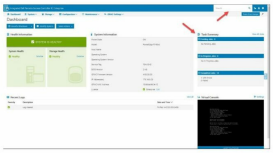
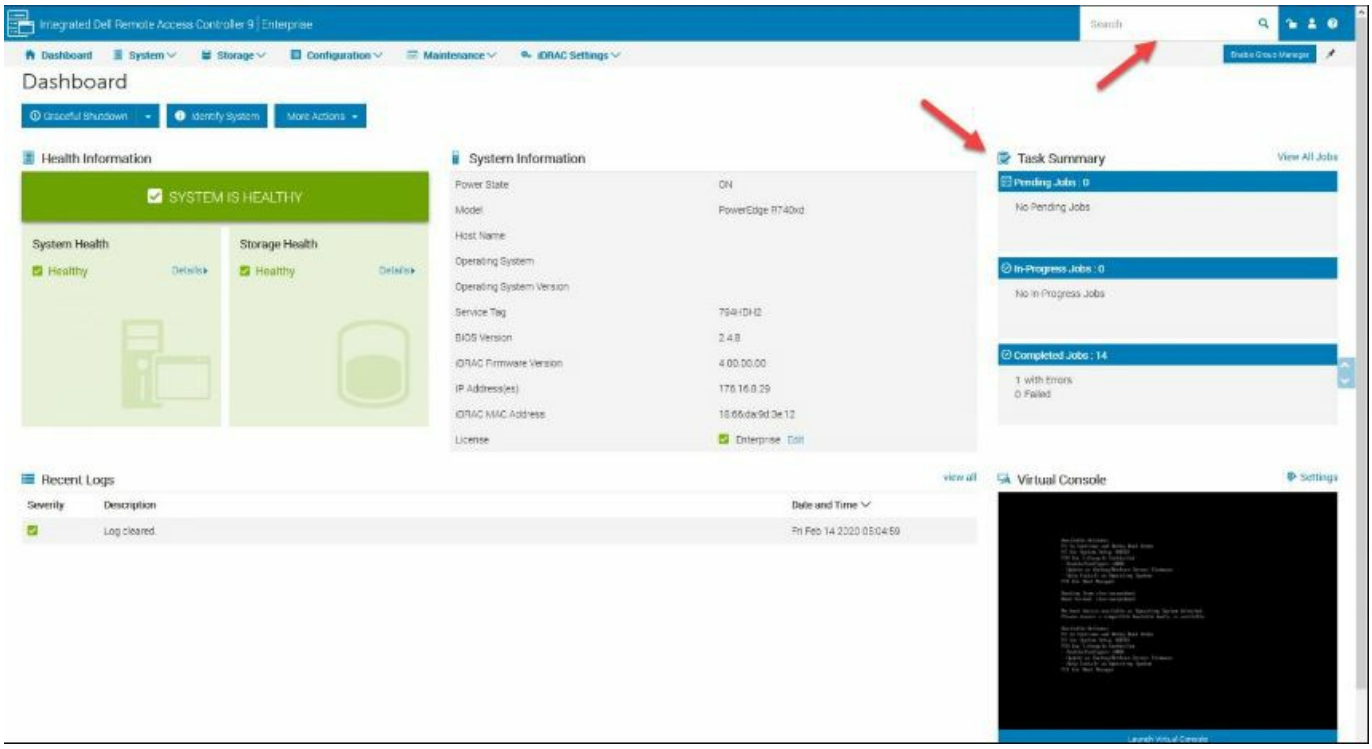


DELL iDRAC9 User Configurable TDP User Guide

Contents

DELL iDRAC9 User Configurable TDP



Product Information

Specifications:

- Product Name: Dell iDRAC9
- Processor Compatibility: AMD EPYC processors (2nd Generation and onwards)
- TDP Configuration: User Configurable
- Release Date: March 2023
- Document ID: IDPL-20281

Introduction:

Dell iDRAC9 and User Configurable TDP (cTDP) feature allows users to configure the Thermal Design Power (TDP) of AMD EPYC processors. By adjusting the TDP, users can balance between performance and power consumption.

Configuring cTDP:

Method 1: cTDP selection in BIOS

1. While the system boots, press F2 to access the System BIOS Settings menu.
2. Select the “Processor Settings” option in the BIOS setup menu.
3. In the Processor Settings page, locate the “Configurable TDP” option.
4. There are three options available: Nominal, Minimum, and Maximum.
5. Select the desired value and save the changes.
6. Exit the BIOS setup menu to reboot the server.
7. After the host boot up, the new selected value will be in effect.

Method 2: cTDP selection in iDRAC9 UI

1. In the iDRAC9 UI, click on “Configuration” and then “BIOS Settings”.
2. Under BIOS Settings, expand the “Processor Settings” option.
3. Locate the “Configurable TDP” option.
4. After selecting the value, it will appear under the “Pending Value” column.
5. To apply the new value, a host reboot is required.

Using cTDP with User Power Cap:

Changing the TDP using cTDP indirectly impacts the power cap ofv Dell servers. The recommended range of power cap can be found under “Configuration -> Power Management -> Power Cap”. When cTDP is changed, the power cap policy may also change. It is important to note that changing the TDP value will not automatically change the user-configured power cap. Users may need to recalculate the power limiting requirements.

Best Practices:

No specific best practices were mentioned in the user manual.

FAQ:

- Q: What is cTDP?
  A: cTDP stands for Configurable Thermal Design Power. It allows users to adjust the power consumption and performance levels of AMD EPYC processors.
- Q: Can I change the TDP value without rebooting the server?
  A: No, a host reboot is required for the new TDP value to take effect.
- Q: Does changing the TDP value affect the power cap setting?
  A: Yes, changing the TDP value indirectly impacts the power cap setting. However, the user-configured power cap will not be automatically adjusted and may require recalculation.

iDRAC9 and User Configurable TDP (cTDP) for AMD EPYC processors Abstract
From AMD 2nd Generation EPYC CPU onwards, users can configure the TDP. This document provides details on iDRAC9 support for configure CPU TDP. March 2023

Revisions

Date	Description
February 2023	Initial release

Acknowledgments

- Author: Ravi Shekhar Singh
- Support: Rama Bisa, Vaishnavi S, Doug Iler

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Introduction

CPU Thermal Design Power (TDP) is the maximum amount of heat generated by a CPU that it is designed to dissipate under any workload. TDP is an integral part of power and thermal design of servers which controls CPU power limiting and performance.
CPU also offers another feature which lets you configure the CPU's TDP. Providing an option to configure the TDP values allows you to have better control over energy requirements. This option is known as "configurable TDP" or "cTDP." Configuring the TDP helps by lowering the power and cooling requirement compared to standard TDP or getting enhanced performance against standard TDP.
Dell allows configuring the TDP of AMD EPYC processors using the integrated Dell Remote Access Controller 9 (iDRAC9) interface. Currently, all versions of Rome, Milan and Genoa AMD CPU supports cTDP feature.
It offers three different values to select against standard TDP.

- Nominal or Default cTDP – The processor's rated TDP
- Minimum cTDP – The processor's minimum supported TDP. This enables processor TDP based power limiting of server and requires less cooling and power.
- Maximum cTDP – The processor's maximum supported TDP. This enhances the processor's performance, but it consumes more power and thermal operation.

Configuring cTDP

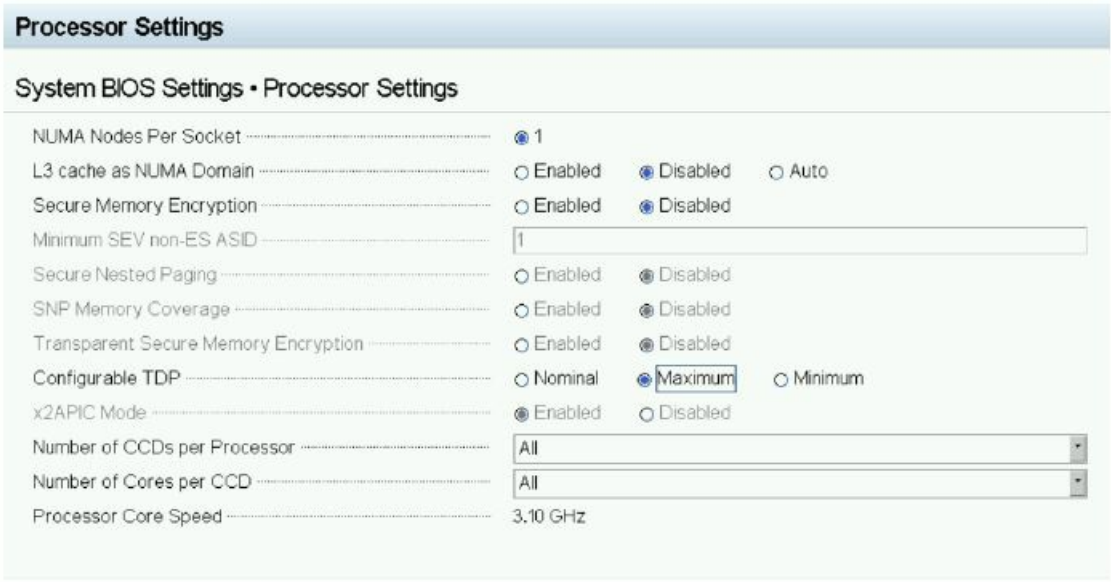
Dell PowerEdge servers equipped with iDRAC9 provide two methods for configuring TDP values: through the iDRAC9 user interface or through the BIOS settings. A modified TDP option will be in effect only after server reboot.

cTDP selection in BIOS

1. While system boots, Press F2 and wait for System BIOS Setting selection menu.

2. In BIOS setup menu, select Processor Settings option.

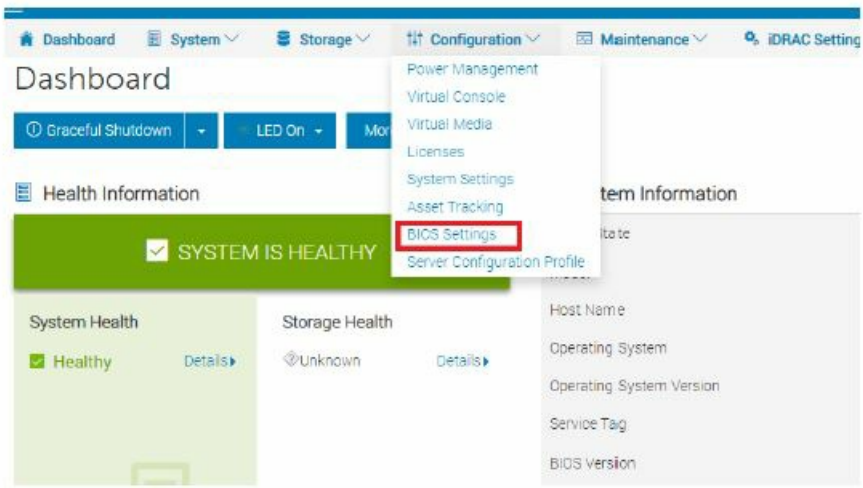
3. On this page, there is Configurable TDP.
4. It has three options: Nominal, Minimum, and Maximum



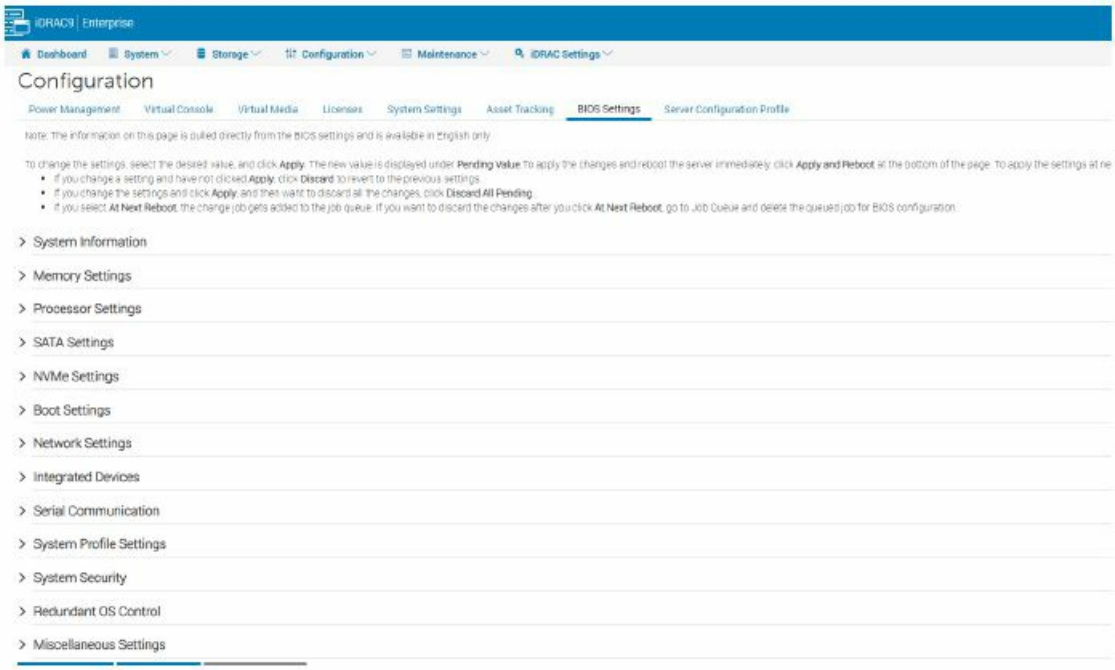
5. Once a value is selected, save, and exit to reboot.
6. After Host boot up, it has new selected value.

cTDP selection in iDRAC9 UI

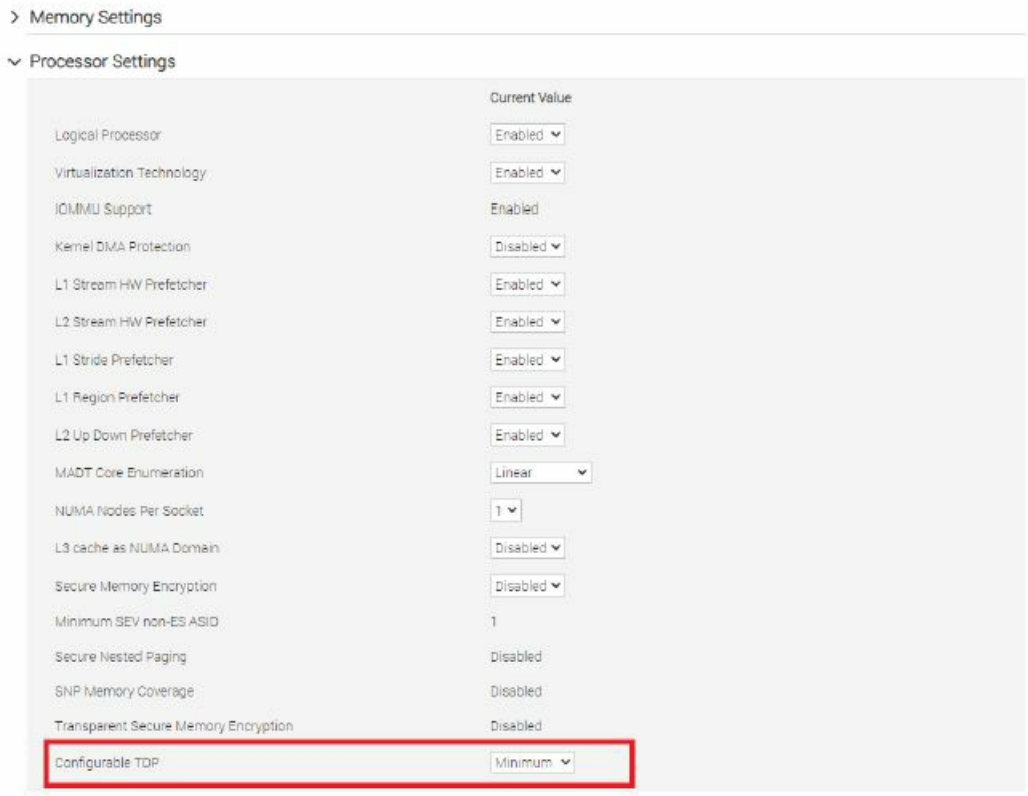
1. In iDRAC9 UI, click Configuration and then click BIOS Settings.



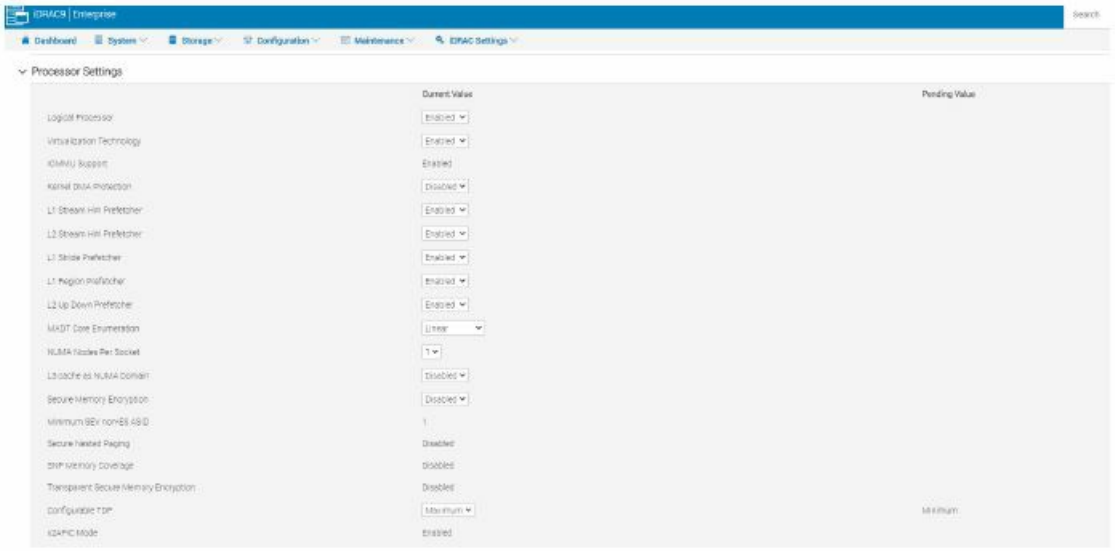
2. Under BIOS Settings, Expand Processor Settings option.



3. Click Processor Settings, Configurable TDP option appears with a drop-down menu with the following options–
    1. Nominal
    2. Maximum
    3. Minimum



4. After selecting the value, new value will appear under the Pending Value column.

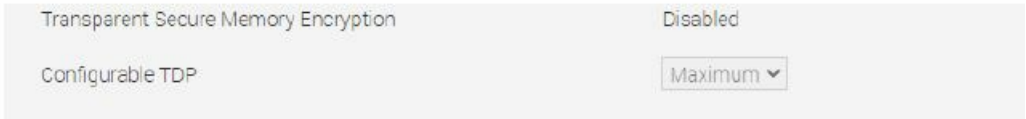


5. To apply the new value, a Host reboot is required.

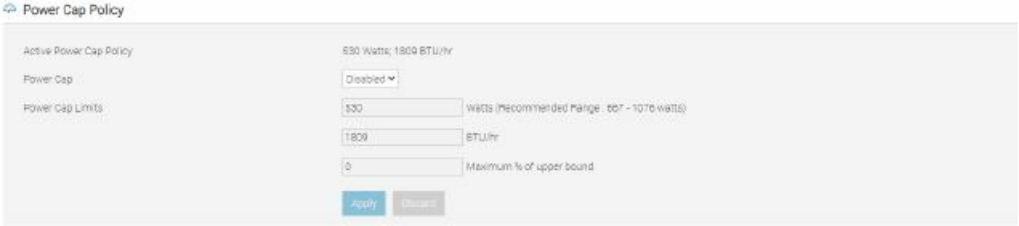
Using cTDP with User power cap

Dell server's power cap is indirectly impacted by changing the TDP with the help of cTDP.

1. Recommended range of power cap under "Configuration -> Power Management -> Power Cap Policy" changes when cTDP is changed.
   cTDP is set to Maximum



   cTDP is set to Minimum



2. Power cap setting is retained across power cycles. However, changing the TDP value will not change user-configured power cap, however it may require user to recalculate the power limiting requirements.

Best Practices

- It is important to note that adjusting the TDP settings can affect the performance of the server. It is recommended to test and validate the server's performance before and after TDP adjustments to confirm that it meets the requirements of your workloads.
- Also, TDP adjustments may require a reboot of the server, so it is recommended to plan accordingly.
- The ability to configure TDP through the cTDP option is only available on certain product variants (AMD 2nd Generation EPYC CPU onwards) and the number of available levels is restricted.
- It is important to consult the server's documentation, and the vendor's guidelines on how to adjust TDP settings safely.

Technical support and resources

- The iDRAC support home page provides access to product documents, technical white papers, how-to videos, and more.
  www.dell.com/support/idrac
- iDRAC User Guides and other manuals
  www.dell.com/idracmanuals
- Dell Technical Support
  Dell.com/support

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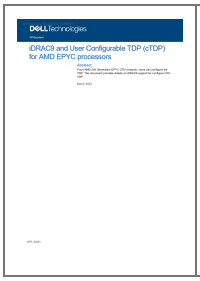
Documents / Resources

	**DELL iDRAC9 User Configurable TDP** [pdf] User Guide iDRAC9 User Configurable TDP, iDRAC9, User Configurable TDP, Configurable TDP, TDP

References

- **Support | Dell US**
- **Support | Dell US**
- **Support | Dell US**
- **Support for Integrated Dell Remote Access Controller 9 (iDRAC9) | Dell US**
- **Computers, Monitors & Technology Solutions | Dell USA**
- **User Manual**