Check and Configure CPU Governor on SAP HANA Host to Achieve Maximum Performance

Contents

Introduction

This document describes how to configure CPU governors for SAP HANA database for maximum performance and verify that correct CPU governor is in use.

Background Information

CPU governor set to performance mode will make CPU to run at the maximum frequency even when system is idle. This document is applicable to SAP HANA database running on SuSE Linux or Red Hat Enterprise Linux (RHEL).

Prerequisites

Requirements

Cisco recommends that you have knowlege of these topics:

- General Linux Administration

Components Used

This document is not restricted to specific software and hardware versions.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Problem

In order to check current CPU governor, run **cpupower frequency-info** command

```
server01a:~ # cpupower frequency-info
analyzing CPU 0:
 driver: acpi-cpufreq
 CPUs which run at the same hardware frequency: 0 1 2 3 4 5 6 7 8 9 40 41 42 43 44 45 46 47 48
49
 CPUs which need to have their frequency coordinated by software: 0
 maximum transition latency: 10.0 us.
 hardware limits: 1.06 GHz - 2.40 GHz
 available frequency steps: 2.40 GHz, 2.39 GHz, 2.26 GHz, 2.13 GHz, 2.00 GHz, 1.86 GHz, 1.73
GHz, 1.60 GHz, 1.46 GHz, 1.33 GHz, 1.20 GHz, 1.06 GHz
 available cpufreq governors: conservative, userspace, powersave, ondemand, performance
 current policy: frequency should be within 1.06 GHz and 2.40 GHz.
               The governor "ondemand" may decide which speed to use
                within this range.
  current CPU frequency is 1.06 GHz (asserted by call to hardware).
 boost state support:
   Supported: yes
   Active: yes
   25500 MHz max turbo 4 active cores
   25500 MHz max turbo 3 active cores
   25500 MHz max turbo 2 active cores
   25500 MHz max turbo 1 active cores
```

If governor is set to anything other than **performance**, follow this guide further.

Solution

In order to make CPU to run at the maximum frequency, it is required to set CPU governor to **performance** mode. To do it, run **cpupower frequency-set -g performance** command.

```
server01a:~ # /usr/bin/cpupower frequency-set -g performance
Setting cpu: 0
Setting cpu: 1
Setting cpu: 2
<output ommited for brevity>
```

To ensure that configuration persists after the host reboot, add this command to startup script.

Type this command if you use SuSE Linux.

```
server01a:~ # echo '/usr/bin/cpupower frequency-set -g performance' >> /etc/init.d/after.local
```

Type this command if you use Red Hat Enterprise Linux.

```
server01a:~ # echo '/usr/bin/cpupower frequency-set -g performance' >> /etc/rc.d/rc.local
```

Verification

Run **cpufreq-info frequency-info** command to ensure that **performance** governor is in use.

```
server01a:~ # cpupower frequency-info
analyzing CPU 0:
 driver: acpi-cpufreq
 CPUs which run at the same hardware frequency: 0 1 2 3 4 5 6 7 8 9 40 41 42 43 44 45 46 47 48
49
 CPUs which need to have their frequency coordinated by software: 0
```

```
 maximum transition latency: 10.0 us.
 hardware limits: 1.06 GHz - 2.40 GHz
 available frequency steps: 2.40 GHz, 2.39 GHz, 2.26 GHz, 2.13 GHz, 2.00 GHz, 1.86 GHz, 1.73
GHz, 1.60 GHz, 1.46 GHz, 1.33 GHz, 1.20 GHz, 1.06 GHz
 available cpufreq governors: conservative, userspace, powersave, ondemand, performance
 current policy: frequency should be within 1.06 GHz and 2.40 GHz.
                 The governor "performance" may decide which speed to use
                  within this range.
  current CPU frequency is 2.39 GHz (asserted by call to hardware).
boost state support:
  Supported: yes
  Active: yes
  25500 MHz max turbo 4 active cores
  25500 MHz max turbo 3 active cores
  25500 MHz max turbo 2 active cores
  25500 MHz max turbo 1 active cores
```

Related Information

- Chapter 3.2 Using CPUfreq Governors in [Red Hat Documentation](#)