



Intel® Smart Sound Technology Driver

Release Notes: Alder Lake Intel SST Release

March 2023

Revision 3.3

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Revision History

Revision Version	Revision History	Revision Date
0.1	• Intel® SST Alder Lake Release 4279	August 2020
0.2	• Intel® SST Alder Lake Release 4411	September 2020
0.3	• Intel® SST Alder Lake Release 4468	October 2020
0.4	• Intel® SST Alder Lake Release 4609	November 2020
0.5	• Intel® SST Alder Lake Release 4926	January 2021
0.6	• Intel® SST Alder Lake Release 5013	January 2021
0.7	• Intel® SST Alder Lake Release 5124	February 2021
0.8	• Intel® SST Alder Lake Release 5180	March 2021
0.9	• Intel® SST Alder Lake Release 5574	May 2021
1.0	• Intel® SST Alder Lake Release 5948	July 2021
1.1	• Intel® SST Alder Lake Release 6004	July 2021
1.2	• Intel® SST Alder Lake Release 6135	August 2021
1.3	• Intel® SST Alder Lake Release 6218	August 2021
1.4	• Intel® SST Alder Lake Release 6278	August 2021
1.5	• Intel® SST Alder Lake Release 6445	September 2021
1.6	• Intel® SST Alder Lake Release 6590	October 2021
1.7	• Intel® SST Alder Lake Release 6708	October 2021
1.8	• Intel® SST Alder Lake Release 6755	November 2021
1.9	• Intel® SST Alder Lake Release 6886	December 2021
2.0	• Intel® SST Alder Lake Release 7082	January 2022
2.1	• Intel® SST Alder Lake Release 7384	March 2022
2.2	• Intel® SST Alder Lake Release 7541	March 2022
2.3	• Intel® SST Alder Lake Release 7621	April 2022

2.4	• Intel® SST Alder Lake Release 7687	May 2022
2.5	• Intel® SST Alder Lake Release 7767	June 2022
2.6	• Intel® SST Alder Lake Release 7919	August 2022
2.7	• Intel® SST Alder Lake Release 8002	September 2022
2.8	• Intel® SST Alder Lake Release 8050 HF	September 2022
2.9	• Intel® SST Alder Lake Release 8102	October 2022
3.0	• Intel® SST Alder Lake Release 8276 HF	November 2022
3.1	• Intel® SST Alder Lake Release 8365	December 2022
3.2	• Intel® SST Alder Lake Release 8467	February 2023
3.3	• Intel® SST Alder Lake Release 8582	March 2023

1 Introduction

1.1 Scope of Document

This document provides release information about the Intel® Smart Sound Technology (Intel® SST) Driver. It covers Release Kit summary, Important Notes, Known and Closed Issues.

This document is intended for OEMs and ODMs that are validating the Intel® Smart Sound Technology Driver on Alder Lake (ADL) platforms with Intel Audio DSP integrated

1.2 System Requirements

Intel® Smart Sound Technology Driver supports the following Intel CPU/Chipset:

- Alder Lake Processors

Platform Support:

- Alder Lake processor-based platforms with Intel Audio DSP integrated

Operating Systems support:

- Microsoft Windows* 10/11 64-bit

1.3 Acronyms and Terminology

Term	Description
ACPI	Advanced Configuration and Power Interface
ADL	Alder Lake
BIOS	Basis Input/output System
BT	Bluetooth

DMIC	Digital Microphone
DSP	Digital Signal Processor
EA	Enrollment Application
FDK	Firmware Development Kit
FW	Firmware
HDA or HD-Audio	High Definition Audio
HFP	Hands-Free Profile
IHV	Independent Hardware Vendor
ISV	Independent Software Vendor
Intel® SST	Intel® Smart Sound Technology
IPR	Ingredient Planned Release
LP	Low power
MCP	Multi-Chip Package
MCPS	Million Cycles Per Second
MCS	Modern Connected Standby Platform
Non-MCS	Non-Modern Connected Standby Platform
OED	Offload Engine Driver
OS	Operating System
PCH	Platforms Controller Hub
RVP	Reference Validation Platform
SUT	System under test
TBD	To be determined
ULT	Ultra-Thin

WOV	Wake on Voice.
PC	Production Candidate
PV	Production Version
PR	Planned Release
TH	Threshold
RS	Redstone
MR	Maintenance Release

2 *Release Kit Summary*

2.1 Release Kit

Kit Name: Intel® Smart Sound Technology Driver Alder Lake Release

Supported OS: Windows* 10/11 64-bit

Version: 10.29.00.8582

2.2 Kit Contents

The contents of this release kit include:

- Drivers
 - DSP Firmware
 - Topology
 - WOV Artifacts
 - IntcAudiobus – Intel SST Audio Bus Driver for HD-A I/F
 - IntcOED – Intel SST Offload Engine Driver
 - Detection Verification Driver
 - Intel® DMIC driver
 - Intel® Bluetooth Audio Driver
 - Intel® USB Audio Driver
 - Intel® SST I2S Driver
 - Intel® Soundwire Bus Driver
- Module Version
 - Intel WOV version 2.5.900.20_986
 - Intel Audio Service version 01.00.2726.00
- Apps
 - Intel® Audio Service: Part of Intel SST OED Installation.
- Intel® Smart Sound Technology Driver – Release Notes

3 *Intel® SST Release Details*

3.1 Intel® Smart Sound Technology Collaterals

Please refer to following Intel® SST collaterals for Intel® SST bring-up, validation and debug guidance.

Doc Number & Location	Doc Number & Location
Intel® Smart Sound Technology Driver - Bring-Up Guide	Included in every SST release package Intel CDI Doc #613171
Intel® Smart Sound Technology Customer - Validation and Debug Guide	Intel CDI Doc #613651

3.2 Platform Best Known Configuration

Please refer to Alder Lake BKC Release.

3.3 Focused Testing Area

Please refer to the Intel® Smart Sound Technology Validation and Debug Guide on Intel® CDI (Document # 613651) for the test cases to test the following Intel® SST features.

For Desktop Processors:

- HD-Audio Playback
- HD-Audio Capture
- Digital Microphone Capture

For Mobile Processors:

- HD-Audio Playback
- HD-Audio Capture
- Digital Microphone Capture
- Intel® Wake on Voice - Contact Intel FAE or Intel® SST AE for more details.
- Post-processing - Contact Intel FAE or Intel® SST AE for more details.
- Pre-processing - Contact Intel FAE or Intel® SST AE for more details.

4 **Intel® SST Release Highlights**

Intel® SST Features		Highlights
Intel® Audio Service	Intel® Audio Service	Intel® Audio Service installer is provided for to support Intel WOV via Intel Speech Pin
Intel® SST Post-Processing		Post processing IP ISVs will integrate their audio IP FW modules using the Intel audio FDK tool and provide their FW to the IHV's for final audio driver and FW integration for OEM customer platforms.
Intel® SST Pre-Processing	Intel Preprocessing IP	Intel Preprocessing FW is included. Note: Pre-processing IP ISVs will integrate their audio IP FW modules using the Intel audio FDK tool and provide their FW to the IHV's for final audio driver and FW integration for OEM customer platforms.
HD Audio Interface	NA	HD Audio interface support has been implemented and included in CFL Intel® SST Release. Disclaimer: To test HD-A interface, a codec driver from audio codec vendor is required. Please contact your codec vendor to obtain the driver supporting this feature.
I2S Interface	NA	I2S Interface support has been implemented and included in the Release. Disclaimer: To test I2S interface, a codec driver from audio codec vendor is required. Please contact your codec vendor to obtain the driver supporting this feature.
SoundWire Interface	NA	SoundWire interface support has been implemented and included in CFL Intel® SST Release. Disclaimer: To test SoundWire interface, a sound wire driver from SoundWire device vendor is required. Please contact your sound wire device vendor to obtain the driver supporting this feature.



5 *Important Notes:*

6 *Known Issues*

Issue #	Description
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7 Closed Issues

Sighting	Title	Fixed version
22016591473	[SDW] Speaker balance button disappear and cannot adjust the L/R volume.	8582
22015841168	Error on USB Headset after updating Intel Graphics driver.	8582
22015146031	Movie & TV show can't play with usb headset after system into S4 then switch different usb port.	8582
22016165861	Occur BSOD 0x7e that points to intcDmic during preload image.	8467
22016321304	BT headset cannot record after removing and then re-adding.	8467
22016051237	The microphone and speaker functions abnormally after upgrading the ISST drivers from v7541 to v7767.	8467
22016176271	[SDW] LR S4 occur BSOD 0x9f DRIVER_POWER_STATE_FAILURE_IntcSdwBus.sys.	8467
22016173568	[SDW] BSOD pointed to DRIVER_POWER_STATE_FAILURE (9f)_portcls when doing Long Run Cold Boot.	8467
22016354503	[SDW] Speaker and headphone default volume is 100%.	8467
22016152554	Cortana validation "Echo" test fail with iSST v7919.	8365
22016176228	[SDW] BSOD 0x9f DRIVER_POWER_STATE_FAILURE_IntcSdwBus when doing Long Run Cold Boot with a dock.	8365
22016177033	Sound cannot input via video call/camera recording/voice recording during microphone form mute to unmute.	8365
22015961748	USB headset has a persistent sound after playing audio/video by Groove player/Movie and TV and pausing it.	8365
22015880157	Using the USB-C headset to play media player then enter/resume from S4, audio is not working on the USB-C headset in AC mode.	8365
22015947973	BSOD 0x9F occurs and points to IntcOED when 5 BTHP are connected at the same time.	8365
22015961748	USB speaker output a noise when pause music.	8365
22016118704	PA has low wake-up rate with 24bit NHLT.	8365
22015939818	Pause/Play button on USB headset cannot work when playing music via Media Player.	8365
22016123922	HWKWS and HW gain do not work when using 24bit DMIC format.	8365
22016091994	Mute the DMIC during recording and still be able to pick up sound.	8365
22015855611	The max sound of the USB speaker is reduced after insert/remove USB speaker in S4.	8365
22016168366	DMICs mute does not work on APO less systems.	8365
22016128990	[SDW] Speaker lost when resume from S0i3/S4.	8276
16018634475	[SDW] Plug in 3.5mm Jack, but sound still plays via internal speaker when playing local music or hit no sound issue when playing online video.	8276
22014823769	When using Edge browser to play online video, plug/un-plug 3.5mm jack, it may get "can't play" error prompt.	8276



22015702615	Mute button for mic does not work for some specific type-C headset.	8102
22015740850	Some Type-C headphone Mic cannot record with 7919.	8102
22015477120	Audio icon show "x" after fast close/open lid with Cortana and Alexa enabled.	8102
22015688717	[SDW] HLK failed: Modern Standby Voice Activation Power Test on AC/DC-power.	8102
15012082984	No SW Drips when ACA is running.	8102
22015939833	System show up "Your microphone is not working" after resume from S4 during Teams call.	8102
22015642363	Speaker no sound after playing the video for a while on the USB-Codec device.	8102
22015172239	Audio from USB device cut during VoIP call.	8102
22015510184	Speaker error after resuming from S4 and plug out the USB headset.	8102
22015585034	ISST OED YB after resuming system from MS while playing online video and enabling WoV in the background.	8102
22015841168	USB audio device cannot work after updating Intel Graphics driver	8102
22015570204	[SDW] DUT will show BSOD(error code: 0xdeadbeef) during the audio driver uninstall and install process.	8050
22015750110	ISV module may not work properly with v7919.	8050
22015468262	ACA module init fail when load with 3 rd party's module.	8002
22015514494	Music player freeze and USB headset hang after wake from S4.	8002
15011627170	WoV don't have gain if DUT not record before.	8002
22015550870	[SDW] HLK: System - PNP (disable and enable) with IO Before and After (Reliability) test failed due to unexpected reboot.	8002
22015138970	Recorded video via camera app then click camera roll will show fail message.	7919
22015102787	Media player show error code after adjusting volume from task bar.	7919
22015099238	Music still outputs from speaker after plug in type-c earphone.	7919
22015046864	BT device can't remove successfully when the Bluetooth headset is connected	7919
22014104819	The advance page and spatial page will disappear after unchecking the HW acceleration of the USB headset in the sound control panel.	7919
22014861643	The Sound icon show X in system tray with PA enabled and doing WU.	7919
22015267012	BSOD 0x9F while running restart stress test with AC/DC cycle.	7919
18021975576	Intel Smart Sound Technology OED YB in DM after do s3/s4/s5 with ACA enabled.	7767
18022308478	Headset lost sound when press the hotkey to adjust the audio volume.	7767
18021993032	Windows Media Player pops up error message "An audio device was disconnected or reconfigured" when insert 3.5mm Jack device for the first time.	7767
15010805358	Some USB headsets cannot work when connect to the USB hub.	7767
18021187067	Play local video, find there is no sound output from USB speaker after resuming from S4/S5.	7687
15011081536	When using Cortana push to talk, microphone shows disabled.	7687
14016324088	"Intel Smart Sound Technology OED" sometimes would show lost/yellow bang in WB stress test.	7687

18021145976	Run PC Stress Benchmark with step tool and found audio device lost.	7687
18021121055	Platform stopped reacting to KPs during Alexa stability.	7687
18021320874	Test tone played via Sound Control Panel internal speaker properties gets noise in speaker path.	7687
18021535605	Groove music/ movie & TV show can't play when system plugged usb headset after system into S4 then switch different usb port.	7687
18021460740	System Audio - KS Topology Test is failing with FAIL: Pin[02] : DeviceloControl failed to get pin property.	7621
18021035651	OED YB (DSP Communication Timeout Code 43) during Alexa stability	7541
18020908442	HD Audio Driver for Display Audio device lost when running WB stress with monitor connected via onboard HDMI	7541
18020547096	Groove hang when playback with USB type-c headset	7541
18020468228	Fw Crash and BSOD irq_ not_less_or_equal IntcUSB.sys after plugging in UAOL device	7541
18020823378	System occurred blackscreen with dump_IRQL_NOT_LESS_OR_EQUAL (0xA)_IntcsdwBus during S4 stress	7541
14015883682	AW920H headset show "0" when adjust volume to mute via BT connected	7541
18020351462	Audio driver lost during plugin/unplug USB headphone with making Microsoft Teams video call	7541
18020550174	"Groove Music" APP can't play music after plug in 3.5mm audio jack.	7384
18019649707	DVT1_SPMLK_Playing audio and video have noise via WL5022 Wireless Headset.	7082
18019668616	M-SIT/Thanos131415/Win11 21H2/SI: 'Something went wrong' occurs when click stop recording after record end on Voice Recorder with Type-C earphone	7082
18019683160	OED YB when connect BT headphone and on/off BT switch	7082
18019652700	Error showing when using multiple USB Audio devices	7082
18019648881	System have no sound after reboot	7082
18019880303	BSOD 9F when system reboots with SST 6886	7082
18019822613	OED show error message DSP communication timeout cause speaker show "X"	7082
18019913675	DVT1_YS_OBE_video play is lag after attach type-c to VGA display	7082
18020162988	Alexa cannot wake up with enable wake word on	7082
18020003902	Audio driver lost from DM after resume from S4 then click "refresh" icon on HDR video website with HDR monitor connected and HDR video playing via netflix website on EFP	7082
18019120726	DSP Communication timeout on OED during Alexa stability with ISST 6755	6886
18019331659	Bsod IntcSDW.sys (IntcSDW!PinComplexWidget::ChangeConnectionsStatus+3e), BugCheck = 7E	6886
14015485007	AW920H headset still can output when adjust volume to mute via BT connected	6886
18019090242	System freeze and dsp crash after enabling BRA EVAD with Cortana	6886
18019089608	The sounds can't output via the third USB audio device.	6886
18018985065	OED YB while running Cortana SPTT with 6590	6755



1309190037	Enable EVAD	6755
18018785328	BSOD 0x1E when installing ISST driver v6590	6708
18018800487	Groove and media player can't find audio device when using the ROG Theta 7.1 USB-C headset	6708
18018761767	Build in speaker lost and SUT internal speaker no sound output after resume from Warm Boot	6708
18018659778	Observing buffering (and no playback) in Groove on performing quick Pause/Resume during stereo-mp3 playback	6708
18018052569	Bluetooth HFP and A2DP offload - volume 0/mute implementation	6708
18018427343	Jabra headsets not working	6708
18018292785	Add CopyINF entries to AudioBus and OED	6590
18017604274	video stuck after plug headset when system into S4 then resume	6590
18017941308	YB on OED DSP Communication Timeout Code 43 after opening Alexa app with HF enabled with ISST 5948	6590
18017545365	Support Cirrus HD-A Codecs Async verb transfer (I2C Mutex)	6590
18017506495	[I2S Codec] There is no MCLK output when no music playback during S0 mode	6590
1309082966	OED-ERROR message with Event ID 27/29 shows FW is not supported in Event Viewer log	6590
18017873258	Playback will hang for 2 minutes on G20 when connect 3 pole headphone or Creative USB headset.	6590
18017559869	HDMI playback noise	6445
18015006214	Intc OED Yellow Bang observed after S3	6445
18017874971	[BT] Hang in Groove after connecting BT HP with Intel Audio Service running - Disable speech category discovery	6445
18017387675	Creative sound blaster X-Fi GO pro-observing glitches on UAOL endpoint after change playback position	6445
18015006214	Sound Effect preset does not work after pause for 1 min and then resume playing music	6445
14014598262	can't get WOV timestamp through KSPROPERTY_SOUNDDETECTOR_MATCHRESULT due to ERROR_NOT_SUPPORTED	6445
18017523102	Sound can't output via Slim Sound Bar - SB521A after connecting SUT USB3.0 port	6445
18017556512	BSOD DRIVER_IRQL_NOT_LESS_OR_EQUAL during Alexa stability with ISST 6218	6278
18015006214	System - PNP (disable and enable) with IO Before and After (Reliability) test got failed due to unexpected reboot	6278
18017339297	OED yellow bang observed during S4 cycling	6218
18017415139	FW crashed with lec: ADSP_KPB_MS_UNABLE_TO_STORE_DATA	6218
18015006214	glitches/buffering during Groove playback in 4-Ch/5.1-Ch Speaker (via Codec) config respectively after arming any MVA-Test-App(s) with SST driver v5948	6218
18017126975	Groove hang with LPIB not progresing during S4 cycle using decoupled HDA+UAOL+iDisplay	6135
18017275344	YB after opening usb capture stream during Basic Communication mode	6135

18017274221	Plantronics Headset observing noise when running on UAOL enabled mode	6135
18017079461	WOV update to ver. ADL 2.5.869.20_633	6135
14014414843	(HLK)(ADL-S)(Cobalt)(BTH) Lullaby test fail with AUDCLNT_E_DEVICE_INVALIDATED	6004
14014445538	(HLK)(ADL-S)(Cobalt)(BTH) KsTopology test fail - ERROR: Node[1] (KSNODETYPE_MUTE) does not support KSPROPERTY_AUDIO_MUTE through the filter	6004
18015006214	Unable to display amplifier at EFX placeholder on Microphone array endpoint	6004
18016993471	(HLK)(ADL-S)(Cobalt)(USB)General audio test- Audio Mute and AUDIO_VOLUMELEVEL subtests fail	6004
18016624310	BSOD after boot to OS with voice assistants enabled BRA	5948
1807114216	iadk_dependencies: correct script for adl build	5948
18014637871	LargeConfigGet KP_BUF_CFG_MODE shows no data	5574
16012654270	Observing BSOD (Bugcheck-9F) during WIM installation or when the system is left idle pointing to IntcOED	5372
16012540057	Disp audio driver is not enumerating with hot-plug of display	5180
14013230420	BSOD: SYSTEM_THREAD_EXCEPTION_NOT_HANDLED (0x7e) pointing IntelOED while running S3 test	5124
18014190356	Endpoints are duplicated after Audio Bus disable and enable	5013
16012113120	Sporadically WoVClientApp does not detect key-phrase ("Alexa") via WBS BT-HFP headset (BT-HFP Offload disabled and Voice Activity Detection = Intel Wake on Voice)	4926
18012710746	Add new ADL-P platform - update FDK dependencies script	4609
16011840855	[MVA] Hands free mode is getting disabled in the Alexa after setting wake work to MVA	4609
18011252850	FW crash when running host pipeline in WHM/WoV topology	4411