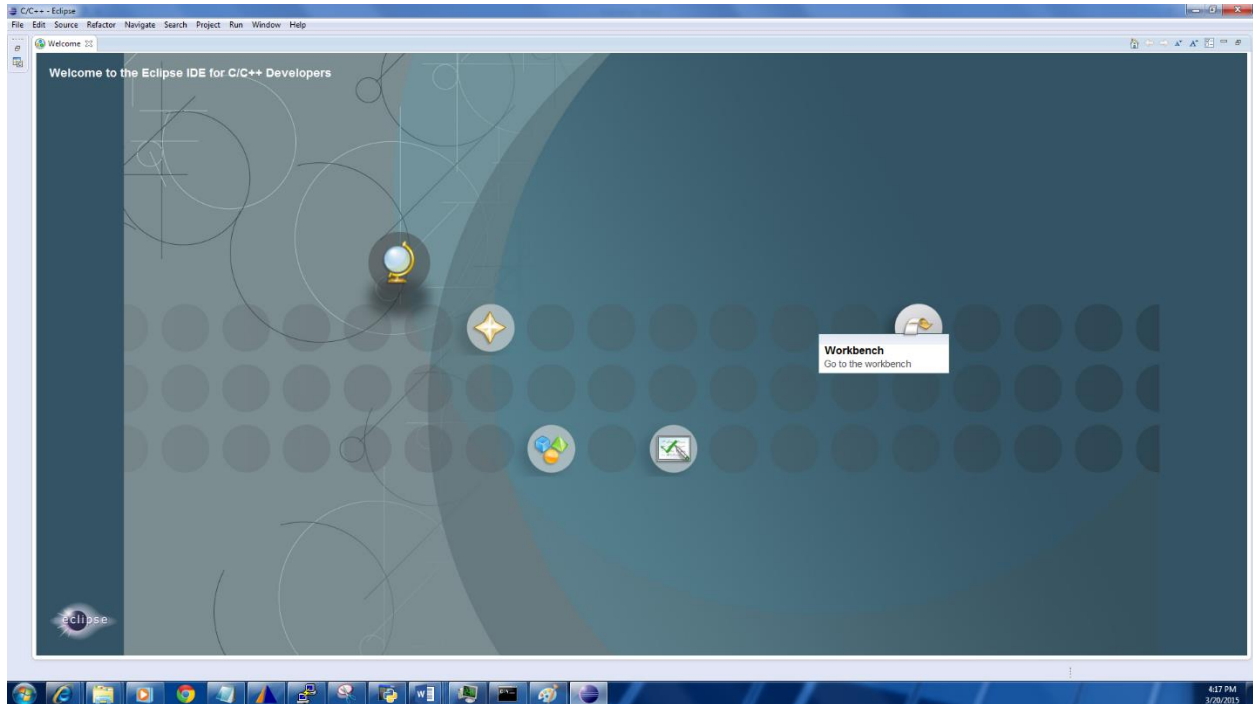
Run C:\Intel\npksdk\startEclipse.cmd.

Select a work space.

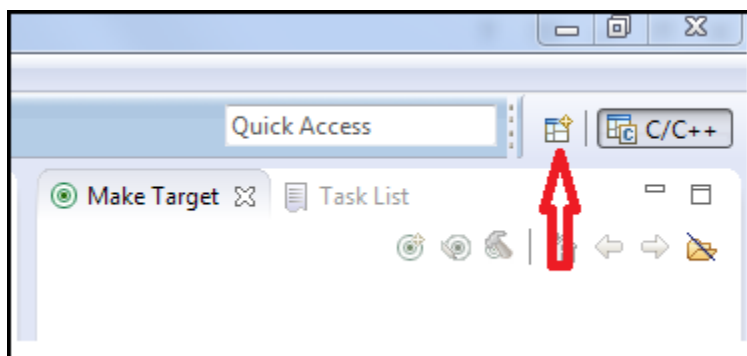




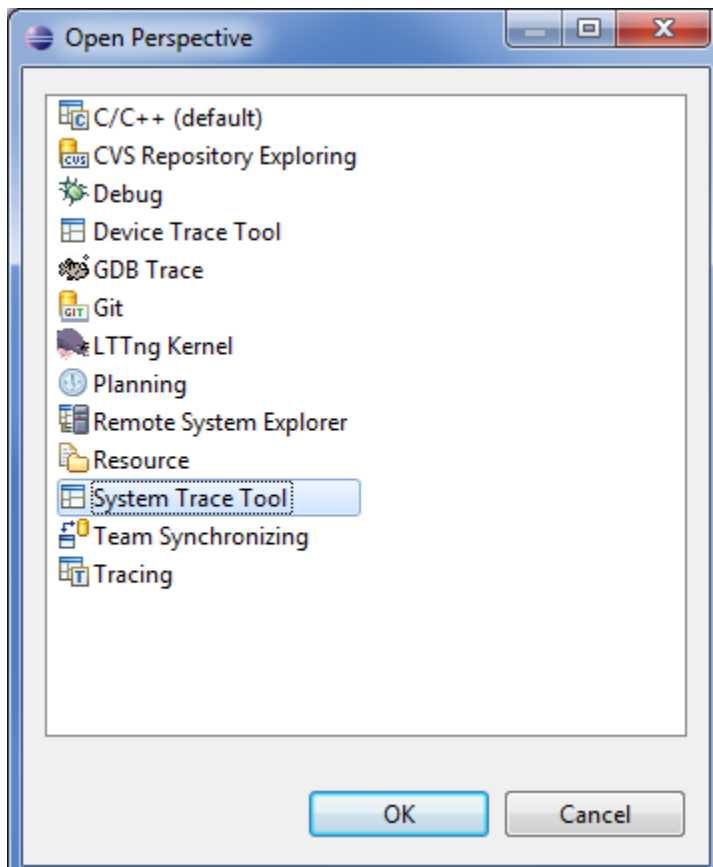
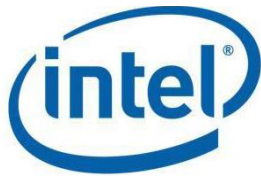
Click on the Workbench



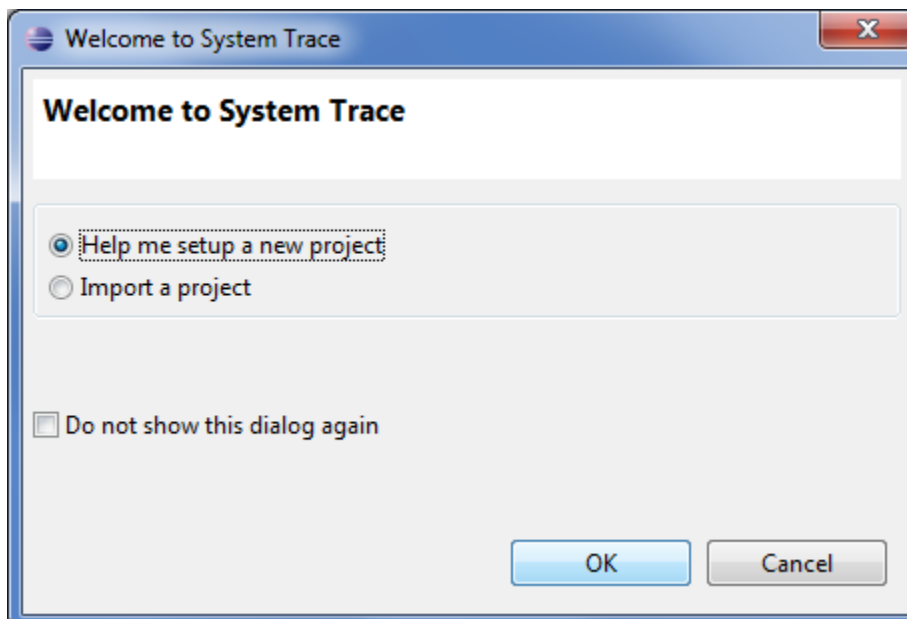
Click on Open Perspective

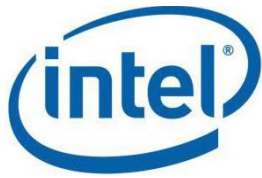


Select System Trace Tool

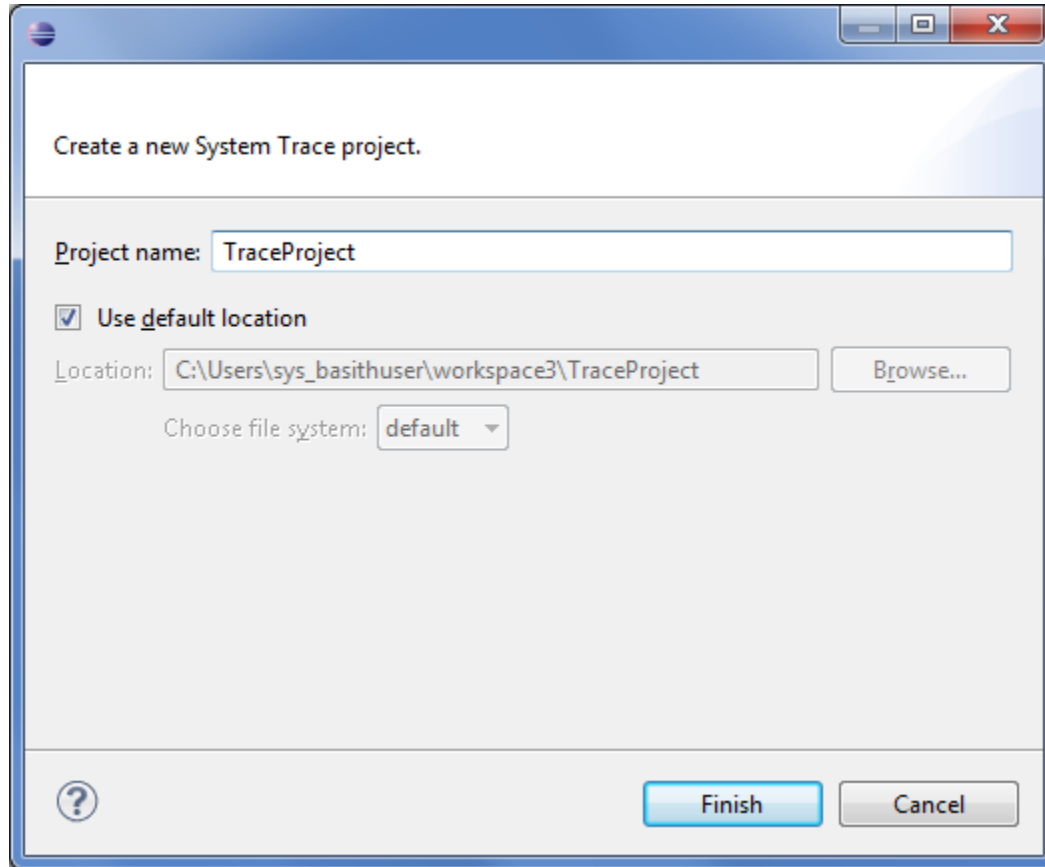


Click OK

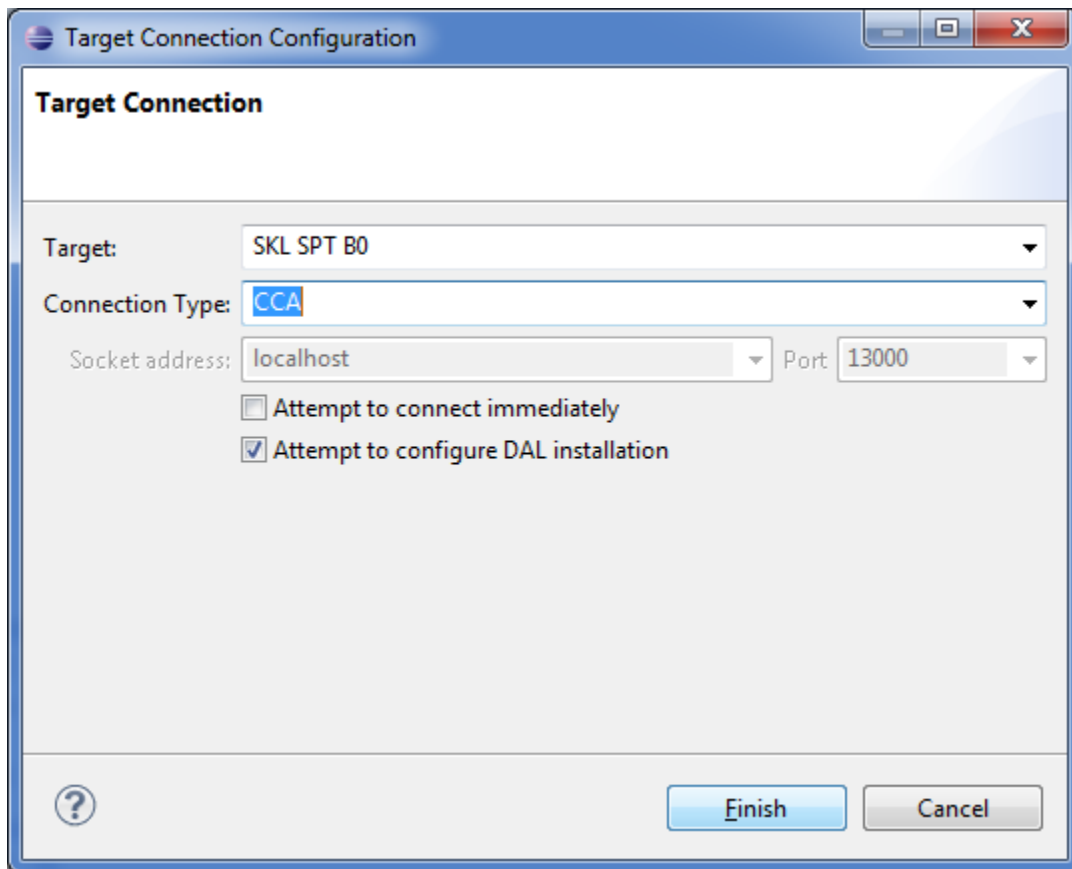
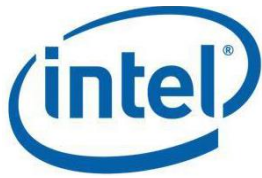




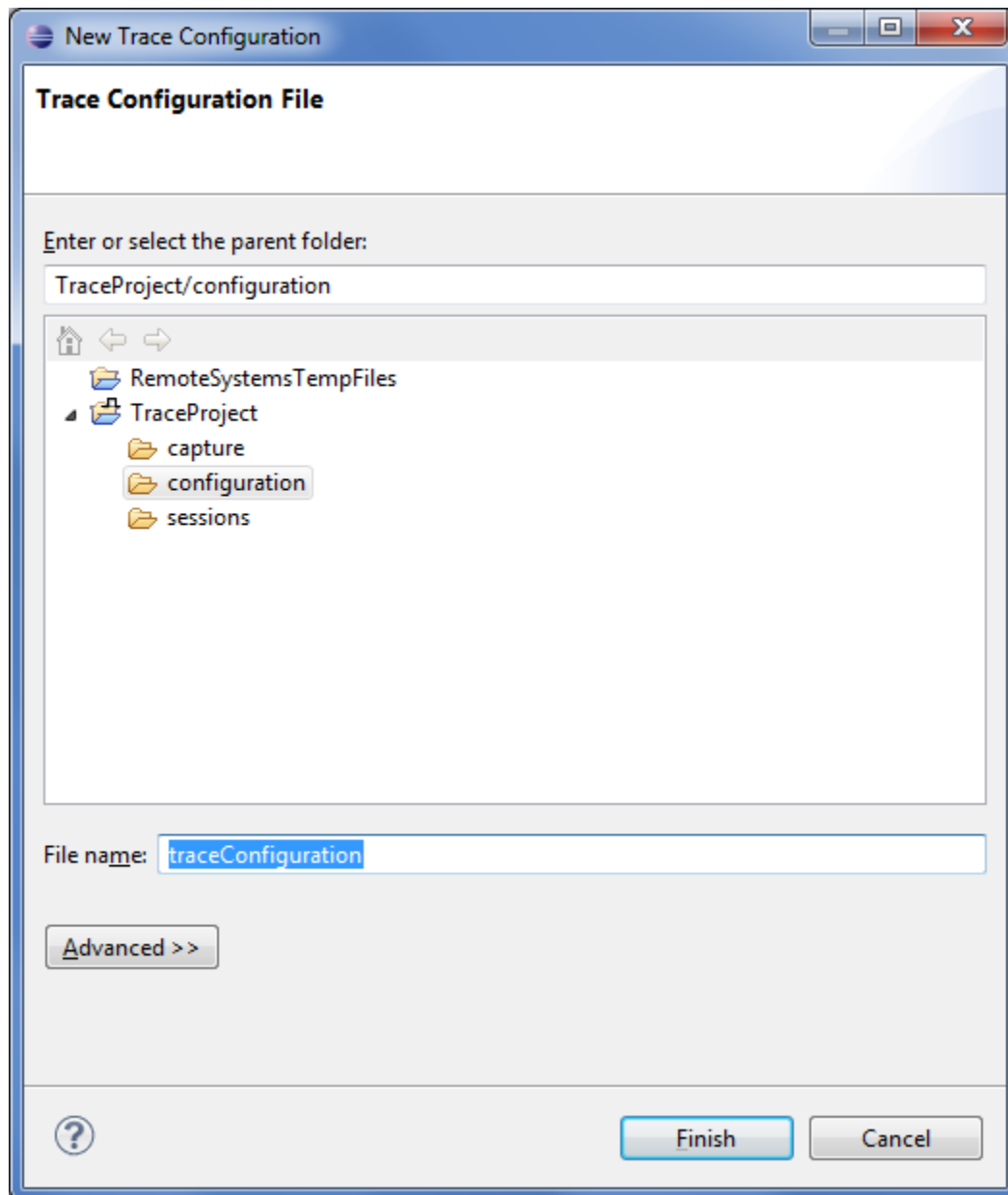
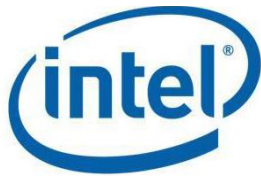
Click on Finish Button



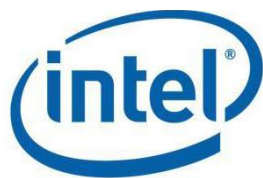
Select Target and Connection Type



Give name for Trace Configuration File and click on Finish Button



Configure Trace Hub for CCA



traceConfiguration.tracecfg

MessageView001

Sources

Trace Sources Simple

Enable

HW

FW

SW

BSSB

Trace Sources Advanced

☒ TSCU

BSSB

☐ ODLA

BSSB

☐ SoChap

BSSB

☐ CSE 0

BSSB

☐ CSE 1

BSSB

☐ CSE 2

BSSB

☐ ISH 0

BSSB

☐ ISH 1

BSSB

☐ ISH 2

BSSB

☐ HDMI Audio

BSSB

☐ PMC

BSSB

☐ AET

BSSB

☐ Maestro Tester

BSSB

☐ FTH

BSSB

☐ Skycam

BSSB

☒ 256+

BSSB

☒ Untracked

BSSB

Destinations

MEM0/BSSB/DBC Setup

☒ MSC0 Enable

Mem Mode

EXI

Allocation

Auto

☐ Wrap Enable

Base Address [43:12]

0x00000000

Size (4k blocks)

0

Sync Packet Freq

Clocks/Packet

-1

Auto

Get

MEM1 Setup

☒ MSC1 Enable

Mem Mode

EXI

Allocation

Auto

☐ Wrap Enable

Base Address [43:12]

0x00000000

Size (4k blocks)

0

Sync Packet Freq

Clocks/Packet

-1

Auto

Get

PTIO Setup

☐ PTI Enable

PTI Mode

None

PTI Patgen Mode

Off

PTI Clock Divider

2

Sync Packet Freq

Clocks/Packet

-1

Auto

Get

Platform Triggering Configuration

Trace Hub Config

Visa

AET

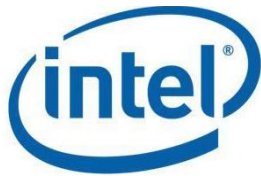
CSME

PMC

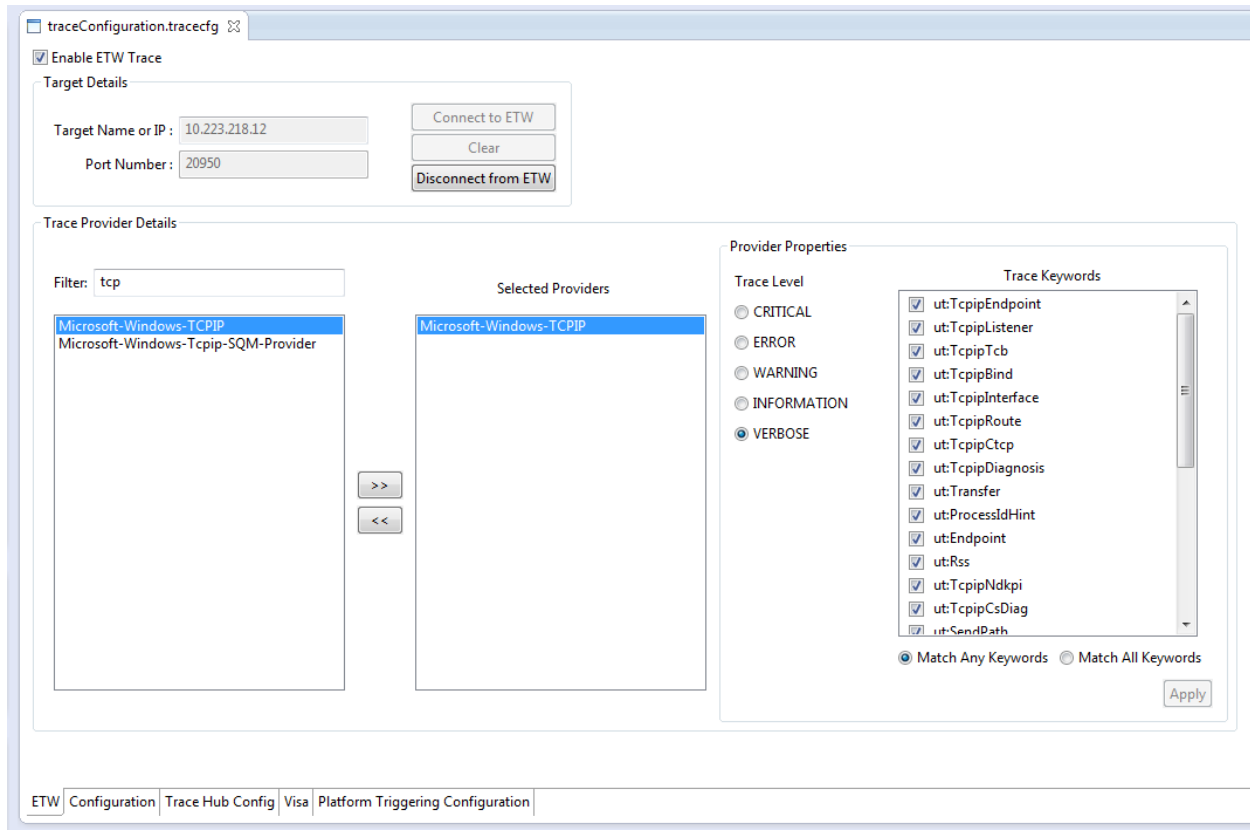
ETW

Configuration

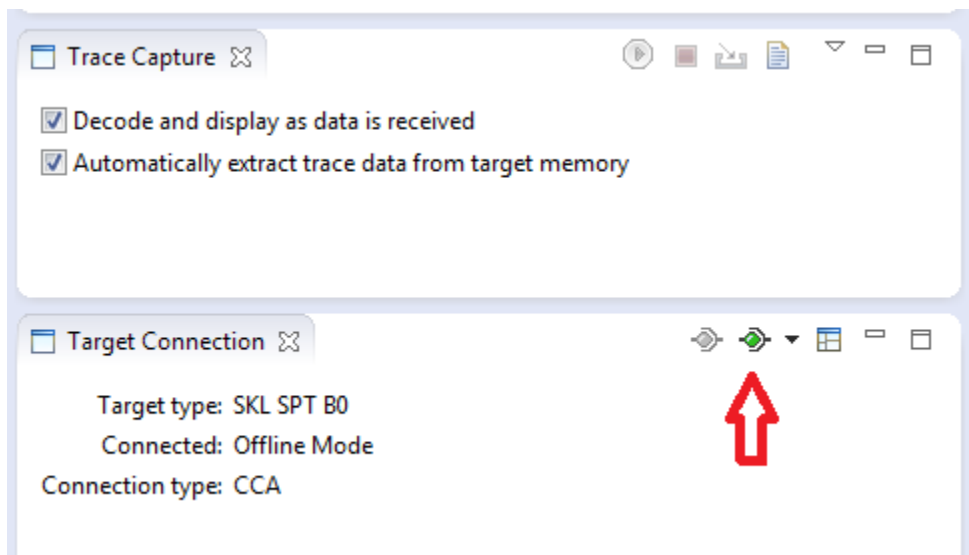
Intel Confidential 15

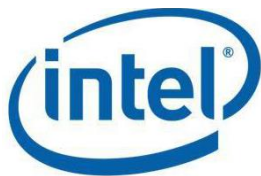


Enable ETW, Select Providers, Select Provider Properties and Trace Keywords. Apply and Save.



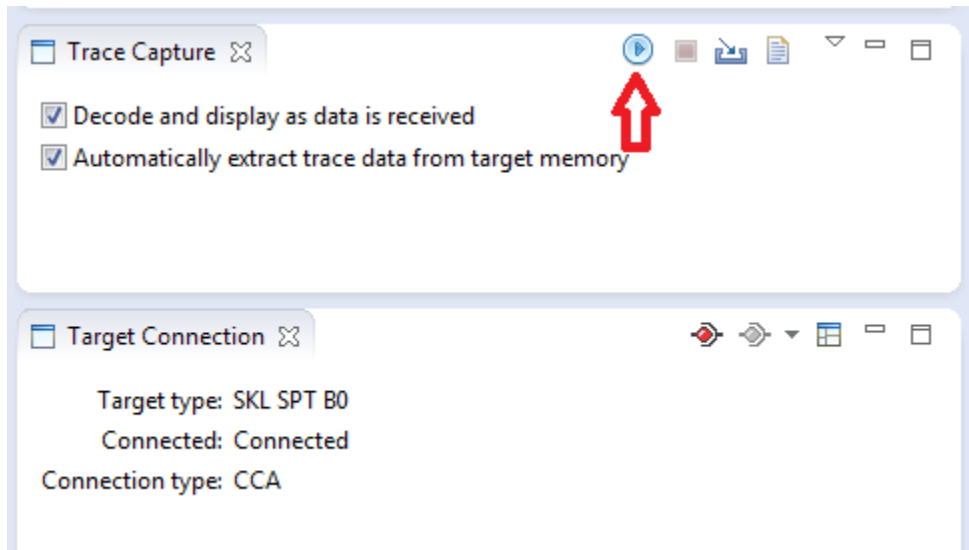
Click on below showed button to connect to target



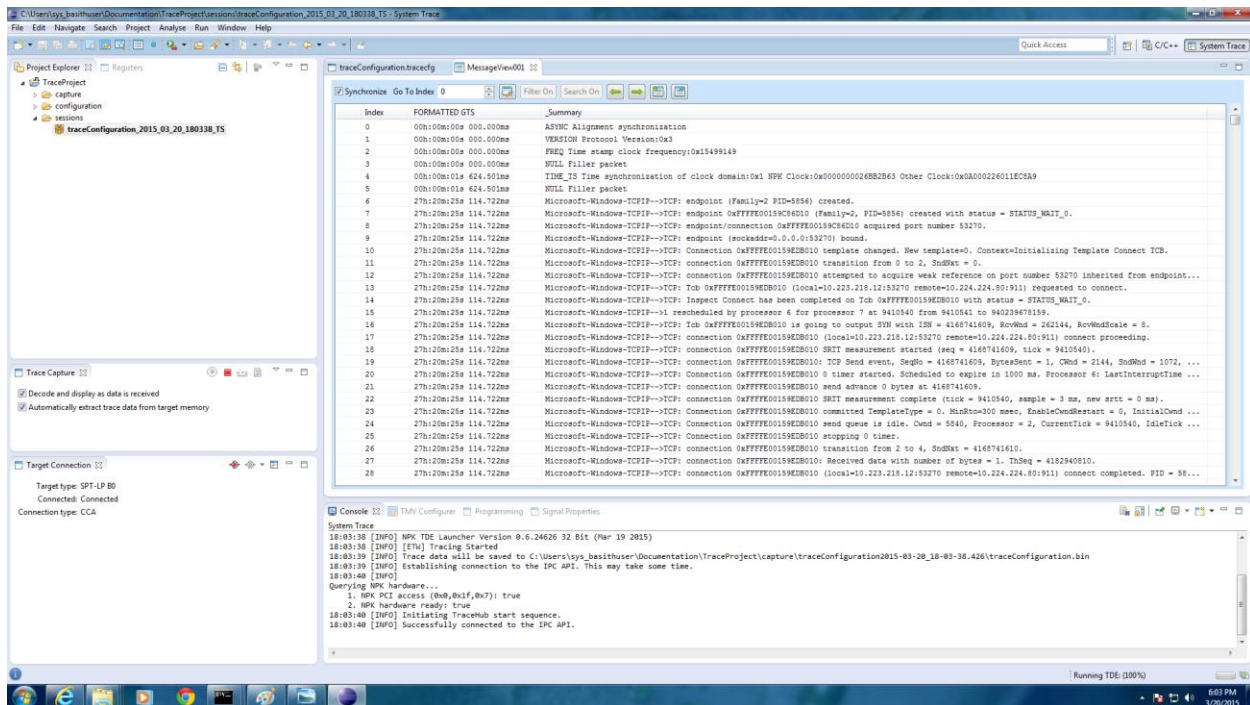


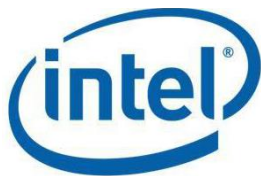
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Click on below showed button to start capture.



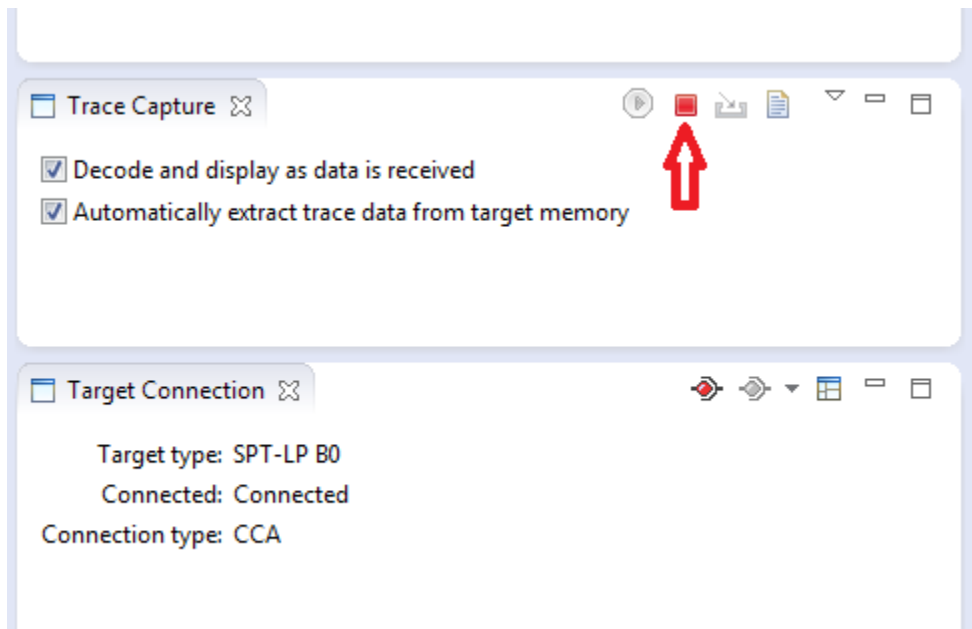
Live Streaming



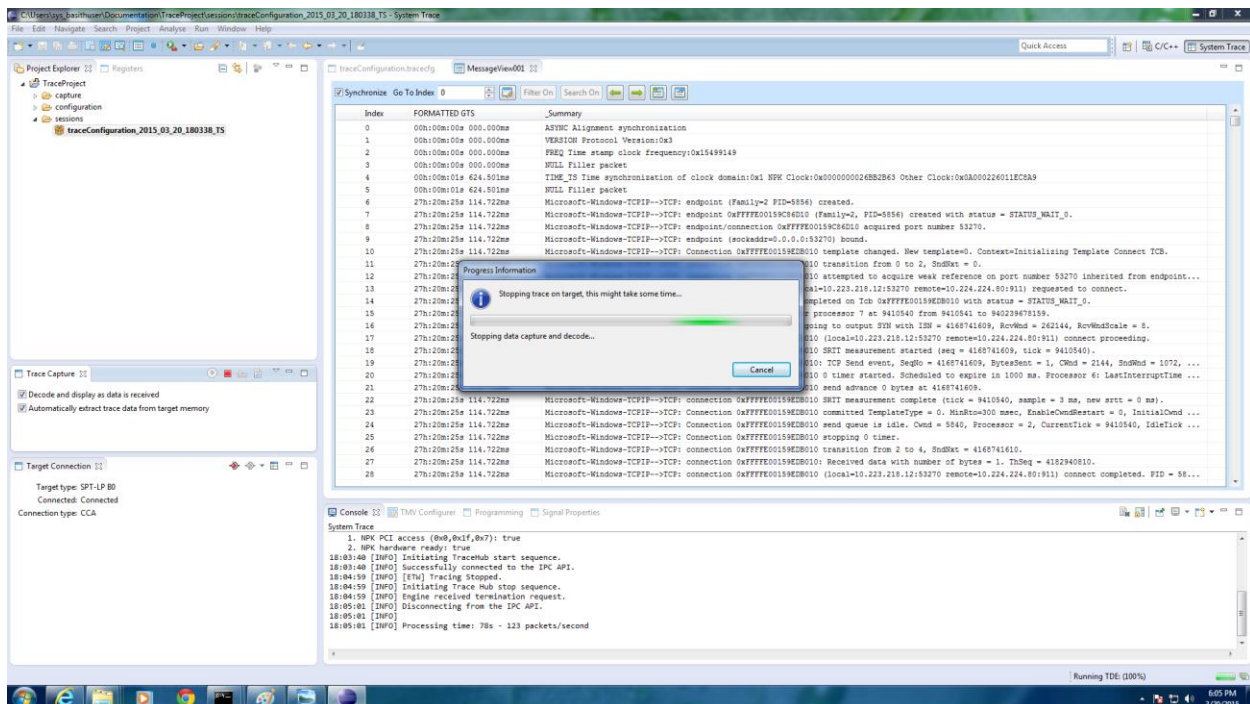


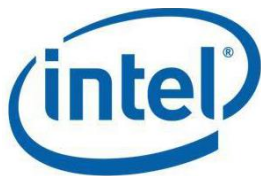
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Click on below showed button to stop capture.



Stopping..

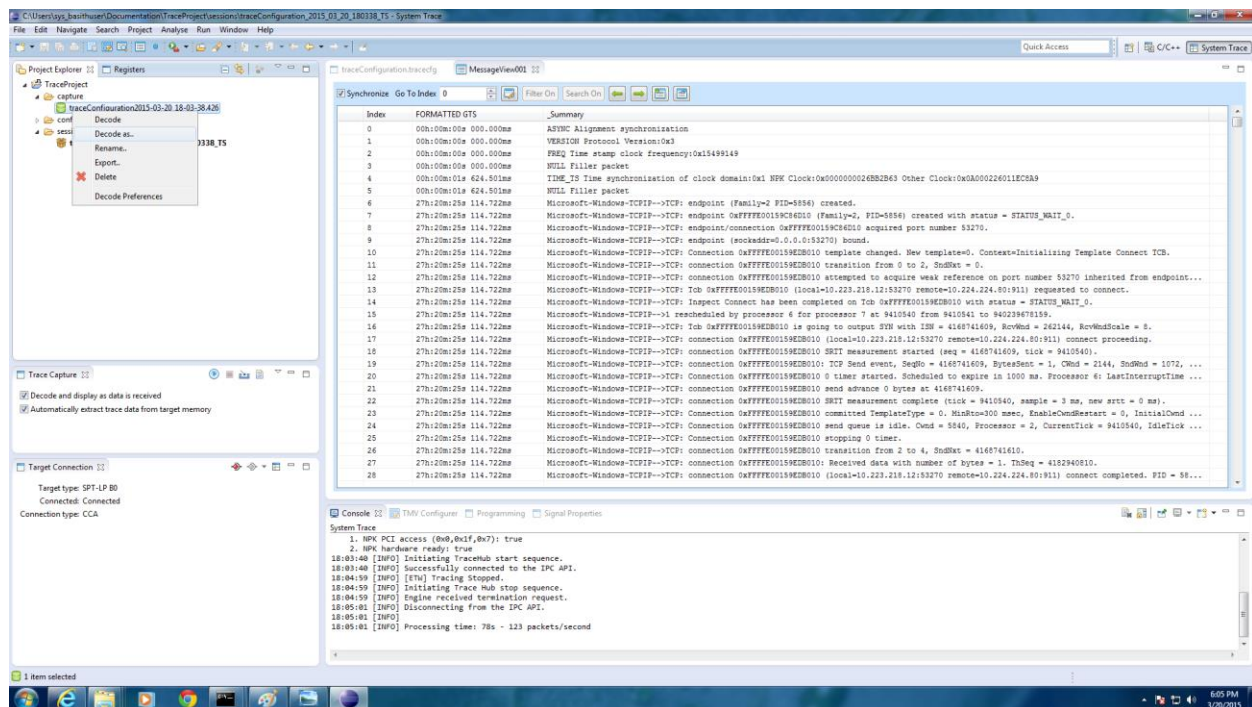




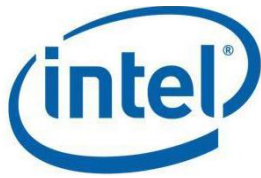
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The captured trace can be decoded as shown below.

Right Click on the captured trace and select “Decode as..”



Select the decode use case.



Decode As

Click OK to decode the input file(s).

Use Case: ***** ALL Protocols Decoding *** (from Mipi STP file)**

Generic configuration for all trace sources

Input File: **C:\Users\sys_basithuser\NPKSDK_workspace_24626\TraceProject\capture\traceConfiguration2015-03-20_17-28-18.812\traceConfiguration.bin** **Browse...**

TDE Parameters

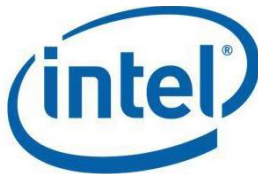
Parameter	Value
configuration-dir	\$(INSTALLDIR)/targets
global-metadata-path	\$(INSTALLDIR)/targets
global-options-root	\$(INSTALLDIR)/targets
network	generic_mipi_network_gui.xml
root-packettype-path	RootMetaData.xml
session-dir-path	\$(SESSIONDIR)
streaming-mode	false
timeSync.xml	TimeSync.xml

Decoder Parameters

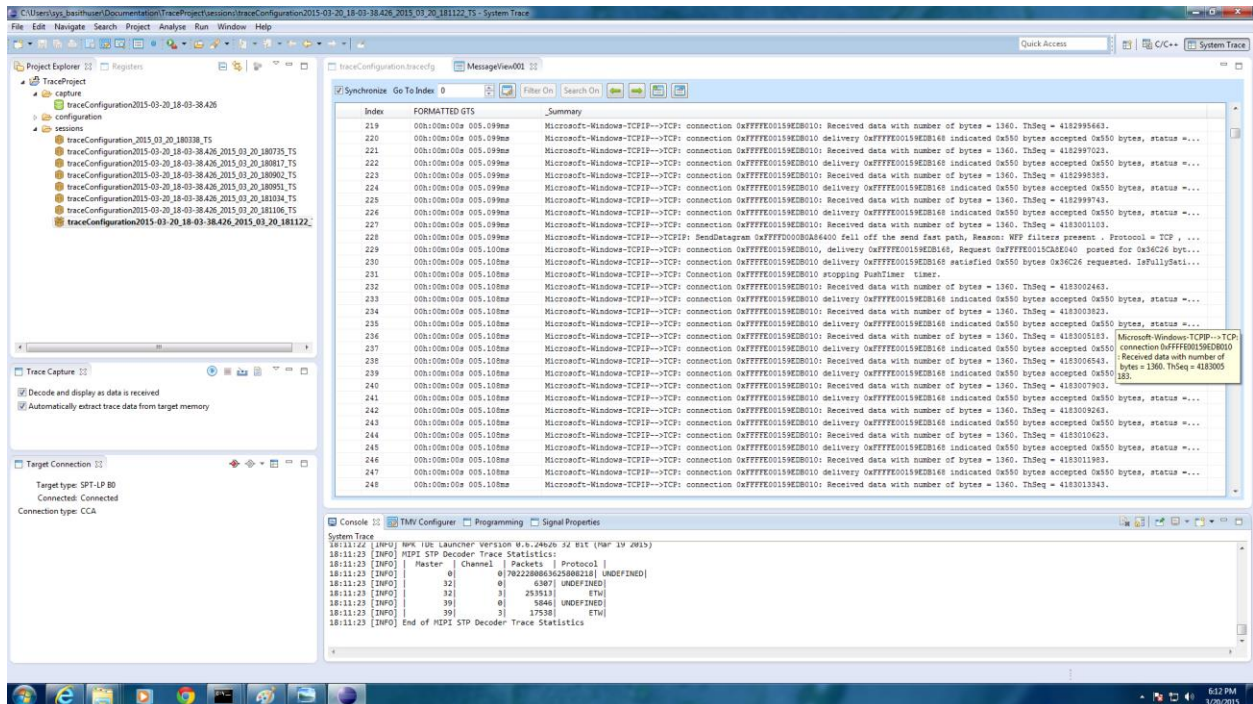
Name	Instance	Parameter	Value
ETWDecoder		pathToSchemaConfigFile	\$(CAPTUREDIR)/config/etwConfig/ETWConfigUipParam.xml
ETWDecoder		pathOfConfigUICopySchemaDoneFolder	\$(CAPTUREDIR)/config/etwConfig/
ETWDecoder		etwTimeCorelationScale	1000000000000
ETWDecoder		etwClockName	NPK
ETWDecoder		convertToNpkTime	true
FileReader_Decoder		inputfilename	\$(INPUTFILE)
Mipi_Decoder		pathToOutputConfigFile	MipiOutputConfigGeneric.xml
Mipi_Decoder		timeSync	true

OK **CANCEL**

Sample Decoded trace capture.



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TMV Configuring for ETW

Check ETW Default Checkbox and then click on Apply button

