

UCS C-Series M5 Server Components Relation to Fan Policy and Fan Noise

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Introduction

This document describes the Unified Computing Server (UCS) C-Series M5 server components relation to Fan Policy and Fan Noise. It is noticed that different configured servers and different server models result in more fan noise when compared.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

The information in this document is based on these software and hardware versions:

- C220M5
- C240M5

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, ensure that you understand the potential impact of any command.

Background Information

Pulse Width Modulation (PWM) is the measurement of the average fan speed in percentage (%) of the maximum Revolutions Per Minute (RPMs) for a specific fan model.

Specific components influence the FAN policy for Cisco Servers. If you add new internal hardware, it can change the FAN Policy due to requirements and might result in difference of average fan

speed and noise level.

UCS C-Series M5 Server Components Relation to Fan Policy and Fan Noise

How Each Component Influences FAN Policy

PID	Name of Card	Minimum Fan Profile	Category	Release	C220M5	C240M5
UCSC-GPU-7150x2	AMD FirePro S7150x2	High Power	3	HP	NA	Applicable
UCSC-PCIE-BD16GF	Emulex LPe31002 Dual-Port 16G FC HBA	Balanced	2	HP	Applicable	Applicable
UCSC-PCIE-BS32GF	Emulex LPe32000 Single-port 32Gb FC HBA	Balanced	2	HP	Applicable	Applicable
UCSC-PCIE-BD32GF	Emulex LPe32002 Dual-port 32Gb FC HBA	Balanced	2	HP	Applicable	Applicable
UCSC-PCIE-IRJ45	Intel Ethernet Server Adapter I350-T4	Balanced	2	HP	Applicable	Applicable
N2XX-AIPCI01	Intel X520-DA2 10 Gbps 2 port NIC	Low Power	1	HP	Applicable	Applicable
UCSC-PCIE-ID10GC	Intel(R) X550-T2 SagePond 2x10GB 10GBaseT	Low Power	1	HP	Applicable	Applicable
UCSC-PCIE-ID40GF	Intel(R) XL710-QDA2 SpiritFalls 2x40GB QSFP+	Low Power	1	HP	Applicable	Applicable
UCSC-PCIE-ID10GF	Intel(R) X710-DA2 EagleFountain 2x10GB SFP+	Low Power	1	HP	Applicable	Applicable
UCSC-PCIE-IQ10GF	Intel(R) X710-DA4 EagleFountain 4x10GB SFP+	Low Power	1	HP	Applicable	Applicable
UCSC-PCIE-IQ10GC	Cisco(R) Ethernet Converged NIC X710-T4	High Power	3	HP	Applicable	Applicable
UCSC-PCIE-ID25GF	Cisco(R) Ethernet Converged NIC XXV710-DA2	Low Power	1	HP	Applicable	Applicable
UCSC-MLOM-IRJ45	Intel(R) I350-mLOM 1 Gbps Network Controller	Low Power	1	HP	Applicable	Applicable
	Cisco 12G SAS Modular Raid Controller	Low Power	1	HP	Applicable	NA
UCSC-RAID-M5	Cisco 12G Modular RAID Controller with 2GB cache	Low Power	1	HP	Applicable	Applicable
UCSC-SAS-M5	Cisco 12G Modular SAS HBA(Max 16 drivers)	Low Power	1	HP	Applicable	Applicable
UCSC-9400-8E	Cisco 9400-8E 12G SAS HBA	Low Power	1	HP	Applicable	Applicable
UCSC-RAID-M5HD	Cisco 12G Modular RAID Controller with 4GB cache	Low Power	1	HP	NA	Applicable
UCSC-SAS-M5	Cisco 12G Modular SAS HBA (Max 26 drives)	Low Power	1	HP	NA	Applicable
UCSC-GPU-M10	Nvidia M10 P2405-070	High Power	3	HP	NA	Applicable
UCSC-GPU-M60	Nvidia TESLA M60	High Power	3	HP	NA	Applicable
UCSC-GPU-	Nvidia GP100 PCIe PH400-201	Max Power	4	HP	NA	Applicable

P100-12G	PASSIVE, 250W, FF 3.0, 16GB						e
UCSC-GPU-P100-16G	Nvidia GP100 PCIe PH400-202 PASSIVE, 250W, FF 3.0, 12GB	Max Power	4	HP	NA	Applicable	Applicable
UCSC-GPU-P4	Nvidia P4 (PG414-200), PASSIVE, 75W, 8GB PCIe Card	High Power	3	HP	Applicable	Applicable	Applicable
UCSC-GPU-P40	Nvidia P40 (PG610-200), PASSIVE, 250W, FF 3.0, 24GB PCIe Card	High Power	3	HP	NA	Applicable	Applicable
UCSC-GPU-V100	NVIDIA V100 SXM2 PG503-203, 300W, 16GB	High Power	3	HP	NA	Applicable	Applicable
UCSC-GPU-V100-32	NVIDIA V100 SXM2 PG503-203, 300W, 32GB	High Power	3	HP	NA	Applicable	Applicable
UCSC-PCIE-QD25GF	Qlogic QL41212H 25GbE Adapter	High Power	3	HP	Applicable	Applicable	Applicable
UCSC-PCIE-QD40GF	Qlogic QL45412H 40GbE Adapter	Low Power	1	HP	Applicable	Applicable	Applicable
UCSC-PCIE-QD16GF	Qlogic QLE2692 dual-port 16G FC	Balanced	2	HP	Applicable	Applicable	Applicable
UCSC-PCIE-QD32GF	Qlogic QLE2742 dual-port 32G FC HBA	Balanced	2	HP	Applicable	Applicable	Applicable
UCSC-PCIE-C40Q-03	UCS VIC 1385 40Gb 2 port CNA QSFP+	Low Power	1	HP	Applicable	Applicable	Applicable
UCSC-MLOM-C40Q-03	UCS VIC 1387 40Gb 2 port QSFP+	Low Power	1	HP	Applicable	Applicable	Applicable
UCSC-MLOM-C25Q-04	Cisco UCS VIC 1457 MLOM	Low Power	1	HP	Applicable	Applicable	Applicable
UCSC-PCIE-C25Q-04	Cisco UCS VIC 1455	Low Power	1	HP	Applicable	Applicable	Applicable
UCSC-F-H16003	Cisco HHL AIC 1.6TB HGST SN250 NVMe	Low Power	1	HP	Applicable	Applicable	Applicable
UCSC-NVME-H32003	Cisco HHL AIC 3.2TB HGST SN260 NVMe	Low Power	1	HP	Applicable	Applicable	Applicable
UCSC-NVME-H64003	Cisco HHL AIC 6.4TB HGST SN260 NVMe	Low Power	1	HP	Applicable	Applicable	Applicable
UCSC-NVME-H38401	Cisco HHL AIC 3.8TB HGST SN260 NVMe	Low Power	1	HP	Applicable	Applicable	Applicable
UCSC-NVME-H76801	Cisco HHL AIC 7.7TB HGST SN260 NVMe	Low Power	1	HP	Applicable	Applicable	Applicable

UCS C-Series Servers support 4 fan policy, **Low Power**, **Balanced**, **High Power** and **Maximum Power**. Navigate to **CIMC UI > Compute > Power Policies** in order to find the setting.

Minimum allowable fan speed is a function of server inlet air temperature and applied fan policy.

How to Relate Inlet Temperature with FAN Policy and PWM

Inlet Temperature [C]	Acoustic Mode Policy [PWM %]	Lower Power Policy	Balanced Policy	High Power Policy	Maximum Power Policy
5	21	20	30	30	50
> 21	23	20	30	40	60
> 23	25	20	30	50	70
> 25	27	20	40	60	80

>	27	29	20	35	50	70	90
>	29	31	25	40	60	80	100
>	31	33	25	45	70	90	100
>	33	35	30	50	80	100	100
>	35	37	35	55	80	100	100
>	37	39	35	60	80	100	100
>	39	41	40	65	80	100	100
>	41		40	70	80	100	100

Example: At 23°C inlet air temperature, with a **Maximum Power** policy applied, the minimum allowable fan speed is 60% Pulse Width Modulation (PWM). A **Low Power** policy minimum fan speed is 20% PWM at 23°C inlet air temperature .

Related Information

- [UCSM Configuration Guide on Page 54 Describes Best Practice for Fan Policy Configuration](#)
- [CSCvj78750](#)DOC BUG | Mention maximum fan speed in M5 servers spec sheet or installation guide
- [CSCvj21242](#)UCSC M5 server fans are having high fan speed than M4, no upper threshold set for alarm.
- [CSCvm27310](#)Policy taking Max power instead of High power policy for NVidia GPU P40.
- [CSCvd37009](#)C-series FAN POLICY OVERRIDE - Card(s) 'unknown card PCI-Ids: 0x8086-0x1521-0x1137-0x00b9'
- [CSCvi97762](#)C240-m5 FAN POLICY OVERRIDE - Card(s) "unknown card PCI-Ids: 0x8086-0x1521-0x1137-0x00b9"
- [CSCvf38379](#)AIR-CT5520-K9 or AIR-CT8540-K9 may fail to boot, showing Fatal Error when Cavium card is installed.
- [Technical Support & Documentation - Cisco Systems](#)