Intel® Performance Maximizer
Version 1.0.4

Hotfix Release for Intel® Core™ X-series Processors (Cascade Lake) and 9th Generation Intel® Core™ i9/i7/i5 Processors (Coffee Lake) Update

Release Notes

February 2020
INFORMATION IN THIS DOCUMENT IS PROVIDED IN CONNECTION WITH INTEL PRODUCTS. NO LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, TO ANY INTELLECTUAL PROPERTY RIGHTS IS GRANTED BY THIS DOCUMENT. EXCEPT AS PROVIDED IN INTEL’S TERMS AND CONDITIONS OF SALE FOR SUCH PRODUCTS, INTEL ASSUMES NO LIABILITY WHATSOEVER AND INTEL DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY, RELATING TO SALE AND/OR USE OF INTEL PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.

A "Mission Critical Application" is any application in which failure of the Intel Product could result, directly or indirectly, in personal injury or death. SHOULD YOU PURCHASE OR USE INTEL’S PRODUCTS FOR ANY SUCH MISSION CRITICAL APPLICATION, YOU SHALL INDEMNIFY AND HOLD INTEL AND ITS SUBSIDIARIES, SUBCONTRACTORS AND AFFILIATES, AND THE DIRECTORS, OFFICERS, AND EMPLOYEES OF EACH, HARMLESS AGAINST ALL CLAIMS COSTS, DAMAGES, AND EXPENSES AND REASONABLE ATTORNEYS’ FEES ARISING OUT OF, DIRECTLY OR INDIRECTLY, ANY CLAIM OF PRODUCT LIABILITY, PERSONAL INJURY, OR DEATH ARISING IN ANY WAY OUT OF SUCH MISSION CRITICAL APPLICATION, WHETHER OR NOT INTEL OR ITS SUBCONTRACTOR WAS NEGLIGENT IN THE DESIGN, MANUFACTURE, OR WARNING OF THE INTEL PRODUCT OR ANY OF ITS PARTS.

Intel may make changes to specifications and product descriptions at any time, without notice. Designers must not rely on the absence or characteristics of any features or instructions marked "reserved" or "undefined". Intel reserves these for future definition and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to them. The information here is subject to change without notice. Do not finalize a design with this information.

The products described in this document may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request.

Intel, Intel® Performance Maximizer, and the Intel logo are trademarks of Intel Corporation or its subsidiaries in the U.S. and other countries.

*Other names and brands may be claimed as the property of others.

Copyright © 2020 Intel Corporation. All rights reserved.
Contents

1 Introduction .................................................................................................................. 5
  1.1 Supported Operating Systems .............................................................................. 5
  1.2 Supported Hardware ............................................................................................. 5

2 Configuration Guide ..................................................................................................... 6
  2.1 Minimum Requirements ....................................................................................... 6
  2.2 BIOS Setup Guide .................................................................................................. 6

3 Changes in this Release ................................................................................................. 7
  3.1 What’s New ........................................................................................................... 7

4 Known Issues in this Release .......................................................................................... 8

Tables

Table 1. Revision History ................................................................................................. 4
Table 2. Client CPU Brand Strings ................................................................................ 5
Table 3. HEDT CPU Brand Strings ................................................................................ 5
Table 4. Known Issues .................................................................................................... 8
## Revision History

### Table 1. Revision History

<table>
<thead>
<tr>
<th>Package Definition</th>
<th>Intel® Performance Maximizer Software Package Revision</th>
<th>Release Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hotfix Release for Intel® Core™ X-series Processors (Cascade Lake) and 9th Generation Intel® Core™ i9/i7/i5 Processors (Coffee Lake) Update</td>
<td>1.0.4.1362</td>
<td>February 2020</td>
</tr>
<tr>
<td>Production Release for Intel® Core™ X-series Processors (Cascade Lake) and 9th Generation Intel® Core™ i9/i7/i5 Processors (Coffee Lake) Update</td>
<td>1.0.3.1217</td>
<td>December 2019</td>
</tr>
<tr>
<td>Production Release for 9th Generation Intel® Core™ i9/i7/i5 Processors (Coffee Lake)</td>
<td>1.0.1.602</td>
<td>May 2019</td>
</tr>
</tbody>
</table>
1 Introduction

This is the information for validated platforms. For a complete list of supported hardware and operating systems, please contact your Intel representative.

Note: Unless otherwise stated, the Intel® Performance Maximizer application displays the all-core active processor core turbo frequency.

1.1 Supported Operating Systems

This package supports the following Operating System (OS):

- Microsoft Windows 10 x64 Edition Version 1909 (November 2019 Update)
- Microsoft Windows 10 x64 Edition Version 1809 (October 2018 Update)

1.2 Supported Hardware

Table 2. Client CPU Brand Strings

<table>
<thead>
<tr>
<th>CPU Brand Strings</th>
<th>Chipset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) Core(TM) i5-9600K CPU @ 3.70GHz</td>
<td>Intel Z390</td>
</tr>
<tr>
<td>Intel(R) Core(TM) i5-9600KF CPU @ 3.70GHz</td>
<td>Intel Z390</td>
</tr>
<tr>
<td>Intel(R) Core(TM) i7-9700K CPU @ 3.60GHz</td>
<td>Intel Z390</td>
</tr>
<tr>
<td>Intel(R) Core(TM) i7-9700KF CPU @ 3.60GHz</td>
<td>Intel Z390</td>
</tr>
<tr>
<td>Intel(R) Core(TM) i9-9900K CPU @ 3.60GHz</td>
<td>Intel Z390</td>
</tr>
<tr>
<td>Intel(R) Core(TM) i9-9900KF CPU @ 3.60GHz</td>
<td>Intel Z390</td>
</tr>
<tr>
<td>Intel(R) Core(TM) i9-9900KS CPU @ 4.00GHz</td>
<td>Intel Z390</td>
</tr>
</tbody>
</table>

Table 3. HEDT CPU Brand Strings

<table>
<thead>
<tr>
<th>CPU Brand Strings</th>
<th>Chipset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) Core(TM) i9-10980XE CPU @ 3.00GHz</td>
<td>Intel X299</td>
</tr>
<tr>
<td>Intel(R) Core(TM) i9-10940X CPU @ 3.30GHz</td>
<td>Intel X299</td>
</tr>
<tr>
<td>Intel(R) Core(TM) i9-10920X CPU @ 3.50GHz</td>
<td>Intel X299</td>
</tr>
<tr>
<td>Intel(R) Core(TM) i9-10900X CPU @ 3.70GHz</td>
<td>Intel X299</td>
</tr>
</tbody>
</table>
2 Configuration Guide

2.1 Minimum Requirements

- 8 GB RAM
- 16 GB free space on non-removable GPT drive
- Supported OS (see section 1.1)
- Supported CPU (see section 1.2)
- Supported chipset (see section 1.2)

2.2 BIOS Setup Guide

- Processor Core Overclocking must be enabled
- All processor cores must be enabled
- Intel® Hyper-Threading Technology (Intel® HT Technology), if supported on the processor, must be enabled
- Intel® Turbo Boost Technology 2.0 mode must be enabled
- Boot mode must be UEFI
- Enhanced Intel SpeedStep® Technology must be enabled
- Intel® Watchdog Timer Driver (Intel® WDT) must be enabled
- Refer to any additional recommendations/limitations in the Known Issues (section 4 table 3)
3 Changes in this Release

3.1 What’s New

- Intel® Performance Maximizer installer is now contained in a self-extracting .zip file
- Adjusted testing algorithm to get better overclocked performance on some X299 motherboards

3.2 Bug Fixes

- Fixed issue causing spurious warning messages to be displayed during testing
- Fixed issue preventing “Quick Retest” feature from working on X299 systems
- Added workarounds to prevent some X299 motherboards from overriding this application’s overclocking programming
## Known Issues in this Release

#### Table 4. Known Issues

<table>
<thead>
<tr>
<th>Reference No:</th>
<th>Description</th>
<th>Impact</th>
<th>Workaround</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Some BIOS configurations may prevent Intel® Performance Maximizer from achieving the maximum processor core overclocking performance.</td>
<td>The system may not be overclockable using Intel® Performance Maximizer, the test run may be interrupted, or the maximum processor core overclocking performance may be reduced.</td>
<td>Recommend to reset BIOS to default values or update BIOS to latest version and re-run Intel® Performance Maximizer tests. Additionally, disable any BIOS overclocking optimizations if they are enabled by default.</td>
</tr>
<tr>
<td>2</td>
<td>Intel® Performance Maximizer data is sometimes not readable in Windows OS on systems with Intel® Optane™ Technology enabled.</td>
<td>Intel® Performance Maximizer may not be able to overclock the system.</td>
<td>Rerun the Intel® Performance Maximizer tests.</td>
</tr>
<tr>
<td>3</td>
<td>Other installed overclocking applications may interfere with Intel® Performance Maximizer.</td>
<td>The overclocked result may be overwritten.</td>
<td>Uninstall other overclocking applications before using Intel® Performance Maximizer.</td>
</tr>
<tr>
<td>4</td>
<td>Programmed frequency results can vary when I rerun Intel® Performance Maximizer.</td>
<td>The system may show a variation in performance or the maximum processor core overclocking performance may be change if the utility is re-run</td>
<td>This behavior can be attributed to the specific conditions present when the system is characterized. Thermal, power and sometimes code execution order may result in run to run variations potentially including reductions in frequency below a stock setting if a system power or thermal limit is reached.</td>
</tr>
<tr>
<td>5</td>
<td>Some system power plans may interfere with Intel® Performance Maximizer results</td>
<td>The maximum processor core overclocking performance may not be reached.</td>
<td>Change the system’s power plan to High Performance.</td>
</tr>
</tbody>
</table>