

Intel® GNA Driver

Bring Up Guide & Release Notes

December 2020

Revision 1.0

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Revision History

Revision Number	Description	Revision Date
0.5	Initial release.	August 2018
0.6	ICL PV Drop	August 2019
0.7	ICL PR Release	August 2019
0.8	Including TGL Support	March 2020
1.0	Including Release Notes for GNA version 02.00.00.1097	December 2020



1 Introduction

1.1 Purpose and Scope of Document

This document provides installation instructions and bring up guideline to verify if the GNA device is available and functional on Intel platform with Intel GNA driver installed on Windows* 10 64bit Operating System.

All screenshots presented in the document are from Windows* 10.

1.2 Acronyms and Terminology

Term	Description
BIOS	Basic Input/output System
BKC	Best Known Configuration
CRB	Customer Reference Board
GMM	Gaussian Mixture Module
GNA	GMM and Neural Network Accelerator
IHV	Independent Hardware Vendor
ISV	Independent Software Vendor
MSFT	Microsoft Corporation
OS	Operating System
PCH	Platform Controller Hub
RVP	Reference Validation Platform
ICL	IceLake
CML	CometLake
TGL	TigerLake

1.3 What is needed for GMM Bring Up

- GNA is enabled in platform BIOS
- Intel GNA driver installed in the system



Introduction

- Files: gna.sys, gna.inf, gna.cat

All files are distributed in Intel GNA release package.



2 GNA Bring Up Instructions

2.1 General Flow

- Check if GNA is available
 - the platform supports GNA
 - GNA is enabled in BIOS
 - the GNA driver is installed correctly

If you cannot resolve the problem using the guide, contact the Intel CCE Audio Team

2.2 GNA Support Platform

GNA functionality is available on the following Intel platforms:

CPU Family Name	Device ID	Bus/Device/Function
Cannon Lake (CNL)	PCI\VEN_8086&DEV_5A11	0/8/0
Ice Lake (ICL) / CometLake (CML)	PCI\VEN_8086&DEV_8A11	0/8/0
Tiger Lake (TGL)	PCI\VEN_8086&DEV_9A11	0/8/0

2.3 Enable GNA in BIOS

2.3.1 CML/ICL/TGL Platform

1. Enter platform BIOS set-up
2. Check the GNA status at the following path (This path might differ on various platforms and BIOS versions):
 - **Intel Advanced Menu → System Agent (SA) Configuration → GNA Device (B0:D8:F0)** (Figure 1)
3. If there's no GNA entry, then
 - the BIOS version doesn't provide with the GNA enabling capabilities → contact the Intel CCE team to get the correct BIOS version:
4. Set '**GNA device**' to **Enabled**

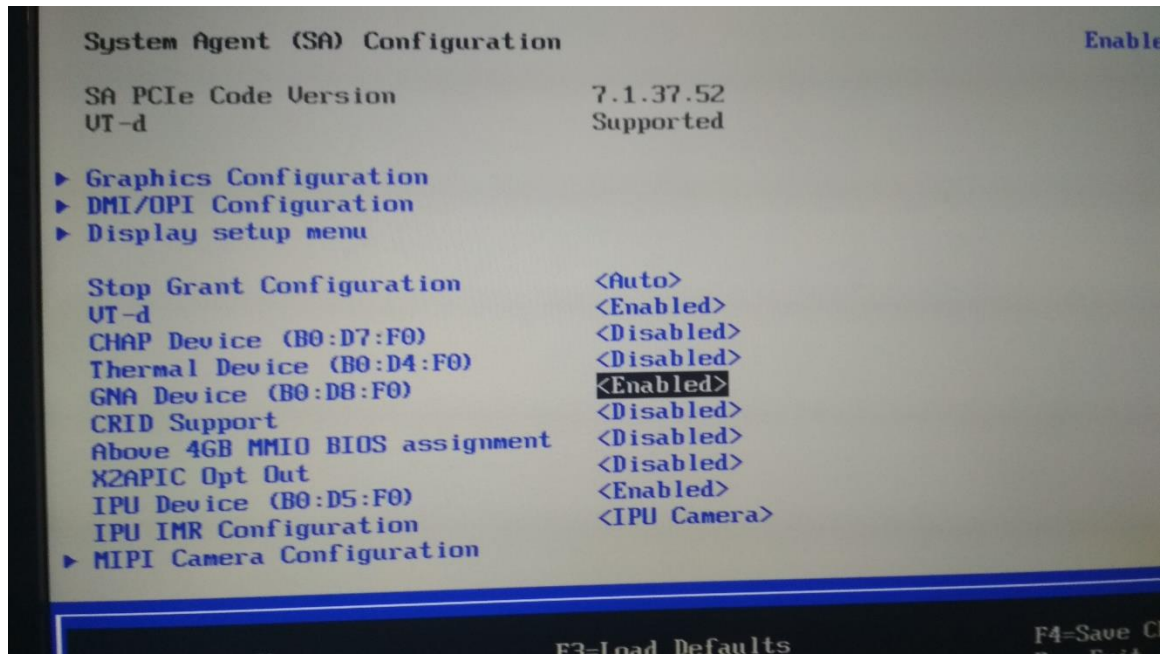


Figure 1 CML/ICL/TGL Intel BIOS (example on an RVP board)

2.4 Intel GNA Driver Installation

2.4.1 Manual Installation

The GNA driver can be installed manually using the INF file (see Figure 2):

- click the right mouse button on "*gna.inf*"
- select "*Install*"
- expect message "*The operation completed successfully*" in the case of the successful installation

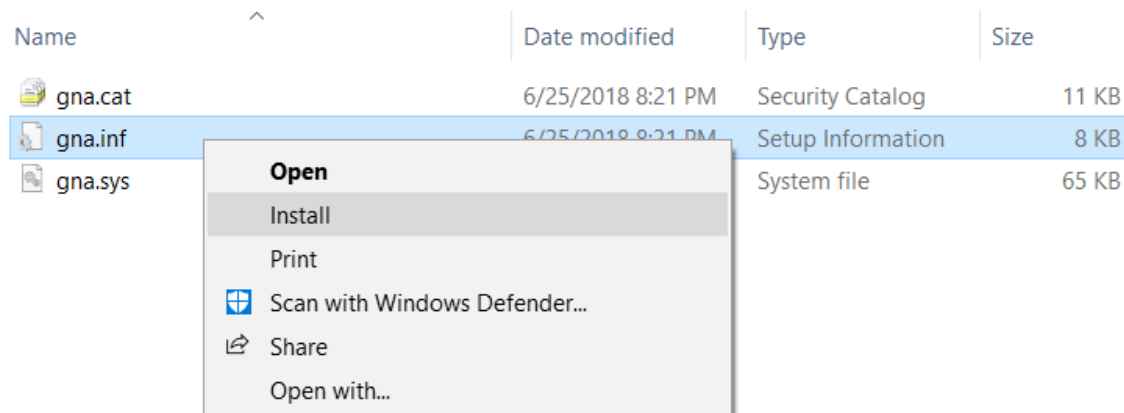
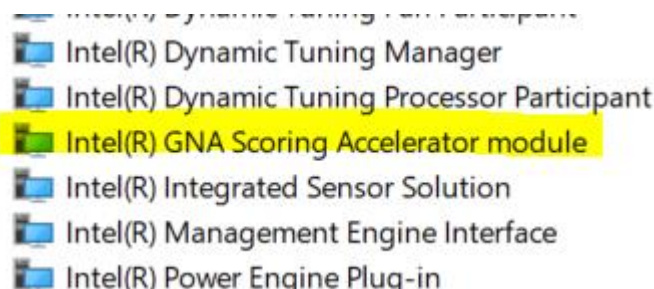


Fig.2. Manual GNA driver installation

2.4.2 Driver Installation Verification

It is recommended to check in Windows* Device Manager if the newly installed GNA driver is seen:

- go to "System devices" category and look for "Intel® GNA Scoring Accelerator module"
- make sure there's no new yellow bang



2.4.3 Windows Update

Windows Update can automatically install the GNA driver after the device detection if there's no other GNA driver installed, including Null Driver.

The update of the GNA driver can be also enforced in Windows* Device Manager:

- Find:
 - "Base System Device" in the root directory
- click the right mouse button on it
- select "Update Driver"
 - note: by default, a newer driver version overrides a previous one, however it is recommended to uninstall the previous GNA driver manually before installing the new one



- choose option "Search automatically for updated driver software" (see Figure 3)

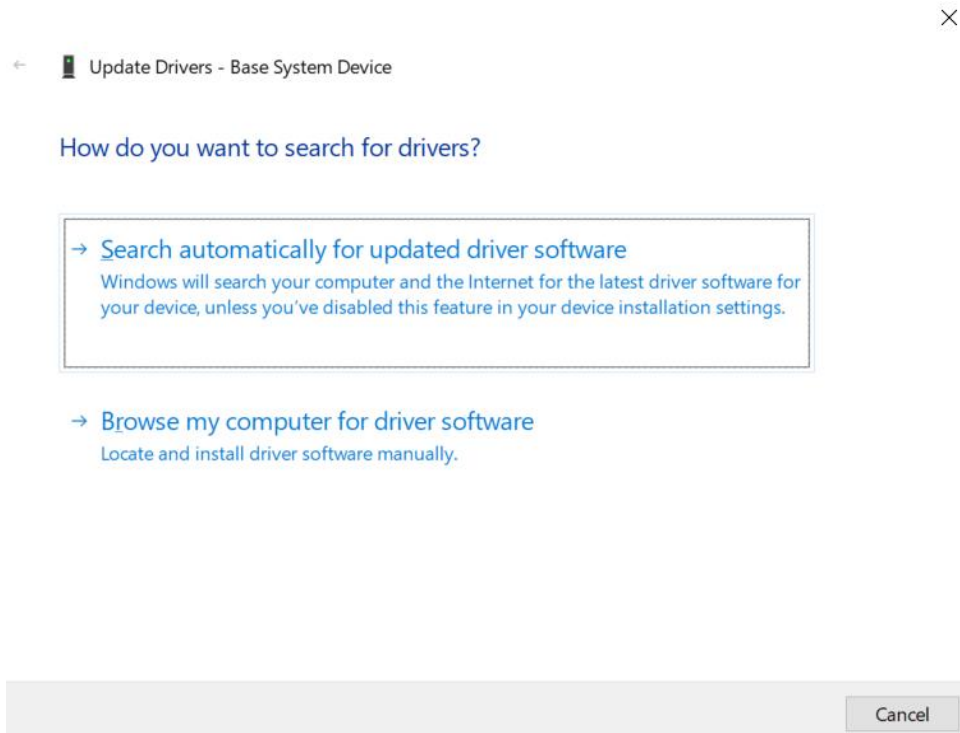


Figure 3 Windows Update: *search automatically for updated driver software*

2.5 Verify GNA Driver installation

Open Windows* Device Manager

Go to "System devices" category and look for "**Intel® GNA Scoring Accelerator module**"

- If the GNA device is present without Yellow bang (see Figure 4)
 - **Meaning: GNA is available** (supported by the platform, enabled in BIOS and the GNA driver installed correctly)
 - Bus, Device, Function and Device ID are listed in *Properties* (click the right mouse button and select "Properties")

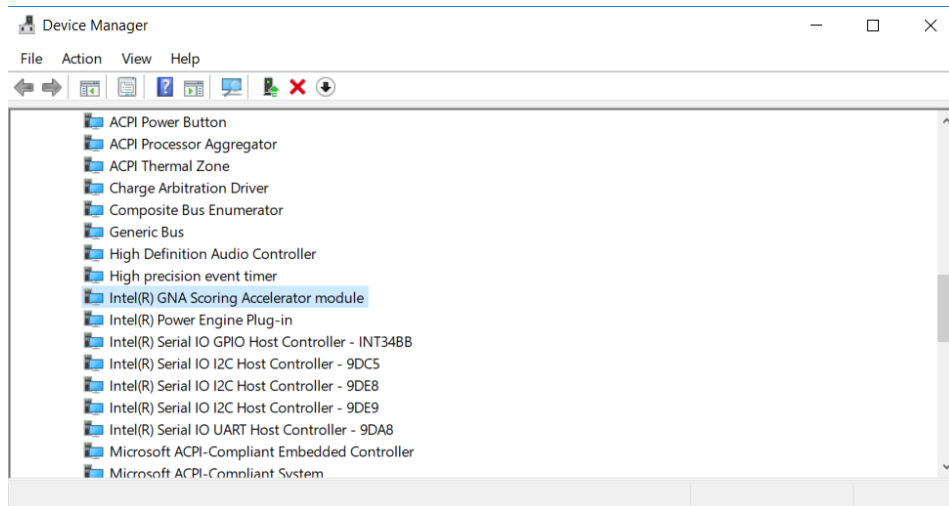


Figure 4 Correctly installed GNA driver (example)

Go to “*Other devices*” category and look for “**Base System Device**”

- If the device is detected with the yellow bang (see Figure 5)
 - **Meaning:** GNA is enabled in BIOS, and the GNA driver is missing
 - **Action:** install the GNA driver (Chapter 2.4)

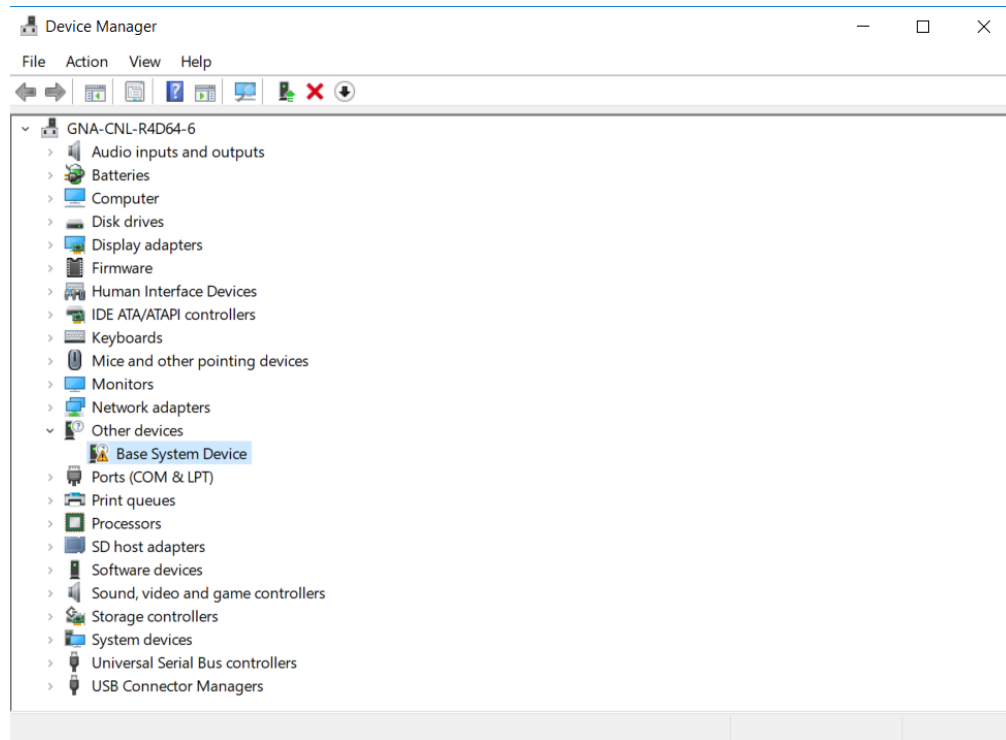


Figure 5 Windows* Device Manager without GNA driver (example)



3 GNA Release Notes

3.1 Release Kit Summary

3.1.1 Release Kit

Kit Name: Intel® GNA driver version 02.00.00.1097

Supported OS: Windows* 10 64-bit

Version: 02.00.00.1097

3.1.2 Kit Contents

The contents of this release kit include:

- Drivers
 - GNA.inf
- Bring up Guide and Release notes
- Software License Agreement

3.2 Intel® GNA Release Details

3.2.1 Intel® GNA Collaterals

Please refer to following Intel® GNA Collaterals

Doc Number & Location	Doc Number & Location
Power Measurement BKM	Intel CDI Doc #634067
Intel® GNA Validation and Debug Guide	Intel CDI Doc #633191



3.2.2 Platform Best Known Configuration

Please refer to platform AE contact for latest BKC link.

3.2.3 Focused Testing Area

Please refer to the Intel® GNA Validation and Debug Guide on Intel® CDI (Document # 633191) for the test cases to test the following Intel® GNA features.

3.2.4 Known Issues

3.2.5 Closed Issues

NA	Fixed QoS high resolution timer disabling for large timeout values