



Intel® System Debugger 2020

Release Notes for Windows host*

7 November 2019

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1 Introduction

This document covers release specific information of all components of Intel® System Debugger 2020 for Windows* host which includes following tools

- Intel® System Debugger
 - System Debug (new fully Eclipse* integrated debugger)
 - System Debug Legacy (legacy debugger that is provided in previous releases)
- Intel® System Debugger - System Trace
- Intel® Debug Extensions for WinDbg*

2 Supported Operating Systems

Intel® System Debugger 2020 for Windows* host supports the following operating systems:

- Microsoft Windows* 10
- Microsoft Windows* Server 2016
- Microsoft Windows* Server 2019

3 Supported Platforms

Each Intel® System Debugger tool has its own supported platforms. Furthermore, the tools can provide several probe options for a connection that are

- Intel® In-Target Probe (Intel® ITP) XDP3
- Intel® Silicon View Technology (Intel® SVT) Closed Chassis Adapter (CCA)
- Intel® Direct Connect Interface (Intel® DCI) USB Debug Class (DbC) cable

The table below lists the platforms and probes supported by each tool of Intel® System Debugger 2020 (Initial Release) for Windows* host.

	System Debug			System Trace		
	XDP3	CCA	DbC	XDP3	CCA	DbC
4th Gen Intel® Core™ Processor (Haswell)	✓					
4th Gen Intel® Core™ U-Processor (Haswell ULT)	✓					
5th Gen Intel® Core™ Processor (Broadwell)	✓					
6th Gen Intel® Core™ Processor (Skylake) / 6th Gen Intel® Core™ Platform I/O (SunrisePoint PCH-LP)	✓	✓			✓	
6th Gen Intel® Core™ Processor (Skylake) / Intel® 100 Series Chipset (SunrisePoint PCH-H)	✓	✓			✓	
7th Gen Intel® Core™ Processor (Kaby Lake) / Intel® 100 Series Chipset (SunrisePoint PCH-H)	✓	✓			✓	
7th Gen Intel® Core™ Processor (Kaby Lake) / Intel® 200 Series Chipset (Kaby Lake PCH-H)	✓	✓	✓		✓	✓
8th Gen Intel® Core™ Processor (Amber Lake-Y 2+2)	✓	✓			✓	
8th Gen Intel® Core™ Processors (Coffee Lake-S) / Intel® H370 Chipset, Intel® H310 Chipset, Intel® B360 Chipset for Consumer (Cannon Lake PCH)	✓	✓	✓		✓	✓

	System Debug			System Trace		
	XDP3	CCA	DbC	XDP3	CCA	DbC
8th Gen Intel® Core™ Processor (Coffee Lake-S) / Intel® Z370 Series Chipset (Kaby Lake PCH-H)	✓	✓	✓		✓	✓
8th Gen Intel® Core™ Processor (Kaby Lake R) / 6th Gen Intel® Core™ Platform I/O (SunrisePoint PCH-LP)	✓	✓			✓	
8th Gen Intel® Core™ (Whiskey Lake U)	✓	✓	✓		✓	✓
9th Gen Intel® Core™ Processor (Coffee Lake H) / Cannon Lake PCH-H	✓	✓	✓		✓	✓
9th Gen Intel® Core™ Processor (Coffee Lake S Refresh) / Cannon Lake PCH-H	✓	✓	✓		✓	✓
10th Gen Intel® Core™ Processor (Amber Lake Y 4+2) / Sunrise Point PCH-LP	✓	✓	✓		✓	✓
10th Gen Intel® Core™ Processor (Comet Lake) / Comet Lake PCH-LP	✓	✓	✓		✓	✓
10th Gen Intel® Core™ Processor (Ice Lake) / Ice Lake PCH-LP	✓	✓	✓		✓	✓
Intel Atom® Processor (Anniedale/Moorefield)	✓					
Intel Atom® Processor (Apollo Lake)			✓			✓
Intel Atom® Processor (Avoton)	✓					
Intel Atom® Processor (Baytrail / MinnowBoard MAX)	✓					
Intel Atom® Processor (Cherry Trail)	✓					

	System Debug			System Trace		
	XDP3	CCA	DbC	XDP3	CCA	DbC
Intel Atom® Processor (Denverton)			✓			✓
Intel Atom® Processor (Tunnel Creek)	✓					
Intel® Celeron® Processor (Whiskey Lake U)	✓	✓	✓		✓	✓
Intel® Core™ X-series Processor (Basin Falls Refresh)	✓	✓	✓		✓	✓
Intel® Pentium® and Intel® Celeron® Processor (Braswell)	✓					
Intel® Pentium® and Intel® Celeron® Processor (Coffee Lake S) / Cannon Lake PCH-H	✓	✓	✓		✓	✓
Intel® Pentium® and Intel® Celeron® Processor (KBL-R platform based)	✓	✓			✓	
Intel® Pentium® Processor (Whiskey Lake U)	✓	✓	✓		✓	✓
Intel® Pentium® Silver Processor or Intel® Celeron® Processor (Gemini Lake)			✓			✓
Intel® Xeon® Processor (Cascade Lake) / Lewisburg PCH	✓	✓	✓		✓	✓
Intel® Xeon® Processor (Coffee Lake-S) / Cannon Lake PCH-H	✓	✓	✓		✓	✓
Intel® Xeon® Processor (Grangeville)	✓					
Intel® Xeon® Scalable Processor (Skylake-SP) / Intel® C620 Series Chipset (Lewisburg)	✓	✓	✓		✓	✓

4 New in This Release – 2020 Initial Release

- Intel® System Debugger started transition phase from Python* 2.7 to Python* 3. The transition to Python* 3 will be finalized by end of year 2019. Intel® System Debugger ships both Python* 2.7 and Python* 3.6 versions during the transition phase until 2020.
- Added support for
 - 10th Gen Intel® Core™ Processor (Ice Lake) / Ice Lake PCH-LP
 - 10th Gen Intel® Core™ Processor (Comet Lake) / Comet Lake PCH-LP
 - 10th Gen Intel® Core™ Processor (Amber Lake Y 4+2) / Sunrise Point PCH-LP
 - Intel® Xeon® Processor (Cascade Lake) / Lewisburg PCH
- Target Indicator is added.
 - It is a cross-platform tool that indicates the status of an Intel® DCI debug connection to a target platform.
- OpenIPC version is updated as 1.1942.4128.100
- Intel® DFX Abstraction Layer (Intel® DAL) version is updated as 1.1942.1019.110

4.1 Intel® System Debugger – System Debug

- Added a new Eclipse*-integrated source-level debugger, providing, among others, reworked support for platform registers, improved support for the PCI configuration space, better debug information support and a Python*-based scripting console.

4.2 Intel® Debug Extensions for WinDbg*

- Added system debugger support for targets with enabled hardware virtualization features (Virtualization Based Security/ Microsoft* Hyper-V).
- Added alternative ways to launch Intel® Debug Extensions for WinDbg*:
 - Desktop and Start Menu shortcuts are available.
 - It can be now launched from iss_shell by running `<install_dir>\iss_shell.bat` and using the command `"windbg_dci"`.

5 Known Issues

- **Installer gives an error “Intel® DAL failed to install with exit code (3)” when installing the same product multiple times or installing different variants of the same product on the same machine**
 - **Issue:** Intel® DAL component cannot be installed multiple times on the same machine due to msi packaging.
 - **Workaround:** If multiple variants of the product will be installed multiple times on the same machine, customize the second installation and unselect Intel® DAL component or unselect Intel® System Debugger component.
- **With OpenRC configuration warm reset does not work properly on Apollo Lake and Denverton platforms**
 - **Issue:** Warm reset on Apollo Lake and Denverton with OpenRC run control puts the target in an undefined state (cores cannot be released). User needs to manually reset the target to regain control.
 - **Workaround:** N/A
- **Connection status indicated by the tool might be incorrect when Intel® DAL is used as an IPC provider**
 - **Issue:** Target connection assistant relies on Intel® DAL to verify the connection status. However, Intel® DAL implementation does not provide all functionality to verify whether a target is connected thus it is possible that the target connection assistant might indicate the connection incorrectly as connected.
 - **Workaround:** In case Intel® DAL is used as an IPC configuration, a manual validation by the user is required.
- **Usage of Probes**
 - **Issue:** Intel® SVT CCA and Intel® ITP XDP3 probes are supporting hot plug/unplug from a target, whereas for Intel® DCI DbC the connection is bidirectional. In case of losing connection with a probe, the debugger will post a Power Loss event.
 - **Workaround:** If the target was running, probe disconnect would have no effect on the target and for these cases please reconnect the probe to continue debugging. In case target was halted, debugger will lose debug context, which leads to a crashing target.
 - **Issue:** Any accidental probe removals during halt would crash the target
Workaround: Please reboot target and restart the debugging session.

- **Platform security policy may inhibit debugger operation**
 - **Issue:** In some platforms, the security policy may disable JTAG access to the CPU. This is intended to prevent reverse-engineering. In this case the Intel® System Debugger will successfully connect to the target, however it will not be able to discover any CPUs on the JTAG bus and will warn the user that no CPUs are available.
 - **Workaround:** To resolve this issue please ensure that that platform firmware has enabled access to the CPUs via JTAG. This is typically done by flashing a special “debug” firmware into the target. Also note that in some cases CPU or CPU module may have physically disabled JTAG access, especially in production or near-production versions. In this case please work with the platform business unit to obtain a JTAG-enabled hardware.

5.1 Intel® System Debugger – System Debug

- **Target is unresponsive after reset breakpoint is hit on Apollo Lake and Gemini Lake platforms**
 - **Issue:** On Apollo Lake and Gemini Lake platforms, a target becomes unresponsive in System Debug Legacy after reset breakpoint is hit
 - **Workaround:** Use the new fully Eclipse* integrated System Debug

5.2 Intel® System Debugger – System Trace

- **Various error messages referring to "Interview_Decoder" or "visa64.dll" (e.g. Failed to load library <path_to_isd>\system_trace\bin\Interview_Decoder.dll)**
 - **Issue:** If the host has IVI tools (http://www.ivifoundation.org/shared_components/) installed, then Intel® System Studio erroneously loads visa64.dll from C:\Windows\System32.
 - **Workaround:** There are two possible workarounds:
 - Temporarily remove C:\Windows\System32\visa64.dll or uninstall the IVI tools
 - Follow <https://docs.microsoft.com/en-us/windows/desktop/dlls/dynamic-link-library-search-order> but be aware of the potential security implications

5.3 Intel® Debug Extensions for WinDbg*

- **Compatibility issues of Intel® Debug Extensions for WinDbg* for Windows* 10 SDK**
 - **Issue:** WinDbg* over Intel® DCI plugin is currently not compatible for Windows* 10 SDK starting from version 1809 (10.0.17763).
 - **Workaround:** Install Windows* 10 SDK 1803 (10.0.17134) or older versions.

- **Intel® Debug Extensions for WinDbg* console window launch from installer does not work**
 - **Issue:** Intel® Debug Extensions for WinDbg* console window does not appear even if it was chosen in installer "Installation Complete" dialog
 - **Workaround:** Launch Intel® Debug Extensions for WinDbg* via Desktop/Start Menu shortcut

6 Change History

6.1 2019 Update 5

- Intel® System Debugger started transition phase from Python* 2.7 to Python* 3. The transition to Python* 3 will be finalized by end of year 2019. Intel® System Debugger ships both Python* 2.7 and Python* 3.6 versions during the transition phase until 2020
- OpenIPC version is updated as 1.1932.3995.100
- Intel® DFX Abstraction Layer (Intel® DAL) version is updated as 1.1934.918.110

6.2 2019 Update 4

- Added support for
 - Intel® Xeon® E Processor (Coffee Lake-S) Server
 - Intel® Pentium® Gold processors: 5405U (WHL-U platform based), 4417U (KBL-R platform based)
 - Intel® Celeron® processors: 4205U (WHL-U platform based), 3867U (KBL-R platform based)
 - 9th Gen Intel® Core™ Processor: i9-9900KF, i7-9700KF, i5-9600KF, i5-9400, i5-9400F, i3-9350KF
 - Intel® Core™ X-series Processor (Basin Falls Refresh): i9-9980XE, i9-9960X, i9-9940X, i9-9920X, i9-9900X, i9-9820X, i7-9800X
- OpenIPC version is updated as 1.1913.3651.100
- Intel® DFX Abstraction Layer (Intel® DAL) version is updated as 1.1917.727.110
- Migration of Intel® DAL to OpenIPC for 14nm platforms is finalized

6.3 2019 Update 3

- OpenIPC version is updated as 1.1905.3499.100
- Intel® DAL version is updated as 1.1905.602.110

6.3.1 Intel® System Debugger – System Debug

- Issues with the key shortcuts in Eclipse user interface are fixed

6.4 2019 Update 2

- Intel® System Debugger 2019 Update 2 includes functional and security updates. Users should update to the latest version.
- Python* version distributed by Python.org is replaced with Intel® Distribution for Python* based on Python* version 2.7.15. Space requirement for Intel® Distribution for Python* is approximately 570 MB

6.4.1 Intel® System Debugger – System Debug

- Migration to new Eclipse (simrel2018-12) and Java11
- Simics demo target is removed

6.5 2019 Update 1

- 8th Gen Intel® Core™ Processor (Amber Lake-Y, 2+2, 5W) for Consumer: i7-8500Y, i5-8200Y, m3-8100Y support is added
- Target connection editor page is improved, and the size and appearance of the connection dialog wizard are optimized
- OpenIPC version is updated as 1.1839.3251.100
- Intel® DAL version is updated as 1.1839.428.110

6.5.1 Intel® System Debugger – System Debug

- Implementation of a save button in PCI Tool dialog window

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