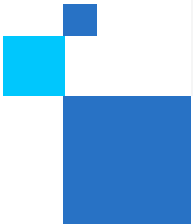


Release Notes

# Intel® PROSet/Wireless Bluetooth® Software V22.90.2.1 Hot Fix PV Release

Wireless Solution Group

WW 45



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# Release Overview

- Intel is pleased to announce the 22.90.2.1 Hot Fix Production Version (PV) release of the Intel® PROSet/Wireless Bluetooth® Software.
  - **The purpose of this release is to provide a fix for a key issue related to A2DP Audio Offload and to re-enable the feature which was disabled in the 22.90.0.4 PV release.**
  - This version supports ADL-S, KBL, GLK, CNL, CFL, WHL, AML, CML, ICL, LKF, TGL, RKL, JSL platforms.
  - This software package includes drivers for the following devices: GfP2, TyP2, HrP2, CcP2, CcP2 UART, ThP2, JfP2, JfP1, SfP, WsP, SdP, StP.
  - This release contains certified drivers for RS5 (limited to TyP2/JfP/ThP2), Windows 10 and Windows 11 – see details in [slide 5](#)

# General Information

Driver Version	
TIC	PHBTW42263_22.90.2.1
File Name	PHBTW42263_22.90.2.1G.zip
22.90.2.1	GfP2/HrP2
22.90.0.4	TyP2/CcP/ CCP2 UART/JfP1/JfP2/ThP2/WsP/SfP
20.100.10.5	64-bit StP/SdP
20.100.9.5	32-bit StP/SdP
Supported Operating Systems (Please see <a href="#">slide 5</a> for OS Version support per HW)	
Windows 10 October 2018 Update (RS5)	
Windows 10 April 2019 Update (19H1)	
Windows 10 November 2019 Update (19H2)	
Windows 10 May 2020 Update (20H1)	
Windows 10 October 2020 Update (20H2)	
Windows 10 May 2021 Update (21H1)	
Windows 11 October 2021 (Cobalt)	

Tested Platforms
Alder Lake-S (ADL-S)
Tiger Lake (TGL)
Jasper Lake (JSL)
Rocket Lake (RKL)
Lakefield (LkF)
Kaby Lake (KbL) / Kaby Lake refresh (KbL-R)
Apollo Lake (ApL)
Sky Lake (SkL)
Broadwell (BDW)
Gemini Lake (GLK) / Gemini Lake Refresh (GLK-R)
Cannon Lake (CNL)
Coffee Lake (CFL)
Whiskey Lake (WHL)
Amber Lake (AML)
Ice Lake (ICL)
Comet Lake (CML)

Supported Hardware
Garfield Peak2 (GfP2)/AX211
Typhoon Peak 2 (TyP2)/AX210
Typhoon Peak 2 embedded (TyP2)/AX210-embedded
Harrison Peak2 (HrP2)/AX201
Cyclone Peak 2 (CcP2)/AX200
Cyclone Peak 2 UART (CcP2)/AX200
Thunder Peak2 (ThP2)/9260
Jefferson Peak2 (JfP2)/9560
Jefferson Peak1 (JfP1)/9461/9462
Windstorm Peak(WsP)/8265
Sandy Peak (SdP)/3168
Snowfield Peak (SfP) / 8260
Oak Peak (OkP)/18265
Douglas Peak (DgP)/18260 (WiGig)
Maple Peak (MpL)/17265 (WiGig)
Stone Peak 2 D0 (StP2)/7265/Stone Peak 1 (StP1)/3165

# 22.90.2.1 HF PV Release – Bluetooth POA Driver Matrix

- The starred version numbers indicate the SW has an updated version in this release (22.90.2.1) when compared with the previous PV Release, while the colors are used to group similar versions.

HW SKU	Supported operating Systems				Win 10 UWD
	RS5	Win 10 19 H1/H2	Win 10 20 H1/H2 and 21H1	Windows 11 (Cobalt)	Driver Version.
GfP2 AX211	✗	✗	✗	✓	22.90.2.1*
TyP2 AX210	✓	✓	✓	✓	22.90.0.4
HrP2 AX201	✗	✓	✓	✓	22.90.2.1*
CcP2 AX200	✗	✓	✓	✓	22.90.0.4
CCP2 AX200 UART	✗	✓	✓	✓	
Quasar+JfP1/9461/9462	✓	✓	✓	✓	
Quasar+ JfP2/9560	✓	✓	✓	✓	
Pulsar + JfP1/9461/9462	✓	✓	✓	✓	
Pulsar + JfP2/9560	✓	✓	✓	✓	
ThP2/9260	✓	✓	✓	✓	
WsP/8265	✗	✓	✓	✓	
SfP/8260	✗	✓	✓	✓	
64-bit StP1/3165 , StP2-D/7265 , SdP/3168	✗	✓	✓	✓	20.100.10.5
32-bit StP1/3165 , StP2-D/7265 , SdP/3168	✗	✓	✓	✗	20.100.9.5

# Key Corrected Issues in 22.90.2.1 HF PV

Key	Headline	Reported HW	Description	Issue type
BT-45888	A2DP Audio offload feature has been disabled	GfP2/HrP2	<p><i>Root Cause:</i> As explained in previous release note – A2DP Audio Offload feature was disabled due to a Bluetooth critical issue :<b>BT-44506</b>.</p> <p><i>Fix :</i> BT-44506 is now fixed and the feature is re-enabled.</p>	A2DP Audio Offload
BT-44506	OPP file transfer can be corrupted when the file is transferred during an A2DP offload session	GfP2	<p><i>Root Cause:</i> Complex concurrent DMA operations were impacting the memory read/write in one of the memories.</p> <p><i>Fix:</i> Resolution is a workaround to prevent concurrent access to DMA ( memory)</p>	OPP/A2DP Audio Offload

[c] indicate issues reported by *customers*.

# DCRs and New Features – 22.90.2.1 HF PV

DCR #	Description	Improvements/Feature Benefits	Relevant HWs
	Not Applicable		

# Known Issues and Limitations – 22.90.2.1 HF PV

ID	Applicable for		Summary	Is a 3rd Party Issue?	Impact on the user	NIC /OS Observed	Workaround Recovery procedure	Comments	Impacted Functional Area
	USB	UART							
BT-11873 <sup>‡</sup>	✓	NA	In some scenarios, we can observe audio glitches in open environments with HFP.	No.	UX	HrP2 on Win 10 20H1	None	NA	HFP
BT-44232/[C][N]	✓	NA	AAC headset have sound lag issue when A2DP Audio offload feature is enabled.	NO	UX	GfP2 on Win 11 Cobalt	None	NA	A2DP Audio (offload)
BT-46231 [C][N]	✓	NA	Bluetooth headset/speaker take 10-15 sec to re-connect when music is playing	NO	UX	GfP2 on Win 11 Cobalt	None	NA	A2DP Audio (offload)
BT-46230 [C][N]	✓	NA	Bluetooth scan output is null, when inquiry and A2DP music session is tested together.	NO	UX	GfP2 on Win 11 Cobalt	None	NA	Device Scan

‡ Issue was observed in USB hardware; however, issue could be also present in UART.

[c] Issues reported by customers [N] Issues reported for the first time in this release note

# Issues that are no longer observed/Closed for reasons other than being fixed/Non-Intel Bluetooth Issues – 22.90.2.1 HF PV

ID	Applicable for		Summary	NIC /OS Observed	Comments
	USB	UART			
<b>BT-45030[C]/ BT-41757</b>	✓	NA	Error message "your speakers aren't working" pops ups when do video call in Teams with BT headset connected.	GfP2/Win11	This Microsoft issue (ID: 502080) is fixed in Win11 21H2 22000.282
<b>BT-44505[c]</b>	✓	NA	BT headset 100% fail to mute , still can hear volume after mute	GfP2/Win11	Fixed by Intel Audio team with driver version : Intel SST v6679
<b>HSD 14014916192</b>	✓	NA	<b>OED ISST device may</b> Yellow Bang ( Not in Bluetooth Device) may be observed with repeated connection and disconnection of Bluetooth device while playing music	GfP2/Win11	This Microsoft issue (ID: 539505) is fixed in Win11 21H2 22000.282
<b>HSD 18017671614/ BT-44408[C]</b>	✓	NA	<ol style="list-style-type: none"> <li>With A2DP offload enabled, Groove Music player may show “ Can’t play” after connecting to Bluetooth device with an already ongoing music session.</li> <li>It may be also seen that Groove music player may get stuck with repeated connection and disconnection of Bluetooth device while playing music</li> </ol>	GfP2/Win11	This Microsoft issue (ID: 539506) is fixed in Win11 21H2 22000.282

# TILE\* App Integration Info

Content remains valid for 22.90.2.1

Intel Wireless Bluetooth subsystem can support TILE<sup>1</sup> functionality on Tiger Lake platforms ( GfP2,TyP2, HrP2 & Ccp2) subject to *OEM integration of this feature*<sup>2</sup>.

Intel Bluetooth Driver Version	Version of the Tile Application <sup>3</sup>		
	Windows App	Android Mobile App	iOS Mobile App
22.90 PV	Tile.App.Packaging_3.3.2.0_Test <sup>4</sup>	v2.89.1 (3723) <sup>5</sup>	v2.89.1 (4774) <sup>6</sup>

TILE* Related Fixes/Changes			
ID	Summary	HW	Comments
BT-43914	Tile Ring interval is implemented not per the spec	Agnostic	The FW implementation is now aligned with the Tile Ring specification of the <i>Pulse Interval</i> .

<sup>1</sup> TILE\* provides a solution for tracking devices - in this case the PC/laptop - using Bluetooth technology. Please refer to <https://www.thetileapp.com/>

<sup>2</sup> If you need more information on integrating TILE into upcoming designs, please contact your Intel Wireless representative.

<sup>3</sup> The Tile applications can be downloaded from the Application Market store of the *Windows, iOS and Android* platforms.

<sup>4</sup> This version is not available in the Windows Application Store.

<sup>5</sup> Android application version can be used for both Tile Find and Ring applications.

<sup>6</sup> TILE iOS App only works for the TILE find feature. TILE Ring feature is not yet available in iOS applications.

The 22.80 PV and later versions of the Bluetooth driver **mandatorily** requires the use of Tile App version **3.3.2.0** or later for Windows. Previous versions of the Tile Windows application are not compatible with the **22.80 PV and later** Bluetooth driver. Tile will *ensure compatibility by a mandatory application upgrade* for all end users who are currently using an older application version as well.

# TILE\* App Integration Info (cont.)

NOT UPDATED FOR 22.90.2.1.  
However, Content remains valid.

## TILE\* Related Known Issues

ID	Summary	Is 3 <sup>rd</sup> Party Issue?	NIC and OS Version		Comments
BT-21319	No Tile advertisements observed during BitLocker Screen	NO	HrP2 on Win 10 20H1	NA	
BT-34255	Tile counter management continuity is lost when system resumes to S0 from S4/S5	YES	HrP2 on Win 10 20H1	Issue Identified in BIOS.	
BT-43880	When Find is executed many times with Ring support, sometimes a message “We couldn’t Ring your Tile” may pop-up.	YES	HrP2/OS agnostic	Issue with Tile Application	
BT-43786	Ring does not work with iOS devices	YES	Agnostic	Compatible Tile iOS Version is not available yet. <b>However certain fixes required for supporting this is already included in this release.</b>	
BT-44684/ BT-45577	In some scenarios, upgrading of Bluetooth Device driver version ( from non-ring supported to ring supported version) deactivates TILE.	NO	Agnostic	This is due to configuration compatibility issues – expected to be addressed in upcoming releases.	
BT-45247	When Tile Ring is performed, Pulse irregularity is observed	NO	Agnostic	This issue is observed in the pulse train, where there is some irregularity in the pulse interval length.	

# Additional Notes

NOT UPDATED FOR 22.90.2.1.  
However, Content remains valid.

## Changes applicable from 22.90 PV and later

- Layout Changes:
- Non-UWD drivers are removed.
- iBTSIVA is no longer included.
- 32-bit Stp/SdP UWD drivers are introduced in lieu of 32-bit non-UWD drivers.

## Changes applicable from 22.50 PV and later

- Intel Wireless (Wi-Fi and Bluetooth\*) Connectivity layout will include all third-party licensing information, which may include wireless software components, from one or more third parties, including third party copyright information addressing any specific terms to be transferred to Intel partners.

### Impact on OEMs:

- No impact. The Layouts will include a dedicated folder containing all Non-Intel licenses

### Layout update reason

- This change was done based on Intel legal requirement

# Additional Notes (Cont.)

## For Customers using UART Solution, Following is applicable from 22.20 PV and later

- lbtserialbus.inf will be merged into lbtuart.inf, and hence there would be only one INF file from the 22.20 PV release onwards.
- UART drivers will no longer be part of the non-UWD folders. Subsequently, UART drivers will only be delivered as part of UWD folders in Generic Layout Package.

## Older Notes

- Please note that starting from 21.120 PV release Remote Wakeup Extension File is no more resold to customers. Please refer to the TA titled: “REMOVAL OF Remote Wakeup Extension INF from Intel® Bluetooth® Software release” dated July 2020.
- The IBTSIVA is ON by default for all HW/SW combinations except for the DCH releases.
- Extension INF files are the method to enable services and install options in DCH releases.
- Bluetooth extension INF files have already been resold to customers that requested them. Please see your Intel Wireless account manager for further information on this topic.

# Intel Bluetooth SW Release Kit Contents

File Name	Description	
PHBTW42263_22.90.2.1G.zip	BT SW installation files for Generic Layout	
Bluetooth_Debug_Tools.Zip Extracted contents are detailed	<i><b>HCItool</b></i>	<i>HCI tool to be used for reading Bluetooth Mac Address</i>
	<i><b>Ibterverify (Version 1.1)</b></i>	Tool for verification of BT Error recovery ( Refer TA Document No: 616292).
	<i><b>Test Mode Drivers/Intel Bluetooth OEM Tools.msi</b></i>	<i>Bluetooth Test mode driver Installer for DRTU Installation. Please refer latest version of DRTU Install manual.</i>
	<i><b>Test Mode Drivers/Win10_UWD</b></i>	<i>Bluetooth Test mode drivers in INF format for Installer for DRTU Installation. Please refer latest version of DRTU Install manual (Version 2.0 and later).</i>
Others	<ol style="list-style-type: none"><li>1. Release note</li><li>2. Installation guide</li><li>3. License agreements</li></ol>	

**Ibterverify version compatibility:** Bluetooth 22.90.2.1 requires ibterverify version 1.1 to evaluate PLDR support/implementation included in this package.

# Abbreviations

Acronym	Codename	Intel product name
GfP2	Garfield Peak 2	Intel® Wi-Fi 6E AX211
TyP2	Typhoon Peak 2	Intel® Wi-Fi 6E AX210
CcP2	Cyclone Peak 2	Intel® Wi-Fi 6 AX200
HrP2	Harrison Peak 2	Intel® Wi-Fi 6 AX201
JfP1- DA	Jefferson Peak 1 Diversity antenna	Intel® Wireless-AC 9462
JfP1- SA	Jefferson Peak 1 Single antenna	Intel® Wireless-AC 9461
JfP2	Jefferson Peak 2	Intel® Wireless-AC 9560
ThP2	Thunder Peak 2	Intel® Wireless-AC 9260
WsP	Windstorm peak	Intel(R) Dual Band Wireless-AC 8265
SdP	Sandy Peak	Intel(R) Dual Band Wireless-AC 3168
StP2	Stone Peak 2	Intel(R) Dual Band Wireless-AC 7265
StP1	Stone Peak 1	Intel(R) Dual Band Wireless-AC 3165
SfP	Snowfield Peak	Intel(R) Dual Band Wireless-AC 8260
WkP2	Wilkins Peak 2	Intel(R) Dual Band Wireless-AC 7260
WkP1	Wilkins Peak 1	Intel(R) Dual Band Wireless-AC 3160

# Glossary

- COEX = Coexistence. This refers to when Bluetooth and Wifi are both operating simultaneously in the 2.4Ghz band. Collisions between the radios can occur and degrade performance.
- PC = Production Candidate – Part of the initial software series on a new adapter (e.g. alpha, beta, PC, PV)
- PV = Production Version – Software that is approved for shipping
- SP = Service Pack – an intermediate release between major release. It usually only has defect corrections.
- MR = Major Release – Includes new features and defect corrections.
- WA = Workaround
- RN = Release Note
- HF = Hot Fix – a software release with minimal change. Created to resolve a urgent customer need.
- YB – Yellow exclamation mark in device manager. Indicates that a driver is not functioning properly
- POA – Platform, OS, Adapter e.g. (Kaby lake, RS1, WsP) – usually refers to OS/Adapter combo.
- ATS – ACL Time Share

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Estimated results were obtained prior to implementation of recent software patches and firmware updates intended to address exploits referred to as "Spectre" and "Meltdown". Implementation of these updates may make these results inapplicable to your device or system.

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