BIOS Parameters by Server Model

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C220 M7 and C240 M7 Servers

I/O Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 1: BIOS Parameters in I/O Tab

Name	Description
Reboot Host Immediately check box	If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
MLOM OptionROM drop-down list **set PcieSlotMLOMOptionROM**	This options allows you to control the Option ROM execution of the PCIe adapter connected to the MLOM slot. This can be one of the following: • **Disabled**—Does not execute Option ROM of the PCIe adapter connected to the MLOM slot. • **Enabled**—Executes Option ROM of the PCIe adapter connected to the MLOM slot.

BIOS Parameters by Server Model

Name	Description
MLOM Link Speed drop-down list **set PcieSlotMLOMLinkSpeed**	This option allows you to restrict the maximum speed of an adapter card installed in PCIe MLOM slot. This can be one of the following: • **Disabled**—The maximum speed is not restricted. • **Auto**—System selects the maximum speed allowed. • **GEN1**—2.5GT/s (gigatransfers per second) is the maximum speed allowed. • **GEN2**—5GT/s is the maximum speed allowed. • **GEN3**—8GT/s is the maximum speed allowed. • **GEN4**—16GT/s is the maximum speed allowed.
PCIe Slot*n* OptionROM drop-down list **set PcieSlot*n*OptionROM**	Whether the server can use the Option ROMs present in the PCIe card slot designated by *n*. This can be one of the following: • **Disabled**—Option ROM for slot *n* is not available. • **Enabled**—Option ROM for slot *n* is available.
PCIe Slot*n* Link Speed drop-down list **set PcieSlot*n*LinkSpeed**	System IO Controller *n* (SIOCn) add-on slot (designated by *n*) link speed. This can be one of the following: • **Disabled**—Slot is disabled, and the card is not enumerated. • **Auto**— The default link speed. Link speed is automatically assigned. • **GEN1**—Link speed can reach up to first generation. • **GEN2**—Link speed can reach up to second generation. • **GEN3**—Link speed can reach up to third generation.

Name	Description
MRAID OptionROM drop-down list **set PcieSlotMRAIDOptionROM**	This options allows you to control the Option ROM execution of the MRAID PCIe adapter connected. This can be one of the following: • **Disabled**—Does not execute Option ROM of the MRAID PCIe adapter. • **Enabled**—Executes Option ROM of the MRAID PCIe adapter.
MRAID Link Speed drop-down list **set PcieSlotMRAIDLinkSpeed**	This option allows you to restrict the maximum speed of an MRAID adapter card installed. This can be one of the following: • **Disabled**—The maximum speed is not restricted. • **Auto**—System selects the maximum speed allowed. • **GEN1**—2.5GT/s (gigatransfers per second) is the maximum speed allowed. • **GEN2**—5GT/s is the maximum speed allowed. • **GEN3**—8GT/s is the maximum speed allowed. • **GEN4**—16GT/s is the maximum speed allowed.
Front NVME-*n* OptionROM drop-down list **set PcieSlotFrontNvme*n*OptionROM**	This options allows you to control the Option ROM execution of the PCIe adapter connected to the SSD:NVMe slot *n*. This can be one of the following: • **Disabled**—Does not execute Option ROM of the PCIe adapter connected to the SSD:NVMe1 slot. • **Enabled**—Executes Option ROM of the PCIe adapter connected to the SSD:NVMe1 slot

Name	Description
Front NVME-*n* Link Speed drop-down list **set PcieSlotFrontNvme*n*LinkSpeed**	Link speed for NVMe front slot designated by slot *n*. This can be one of the following: • **Disabled**—Slot is disabled, and the card is not enumerated. • **Auto**—The default link speed. Link speed is automatically assigned. • **GEN1**—Link speed can reach up to first generation. • **GEN2**—Link speed can reach up to second generation. • **GEN3**—Link speed can reach up to third generation. • **GEN4**—Link speed can reach up to fourth generation.
PCIe Slot MSTOR RAID OptionROM drop-down list **set PcieSlotMSTORRAIDOptionROM**	Whether the server can use the Option ROMs present in the PCIe MSTOR RAID. This can be one of the following: • **Disabled**—Option ROM is not available. • **Enabled**—Option ROM is available.
Intel VTD Coherency Support drop-down list **set CoherencySupport**	Whether the processor supports Intel VT-d Coherency. This can be one of the following: • **Disabled**—The processor does not support coherency. • **Enabled**—The processor uses VT-d Coherency as required.
Intel VT for Directed IO drop-down list **set IntelVTD**	Whether the processor uses Intel Virtualization Technology (VT), which allows a platform to run multiple operating systems and applications in independent partitions. This can be one of the following: • **Disabled**—The processor does not permit virtualization. • **Enabled**—The processor allows multiple operating systems in independent partitions. **Note** If you change this option, you must power cycle the server before the setting takes effect.

Name	Description
VMD Enable drop-down list **set VMDenable**	Intel Volume Management Device (VMD) is for PCIe NVMe SSDs that provides hardware logic to manage and aggregate NVMe SSDs. This can be one the following: • **Enabled**— Enables benefits like robust surprise hot-plug, status LED management. • **Disabled**— Disables the feature. Default value: **Disabled**. Refer Intel® Virtual RAID on CPU User Guide to configure VMD. **Note** VROC is not supported with Cisco UCS C-Series M7 servers.
PCIe RAS Support drop-down list **set PCIeRASSupport**	Whether PCIe RAS Support is available on the PCIe slot. This can be one of the following: • **Disabled**—PCIe RAS is not available on the slot. • **Enabled**—PCIe RAS is available on port.
USB Port Rear drop-down list **set UsbPortRear**	Whether the rear panel USB devices are enabled or disabled. This can be one of the following • **Disabled**— Disables the rear panel USB ports. Devices connected to these ports are not detected by the BIOS and operating system. • **Enabled**— Enables the rear panel USB ports. Devices connected to these ports are detected by the BIOS and operating system.

Name	Description
VGA Priority drop-down list **set VgaPriority**	Allows you to set the priority for VGA graphics devices if multiple VGA devices are found in the system. This can be one of the following: • **OnBoard**—Priority is given to the onboard VGA device. BIOS post screen and OS boot are driven through the onboard VGA port. • **OffBoard**—Priority is given to the PCIE Graphics adapter. BIOS post screen and OS boot are driven through the external graphics adapter port. • **OnBoardDisabled**—Priority is given to the PCIe Graphics adapter, and the onboard VGA device is disabled. The vKVM does not function when the onboard VGA is disabled.
IPV6 PXE Support drop-down list **set IPV6PXE**	Enables or disables IPv6 support for PXE. This can be one of the following • **disabled**—IPv6 PXE support is not available. • **enabled**—IPv6 PXE support is always available.
PCIe PLL SSC drop-down list **set PciePllSsc**	Enable this feature to reduce EMI interference by down spreading clock 0.5%. Disable this feature to centralize the clock without spreading. This can be one of the following: • **auto**—EMI interference is auto adjusted. **Disabled**—EMI interference is auto adjusted. • **ZeroPointFive**—EMI interference is reduced by down spreading the clock 0.5%.
Network Stack drop-down list **set NetworkStack**	This option allows you to monitor IPv6 and IPv4. This can be one of the following • **disabled**—Network Stack support is not available. **Note** When disabled, the value set for **IPV4 PXE Support** does not impact the system. • **enabled**—Network Stack support is always available.

Name	Description
IPV4 PXE Support drop-down list **set IPV4PXE**	Enables or disables IPv4 support for PXE. This can be one of the following • **disabled**—IPv4 PXE support is not available. • **enabled**—IPv4 PXE support is always available.
External SSC enable drop-down list **set EnableClockSpreadSpec**	This option allows you to reduce the EMI of your motherboard by modulating the signals it generates so that the spikes are reduced to flatter curves. This can be one of the following: • **Disabled**—Clock Spread Spectrum support is not available. • **Enabled**—Clock Spread Spectrum support is always available.
IPV4 HTTP Support drop-down list **set IPV4HTTP**	Enables or disables IPv4 support for HTTP. This can be one of the following: • **disabled**—IPv4 HTTP support is not available. • **enabled**—IPv4 HTTP support is always available.
IIO eDPC Support drop-down list **set EdpEn**	eDPC allows a downstream link to be disabled after an uncorrectable error, making recovery possible in a controlled and robust manner. This can be one of the following: • Disabled—eDPC support is disabled. • On Fatal Error—eDPC is enabled only for fatal errors. • On Fatal and Non-Fatal Errors—eDPC is enabled for both fatal and non-fatal errors.
IPV6 HTTP Support drop-down list **set IPV6HTTP**	Enables or disables IPv6 support for HTTP. This can be one of the following: • **disabled**—IPv6 HTTP support is not available. • **enabled**—IPv6 HTTP support is always available.

Server Management Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 2: BIOS Parameters in Server Management Tab

Name	Description
Reboot Host Immediately check box	If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
OS Boot Watchdog Timer Policy drop-down list **set OSBootWatchdogTimerPolicy**	What action the system takes if the watchdog timer expires. This can be one of the following: • **Power Off**—The server is powered off if the watchdog timer expires during OS boot. • **Reset**—The server is reset if the watchdog timer expires during OS boot. **Note** This option is only applicable if you enable the OS Boot Watchdog Timer.
FRB 2 Timer drop-down list **set FRB-2**	Whether the FRB2 timer is used by Cisco IMC to recover the system if it hangs during POST. This can be one of the following: • **Disabled**—The FRB2 timer is not used. • **Enabled**—The FRB2 timer is started during POST and used to recover the system if necessary.
OS Watchdog Timer drop-down list **set OSBootWatchdogTimer**	Whether the BIOS programs the watchdog timer with a specified timeout value. This can be one of the following: • **Disabled**—The watchdog timer is not used to track how long the server takes to boot. • **Enabled**—The watchdog timer tracks how long the server takes to boot. If the server does not boot within the length of time specified in the **OS Boot Watchdog Timer Timeout** field, the Cisco IMC logs an error and takes the action specified in the **OS Boot Watchdog Policy** field.

Name	Description
OS Watchdog Timer Timeout drop-down list **set OSBootWatchdogTimerTimeOut**	If OS does not boot within the specified time, OS watchdog timer expires and system takes action according to timer policy. This can be one of the following: • **5 Minutes**—The OS watchdog timer expires 5 minutes after it begins to boot. • **10 Minutes**—The OS watchdog timer expires 10 minutes after it begins to boot. • **15 Minutes**—The OS watchdog timer expires 15 minutes after it begins to boot. • **20 Minutes**—The OS watchdog timer expires 20 minutes after it begins to boot. **Note** This option is only applicable if you enable the OS Boot Watchdog Timer.
Baud Rate drop-down list **set BaudRate**	What Baud rate is used for the serial port transmission speed. If you disable Console Redirection, this option is not available. This can be one of the following: • **9.6k**—A 9,600 Baud rate is used. • **19.2k**—A 19,200 Baud rate is used. • **38.4k**—A 38,400 Baud rate is used. • **57.6k**—A 57,600 Baud rate is used. • **115.2k**—A 115,200 Baud rate is used. This setting must match the setting on the remote terminal application.
Flow Control drop-down list **set FlowCtrl**	Whether a handshake protocol is used for flow control. Request to Send / Clear to Send (RTS/CTS) helps to reduce frame collisions that can be introduced by a hidden terminal problem. This can be one of the following: • **None**—No flow control is used. • **RTS/CTS**—RTS/CTS is used for flow control. **Note** This setting must match the setting on the remote terminal application.

BIOS Parameters by Server Model

Name	Description
Console Redirection drop-down list **set ConsoleRedir**	Allows a serial port to be used for console redirection during POST and BIOS booting. After the OS has booted, console redirection is irrelevant. This can be one of the following: • **COM 0**—Enables console redirection on serial port A during POST. • **COM 1**—Enables console redirection on serial port B during POST. • **Disabled**—No console redirection occurs during POST.
Terminal type drop-down list **set TerminalType**	What type of character formatting is used for console redirection. This can be one of the following: • **PC-ANSI**—The PC-ANSI terminal font is used. • **VT100**—A supported VT100 video terminal and its character set are used. • **VT100-PLUS**—A supported VT100-plus video terminal and its character set are used. • **VT-UTF8**—A video terminal with the UTF-8 character set is used.
PCIe Slots CDN Control drop-down list **set PcieSlotsCdnEnable**	Whether the Ethernet Network naming convention is according to Consistent Device Naming (CDN) or the traditional way of naming conventions. This can be one of the following: • **Disabled**— CDN support for VIC cards is disabled • **Enabled**— CDN support is enabled for VIC cards.
CDN Control drop-down list **set cdnEnable**	Whether the Ethernet Network naming convention is according to Consistent Device Naming (CDN) or the traditional way of naming conventions. This can be one of the following: • **Disabled**— CDN support for VIC cards is disabled • **Enabled**— CDN support is enabled for VIC cards.

Name	Description
OptionROM Launch Optimization	When this option is **Enabled**, the OptionROMs only for the controllers present in the boot order policy will be launched. **Note** Some controllers such as Onboard storage controllers, Emulex FC adapters, and GPU controllers though not listed in the boot order policy will have the OptionROM launched. When this option is **Disabled**, all the OptionROMs will be launched. Default value: **Enabled**
Adaptive Memory Training	When this option is **Enabled**: The Memory training will not happen in every boot but the BIOS will use the saved memory training result in every re-boot. Some exceptions when memory training happens in every boot are: BIOS update, CMOS reset, CPU or Memory configuration change, SPD or run-time uncorrectable error or the last boot has occurred more than 24 hours before. When this option is **Disabled**, the Memory training happens in every boot. Default value: **Enabled**. **Note** To disable the Fast Boot option, the end user must set the following tokens as mentioned below: Adaptive Memory Training to **Disabled** BIOS Techlog level to **Normal** OptionROM Launch Optimization to **Disabled**.

Name	Description
BIOS Techlog Level	This option denotes the type of messages in **BIOS tech log** file. The log file can be one of the following types: • **Minimum** - Critical messages will be displayed in the log file. • **Normal** - Warning and loading messages will be displayed in the log file. • **Maximum** - Normal and information related messages will be displayed in the log file. Default value: **Minimum**. **Note** This option is mainly for internal debugging purposes.

Security Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 3: BIOS Parameters in Security Management Tab

Name	Description
Reboot Host Immediately check box	If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
Trusted Platform Module State drop-down list **set TPMControl**	Trusted Platform Module (TPM) is a microchip designed to provide basic security-related functions primarily involving encryption keys. This option allows you to control the TPM Security Device support for the system. This can be one of the following: • **Disabled**—The server does not use the TPM. • **Enabled**—The server uses the TPM. **Note** Contact your operating system vendor to make sure the operating system supports this feature.

Name	Description
Security Device Support drop-down list **set TpmSupport**	You should enable TPM support to enable security device support. This can be one of the following: • **Disabled**—Feature is disabled. • **Enabled**—Feature is enabled if TPM is enabled.
SHA256 PCR Bank drop-down list **set SHA256PCRBank**	PCR bank available for OS when BIOS is performing measurements. • **Disabled**—SHA256 PCR Bank is not available for BIOS. • **Enabled**—SHA256 PCR Bank is available for BIOS.
SHA-1 PCR Bank drop-down list **set SHA1PCRBank**	PCR bank available for OS when BIOS is performing measurements. • **Disabled**—SHA-1 PCR Bank is not available for BIOS. • **Enabled**—SHA-1 PCR Bank is available for BIOS.
TPM Minimal Physical Presence drop-down list	This token allows you to apply recommended Microsoft default settings for TPM. • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
TPM Pending Operation drop-down list **set TPMPendingOperation**	Trusted Platform Module (TPM) Pending Operation option allows you to control the status of the pending operation. This can be one of the following: • None—No action. • TpmClear—Clears the pending operations.
Power on Password drop-down list **set PowerOnPassword**	This token requires that you set a BIOS password before using the F2 BIOS configuration. If enabled, password needs to be validated before you access BIOS functions such as IO configuration, BIOS set up, and booting to an operating system using BIOS. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.

Name	Description
Intel Trusted Execution Technology Support drop-down list **set TXTSupport**	Can be Enabled only when Trusted Platform Module (TPM) is Enabled. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
Multikey Total Memory Encryption (MK-TME) drop-down list **set EnableMktme**	MK-TME allows you to have multiple encryption domains with one with own key. Different memory pages can be encrypted with different keys. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
Total Memory Encryption (TME) drop-down list **set EnableTme**	Allows you to provide the capability to encrypt the entirety of the physical memory of a system. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
SGX Factory Reset drop-down list **set SgxFactoryReset**	Allows the system to perform SGX factory reset on subsequent boot. This deletes all registration data. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
SW Guard Extensions (SGX) drop-down list **set EnableSgx**	Allows you to enable Software Guard Extensions (SGX) feature. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
SGX QoS drop-down list **set SgxQoS**	Allows you to enable SGX QoS. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
SGX Pkg info In-Band Access drop-down list **set SgxPackageInfoInBandAccess**	Allows you to enable SGX Package Info In-Band Access. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.

Name	Description
SGX Write Enable drop-down list **set SgxLeWr**	Allows you to enable SGX Write feature. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
Select Owner EPOCH input type drop-down list **set EpochUpdate**	Allows you to change the seed for the security key used for the locked memory region that is created. This can be one of the following: • **SGX Owner EPOCH activated**—Does not change the current input type. • **Change to New Random Owner EPOCHs**—Changes EPOCH to a system generated random number. • **Manual User Defined Owner EPOCHs**—Changes the EPOCH seed to a hexadecimal value that you enter.
SProcessor Epoch *n* field **set SgxEpoch0**	Allows you to define the SGX EPOCH owner value for the EPOCH number designated by *n*.
SGX Auto MP Registration Agent drop-down list **set SgxAutoRegistrationAgent**	Allows you to enable the registration authority service to store the platform keys. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
SGX PUBKEY HASH*n* field **set SgxLePubKeyHash*n***	Allows you to set the Software Guard Extensions (SGX) value. This value can be set between: • SGX PUBKEY HASH0—Between 7-0 • SGX PUBKEY HASH1—Between 15-8 • SGX PUBKEY HASH2—Between 23-16 • SGX PUBKEY HASH3—Between 31-24
LIMIT CPU PA to 46 Bits drop-down list **set CpuPaLimit**	Enable this option for Intel® VT-d enabling boot to boot with 2019 OS. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.

Name	Description
DMA Control Opt-In Flag drop-down list	DMA Control Opt-In Flag - Enabling this token allows the operating system to enable Input Output Memory Management Unit (IOMMU) to prevent the DMA attacks from possible malicious devices. • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.

Memory Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 4: BIOS Parameters in Memory Tab

Name	Description
Reboot Host Immediately check box	If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.

Name	Description
Select Memory RAS configuration drop-down list **set SelectMemoryRAS**	Determines how the memory reliability, availability, and serviceability (RAS) is configured for the server. This can be one of the following: • **Maximum Performance**—System performance is optimized. • **ADDDC Sparing**—Adaptive virtual lockstep is an algorithm implemented in the hardware and firmware to support the ADDDC mode. When selected, the system performance is optimized till the algorithm is activated. The algorithm is activated in case of DRAM device failure. Once the algorithm is activated, the virtual lockstep regions are activated to map out the failed region during run-time dynamically, and the performance impact is restricted at a region level. • **Mirror Mode 1LM**—System reliability is optimized by using half the system memory as backup. • **Partial Mirror Mode 1LM**—Partial DIMM Mirroring creates a mirrored copy of a specific region of memory cells, rather than keeping the complete mirror copy. Partial Mirroring creates a mirrored region in memory map with the attributes of a partial mirror copy. Up to 50% of the total memory capacity can be mirrored, using up to 4 partial mirrors.
NUMA drop-down list **set NUMAOptimize**	Whether the BIOS supports Non-Uniform Memory Access (NUMA). This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
Partial Cache Line Sparing drop-down list **set PartialCacheLineSparing**	Partial cache line sparing (PCLS) is an error-prevention mechanism in memory controllers. PCLS statically encodes the locations of the faulty nibbles of bits into a sparing directory along with the corresponding data content for replacement during memory accesses. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.

Name	Description
Select PPR Type drop-down list **set SelectPprType**	Cisco IMC supports **Hard-PPR**, which permanently remaps accesses from a designated faulty row to a designated spare row. This can be one of the following: • **Hard PPR**—Support is enabled. **Note** Hard PPR can be used only when **Memory RAS Configuration** is set to **ADDDC Sparing**. For other RAS selections, this setting should be set to **Disabled**. • **Disabled**—Support is disabled.
BME DMA Mitigation drop-down list **set BmeDmaMitigation**	Allows you to disable the PCI BME bit to mitigate the threat from an unauthorized external DMA. This can be one of the following: • **Disabled**—PCI BME bit is disabled in the BIOS. • **Enabled**—PCI BME bit is enabled in the BIOS.
Above 4G Decoding drop-down list **set MemoryMappedIOAbove4GB**	Enables or disables MMIO above 4GB or not. This can be one of the following: • **Disabled**—The server does not map I/O of 64-bit PCI devices to 4GB or greater address space. • **Enabled**—The server maps I/O of 64-bit PCI devices to 4GB or greater address space. **Note** PCI devices that are 64-bit compliant but use a legacy option ROM may not function correctly with this setting enabled.
Partial Memory Mirror Mode drop-down list **set PartialMirrorModeConfig**	The partial memory size is either in percentage or in GB. This can be one of the following: • **Percentage**—The partial memory mirror is defined in percentage. • **Value in GB**—The partial memory mirror is defined in GB. • **Disabled**—Partial memory mirror is disabled.

Name	Description
DCPMM Firmware Downgrade drop-down list **set DCPMMFirmwareDowngrade**	Whether the BIOS supports downgrading the DCPMM firmware. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
Partial Mirror*n* Size in GB field **set PartialMirrorValue1**	Size of the first partial *nth* memory mirror in GB. n = 1, 2, or 3 Enter an integer between 0 and 65535. **Note** The combined memory size of all the partial mirror should not exceed 50% of the physical memory size.
Partial Mirror percentage field **set PartialMirrorPercent**	Percentage of memory to mirror above 4GB. Enter an integer between 0 and 50.
Memory Size Limit in GB field **set MemorySizeLimit**	Use this option to reduce the size of the physical memory limit in GB. Enter an integer between 0 and 65535.
NVM Performance Setting drop-down list **set NvmdimmPerformConfig**	Enables you to configure NVM baseline performance settings depending on the workload behavior. • **BW Optimized** • **Latency Optimized** • **Balanced Profile**
CR QoS drop-down list **set CRQoS**	Enables you to select the CR QoS tuning. This can be one of the following: • **Mode 1**— • **Mode 2**— • **Mode 0**—**CR QoS** feature is disabled.
Snoopy mode for AD drop-down list **set SnoopyModeForAD**	Enables new AD specific feature to avoid directory updates to DDRT memory from non-NUMA optimized workloads. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.

Name	Description
CR FastGo Config drop-down list **set CrfastgoConfig**	Enables you to select CR QoS configuration profiles. This can be one of the following: • **Enable Optimization** • **Disable Optimization** • **Auto**
Memory Refresh Rate drop-down list **set MemoryRefreshRate**	Enables you to increase or decrease memory refresh rate. Increasing the DRAM refresh rate reduces the maximum number of activates (hammers) that can occur before the next refresh. This can be one of the following: • **1X Refresh**—Refresh rate is at minimum. • **2X Refresh** —Refresh is 2X faster.
Snoopy mode for 2LM drop-down list **set SnoopyModeFor2LM**	Enables you to avoid directory updates to far-memory from non-NUMA optimized workloads. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
Memory Thermal Throttling Mode drop-down list **set MemoryThermalThrottling**	This function is used for adjusting memory temperature. If memory temperature is excessively high after the function is enabled, the memory access rate is reduced and Baseboard Management Controller (BMC) adjusts the fan to cool down the memory to avoid any DIMM damage. This can be one of the following: • **Disabled**—Support is disabled. • **CLTT with PECI**—Enables Closed Loop Thermal Throttling with Platform Environment Control Interface.
Panic and High Watermark drop-down list **set PanicHighWatermark**	When set to low, the memory controller does not postpone refreshes while **Memory Refresh Rate** is set to **1X Refresh**. This can be one of the following: • **Low**—Refresh rate is set to low. • **High** —Refresh rate is set to high.

Name	Description
UMA drop-down list **set UmaBasedClustering**	Allows you to set UMA settings. This can be one of the following: • Disable(All2All) • Hemisphere(2-clusters)
Enhanced Memory Test drop-down list **set AdvancedMemTest**	**Note** This feature is applicable only to Samsung, Hynix and Micron DIMMs. You can enable advance DIMM testing during BIOS POST using this feature. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
eADR Support drop-down list **set EadrSupport**	Extended asynchronous DRAM refresh (eADR) support helps avoid the waiting period of cache-flushing commands to move data stored in the CPU cache to persistent memory. This improves performance. This can be one of the following: • **Disabled** • **Enabled** • **Auto**
Volatile Memory Mode drop-down list **set VolMemoryMode**	Volatile Memory Mode setting is displayed when the BIOS supports Intel® Optane™ PMem. This can be one of the following: • **1LM**—This option can be used to set Intel® Optane™ PMem in App-Direct Mode. • **2LM**—This options allows 2LM to facilitate the DDR4 memory operating as cache.

Name	Description
Adaptive Refresh Management Level drop-down list **set AdaptiveRefreshMgmtLevel**	Refresh management settings are read-only. Adaptive RFM allows the controller flexibility to choose additional RFM threshold settings called RFM levels. The RFM levels permit alignment of the controller-issued RFM commands with the in-DRAM management of these commands. This can be one of the following: • **Default** • **Level A** • **Level B** • **Level C**
Memory Bandwidth Boost drop-down list **set MemoryBandwidthBoost**	Intel® Memory Bandwidth Boost is a feature of the Intel® Optane™ persistent memory that provides a dynamic range of power and bandwidth when thermal headroom is available. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
Error Check Scrub drop-down list **set ErrorCheckScrub**	You can enable memory check with or without result collection. This can be one of the following: • **Disabled** • **Enabled without Result Collection** • **Enabled with Result Collection**
Rank Margin Tool drop-down list **set EnableRMT**	Indicates whether the rank margin tool is used and whether a margin test (which tests the memory sequence and voltage signals) is performed. This can be one of the following: • **Disabled** • **Enabled**

Power/Performance Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 5: BIOS Parameters in Power/Performance Tab

Name	Description
Reboot Host Immediately check box	If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
Adjacent Cache Line Prefetcher drop-down list **set AdjacentCacheLinePrefetch**	Whether the processor fetches cache lines in even or odd pairs instead of fetching just the required line. This can be one of the following: • **Disabled**—The processor only fetches the required line. • **Enabled**—The processor fetches both the required line and its paired line.
Hardware Prefetcher drop-down list **set HardwarePrefetch**	Whether the processor allows the Intel hardware prefetcher to fetch streams of data and instruction from memory into the unified second-level cache when necessary. This can be one of the following: • **Disabled**—The hardware prefetcher is not used. • **Enabled**—The processor uses the hardware prefetcher when cache issues are detected.
DCU IP Prefetcher drop-down list **set DcuIpPrefetch**	Whether the processor uses the DCU IP Prefetch mechanism to analyze historical cache access patterns and preload the most relevant lines in the L1 cache. This can be one of the following: • **Disabled**—The processor does not preload any cache data. • **Enabled**—The DCU IP prefetcher preloads the L1 cache with the data it determines to be the most relevant.
DCU Streamer Prefetch drop-down list **set DcuStreamerPrefetch**	Whether the processor uses the DCU IP Prefetch mechanism to analyze historical cache access patterns and preload the most relevant lines in the L1 cache. This can be one of the following: • **Disabled**—The processor does not try to anticipate cache read requirements and only fetches explicitly requested lines. • **Enabled**—The DCU prefetcher analyzes the cache read pattern and prefetches the next line in the cache if it determines that it may be needed.

Name	Description
Virtual Numa drop-down list **set VirtualNuma**	Virtual NUMA (virtual non-uniform memory access) is a memory-access optimization method for VMware virtual machines (VMs), which helps prevent memory-bandwidth bottlenecks. This can be one of the following: • **Disabled**—Functionality is disabled. • **Enabled**—Functionality is enabled.
CPU Performance drop-down list **set CPUPerformance**	Sets the CPU performance profile for the options listed above. This can be one of the following: • **Enterprise**—All options are enabled. • **HPC**—All options are enabled. This setting is also known as high performance computing. • **Hight Throughput**—Only the DCU IP Prefetcher is enabled. The rest of the options are disabled. • **Custom**—All performance profile options can be configured from the BIOS setup on the server. In addition, the Hardware Prefetcher and Adjacent Cache-Line Prefetch options can be configured as well.
LLC Dead Line drop-down list **set LLCALLoc**	In CPU non-inclusive cache scheme, MLC evictions are filled into the LLC. When lines are evicted from the MLC, the core can flag them as **dead** (not likely to be read again). The LLC has the option to drop dead lines and not fill them in the LLC. If this feature is disabled, dead lines are always dropped and are never filled into the LLC. If this feature is enabled, the LLC can fill dead lines into the LLC if there is free space available. This can be one of the following: • **Disabled**—Feature is disabled. • **Enabled**—Feature is enabled. • **Auto**—CPU determines the LLC dead line allocation.

Name	Description
XPT Remote Prefetch drop-down list **set XPTRemotePrefetch**	This feature allows an LLC request to be duplicated and sent to an appropriate memory controller in a remote machine based on the recent LLC history to reduce latency. This can be one of the following: • **Disabled**—Feature is disabled. • **Enabled**—Feature is enabled. • **Auto**—CPU determines the functionality.
UPI Link Enablement drop-down list **set UPILinkEnablement**	Enables the minimum number of UPI links required by the processor. This can be one of the following: • **1** • **2** • **Auto**
Enhanced CPU Performance drop-down list **set EnhancedCPUPerformance**	**Note** Once you enable this functionality, you cannot enable **Enable Power Characterization** and **Power Capping**. Enhances CPU performance by adjusting server settings automatically. **Note** Enabling this functionality may increase power consumption. The server should meet the following requirements in order to use this functionality: • Server should not contain Barlow Pass DIMMs • DIMM module size present in the Cisco UCS C220 M6 server should be less than 64GB and in Cisco UCS C240 M6 server should be less than 256GB • No GPU cards are present in the server. This can be one of the following: • **Disabled**—The processor does not run with this functionality. • **Auto**—Allows Cisco IMC to adjust server settings to increase performance.

Name	Description
C1 Auto Demotion drop-down list **set C1AutoDemotion**	If enabled, CPU automatically demotes to C1 based on un-core auto-demote information. • **Disabled**—The processor does not run with this functionality. • **Enabled**—Functionality is enabled.
UPI Power Management drop-down list **set UPIPowerManagement**	UPI power management is used to conserve power on the server. This can be one of the following: • **Disabled**—The processor does not run with this functionality. • **Auto**—Functionality is enabled.
Optimized Power Mode drop-down list **set OptimizedPowerMode**	Optimized Power Mode is used to save power while having minimal impact on performance for certain workloads that run at 30-40% CPU utilization. This can be one of the following: • **Disabled**—The processor does not run with this functionality. • **Auto**—Functionality is enabled.
C1 Auto UnDemotion drop-down list **set C1AutoUnDemotion**	Select whether to enable processors to automatically undemote from C1. • **Disabled**—The processor does not run with this functionality. • **Enabled**—Functionality is enabled.

Processor Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 6: BIOS Parameters in Processor Tab

Name	Description
Reboot Host Immediately check box	If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.

Name	Description
Extended APIC drop-down list **set LocalX2Apic**	Allows you to enable or disable extended APIC support. This can be one of the following: • Enabled—Enables APIC support. • Disabled—Disables APIC support.
Intel Virtualization Technology drop-down list **set IntelVT**	Whether the processor uses Intel Virtualization Technology (VT), which allows a platform to run multiple operating systems and applications in independent partitions. This can be one of the following: • **Disabled**—The processor does not permit virtualization. • **Enabled**—The processor allows multiple operating systems in independent partitions.
Processor C6 Report drop-down list **set ProcessorC6Report**	Whether the BIOS sends the C6 report to the operating system. When the OS receives the report, it can transition the processor into the lower C6 power state to decrease energy usage while maintaining optimal processor performance. This can be one of the following: • **Disabled**—The BIOS does not send the C6 report. • **Enabled**—The BIOS sends the C6 report, allowing the OS to transition the processor to the C6 low power state. **Note** **CPUPowerManagement** must be set to **Custom** or the server ignores the setting for this parameter. **Note** This option is available only on some C-Series servers.

Name	Description
Processor C1E drop-down list **set ProcessorC1E**	Whether the CPU transitions to its minimum frequency when entering the C1 state. This can be one of the following: • **Disabled**—The CPU continues to run at its maximum frequency in C1 state. • **Enabled**—The CPU transitions to its minimum frequency. This option saves the maximum amount of power in C1 state. **Note** This option is available only on some C-Series servers.
EIST PSD Function drop-down list **set ExecuteDisable**	EIST reduces the latency inherent with changing the voltage-frequency pair (P-state), thus allowing those transitions to occur more frequently. This allows for more granular, demand-based switching and can optimize the power-to-performance balance, based on the demands of the applications. This can be one of the following: • **HW ALL**— The processor is coordinates the P-state among logical processors dependencies. The OS keeps the P-state request up to date on all logical processors. • **SW ALL**—The OS Power Manager coordinates the P-state among logical processors with dependencies and initiates the transition on all of those Logical Processors.
Turbo Mode drop-down list **set IntelTurboBoostTech**	Whether the processor uses Intel Turbo Boost Technology, which allows the processor to automatically increase its frequency if it is running below power, temperature, or voltage specifications. This can be one of the following: • **Disabled**—The processor does not increase its frequency automatically. • **Enabled**—The processor utilizes Turbo Boost Technology if required. **Note** **CPUPowerManagement** must be set to **Custom** or the server ignores the setting for this parameter.

Name	Description
Uncore Frequency Scaling drop-down list **set UFSDisable**	This feature allows you configure the scaling of uncore frequency of the processor. This can be one of the following: • **enabled**—Uncore frequency of the processor scales up or down based on the load. • **disabled**—Uncore frequency of the processor remains fixed. Refer Intel® Dear Customer Letter (DCL) to know the fixed higher and lower values for **Uncore Frequency Scaling**.
Boot Performance Mode drop-down list **set BootPerformanceMode**	Allows you to select the BIOS performance state that is set before the operating system handoff. This can be one of the following: • **Max Performance**—Processor P-state ratio is maximum • **Max Efficient**—Processor P-state ratio is minimum • **Set by Intel NM**—Value is set automatically.
Configurable TDP Level drop-down list **set ConfigTDPLevel**	**Configurable TDP Level** feature allows adjustments in processor thermal design power values. By modifying the processor behavior and the performance levels, power consumption of a processor can be configured and TDP can be adjusted as the same time. Hence, a processor operates at higher or lower performance levels, depending on the available cooling capacities and desired power consumption. This can be one of the following: • **Normal** • **Level 1** • **Level 2** Refer Intel® Dear Customer Letter (DCL) to know the values for **TDP level**.

Name	Description
SpeedStep (Pstates) drop-down list **set EnhancedIntelSpeedStep**	Whether the processor uses Enhanced Intel SpeedStep Technology, which allows the system to dynamically adjust processor voltage and core frequency. This technology can result in decreased average power consumption and decreased average heat production. This can be one of the following: • **Disabled**—The processor never dynamically adjusts its voltage or frequency. • **Enabled**—The processor utilizes Enhanced Intel SpeedStep Technology and enables all supported processor sleep states to further conserve power. We recommend that you contact your operating system vendor to make sure the operating system supports this feature. **Note** **CPUPowerManagement** must be set to **Custom** or the server ignores the setting for this parameter.
Processor CMCI drop-down list **set ProcessorCMCI**	Allows the CPU to trigger interrupts on corrected machine check events. The corrected machine check interrupt (CMCI) allows faster reaction than the traditional polling timer. This can be one of the following: • **Disabled**—Disables CMCI. • **Enabled**—Enables CMCI. This is the default value.
HyperThreading [ALL] drop-down list **set IntelHyperThread**	Whether the processor uses Intel Hyper-Threading Technology, which allows multithreaded software applications to execute threads in parallel within each processor. This can be one of the following: • **Disabled**—The processor does not permit hyperthreading. • **Enabled**—The processor allows for the parallel execution of multiple threads.
Workload Configuration drop-down list **set WorkLdConfig**	This feature allows for workload optimization. The options are Balanced and I/O Sensitive: • **Balanced** • **IO Sensitive**

Name	Description
Cores Enabled drop-down list **set CoreMultiProcessing**	Allows you to disable one or more of the physical cores on the server. This can be one of the following: • **All**—Enables all physical cores. This also enables Hyper Threading on the associated logical processor cores. • **1 through 48**—Specifies the number of physical processor cores that can run on the server. Each physical core has an associated logical core. **Note** Contact your operating system vendor to make sure the operating system supports this feature.
UPI Link Frequency Select drop-down list **set QpiLinkSpeed**	**Note** **UPI Link Frequency Select** token is not applicable for single socket configuration. This feature allows you to configure the Intel Ultra Path Interconnect (UPI) link speed between multiple sockets. This can be one of the following: • **Auto**—This option configures the optimal link speed automatically. • **9.6 GT/s**—This option configures the optimal link speed at 9.6GT/s. • **10.4 GT/s**—This option configures the optimal link speed at 10.4GT/s
UPI Prefetch drop-down list **set KTIPrefetch**	UPI prefetch is a mechanism to get the memory read started early on a DDR bus. This can be one of the following: • **disabled**—The processor does not preload any cache data. • **enabled**—The UPI prefetcher preloads the L1 cache with the data it determines to be the most relevant. • **Auto** —CPU determines the UPI Prefetch mode.

Name	Description
Sub NUMA Clustering drop-down list **set SNC**	Whether the CPU supports sub NUMA clustering, in which the tag directory and the memory channel are always in the same region. This can be one of the following: • **disabled**— Sub NUMA clustering does not occur. • **enabled**— Sub NUMA clustering occurs.
Power Performance Tuning drop-down list **set PwrPerfTuning**	Determines if the BIOS or Operating System can turn on the energy performance bias tuning. The options are BIOS and OS. • **BIOS**—Chooses BIOS for energy performance tuning. • **OS**—Chooses OS for energy performance tuning. • **PECI**—Chooses Platform Environmental Control Interface for energy performance tuning.
XPT Prefetch drop-down list **set XPTPrefetch**	Whether XPT prefetch is used to enable a read request sent to the last level cache to issue a copy of that request to the memory controller prefetcher. This can be one of the following: • **disabled**—The CPU does not use the XPT Prefetch option. • **enabled**—The CPU enables the XPT prefetch option.

Name	Description
Package C State **set PackageCstateLimit**	The amount of power available to the server components when they are idle. This can be one of the following: • **no-limit**—The server may enter any available C state. • **auto** —The CPU determines the physical elevation. • —The server provides all server components with full power at all times. This option maintains the highest level of performance and requires the greatest amount of power. • —When the CPU is idle, the system reduces the power consumption further than with the C1 option. This requires less power than C1 or C0, but it takes the server slightly longer to return to high performance mode. • —When the CPU is idle, the system reduces the power consumption further than with the C3 option. This option saves more power than C0, C1, or C3, but there may be performance issues until the server returns to full power. • —When the CPU is idle, the system reduces the power consumption further than with the C3 option. This option saves more power than C0, C1, or C3, but there may be performance issues until the server returns to full power.
Energy Performance Bias Config drop-down list **set CpuEngPerfBias**	Allows you to determine whether system performance or energy efficiency is more important on this server. This can be one of the following: • — The server provides all server components with full power at all times. This option maintains the highest level of performance and requires the greatest amount of power. • — The server provides all server components with enough power to keep a balance between performance and power. • — The server provides all server components with enough power to keep a balance between performance and power. • — The server provides all server components with maximum power to keep reduce power consumption.

Name	Description
Hardware P-States drop-down list **set CpuHWPM**	Enables processor Hardware P-State. This can be one of the following: • **disabled**—HWPM is disabled. • **hwpm-native-mode**—HWPM native mode is enabled. • **hwpm-oob-mode**—HWPM Out-Of-Box mode is enabled. • **Native Mode with no Legacy** (only GUI)
LLC Prefetch drop-down list **set LLCPrefetch**	Whether the processor uses the LLC Prefetch mechanism to fetch the date into the LLC. This can be one of the following: • **disabled**—The processor does not preload any cache data. • **enabled**—The LLC prefetcher preloads the L1 cache with the data it determines to be the most relevant.
Autonomous Core C-state drop-down list **set AutoCCState**	Enables CPU Autonomous C-State, which converts the HALT instructions to the MWAIT instructions. This can be one of the following: • **Disabled**—CPU Autonomous C-state is disabled. • **Enabled**—CPU Autonomous C-state is enabled.
Energy Efficient Turbo drop-down list **set EnergyEfficientTurbo**	When energy efficient turbo is enabled, the optimal turbo frequency of the CPU turns dynamic based on CPU utilization. The power/performance bias setting also influences energy efficient turbo. This can be one of the following: • **Disabled**—Energy Efficient Turbo is disabled. • **Enabled**—Energy Efficient Turbo is enabled.

Name	Description
Patrol Scrub drop-down list **set PatrolScrub**	Allows the system to actively search for, and correct, single bit memory errors even in unused portions of the memory on the server. This can be one of the following: • **Disabled**—The system checks for memory ECC errors only when the CPU reads or writes a memory address. • **Enabled**—The system periodically reads and writes memory searching for ECC errors. If any errors are found, the system attempts to fix them. This option may correct single bit errors before they become multi-bit errors, but it may adversely affect performance when the patrol scrub is running. • **Enable at End of POST**—The system checks for memory ECC errors after BIOS POST.
Processor EPP Profile drop-down list **set EPPProfile**	Allows you to determine whether system performance or energy efficiency is more important on this server. This can be one of the following: • Performance • Balanced Performance • Balanced Power • Power
Intel Dynamic Speed Select drop-down list **set IntelDynamicSpeedSelect**	**Intel Dynamic Speed Select** modes allow you to run the CPU with different speed and cores in auto mode. This can be one of the following: • **Disabled**—**Intel Dynamic Speed Select** is disabled. • **Enabled**—**Intel Dynamic Speed Select** is enabled.

Name	Description
Intel Speed Select drop-down list **set IntelSpeedSelect**	**Intel Speed Select** modes allows you to run the CPU with different speed and cores. This can be one of the following: • **Base**— It will allow users to access maximum core and Thermal Design Power (TDP) ratio. • **Config 3**— It will allow users to access core and TDP ratio lesser than **Base**. • **Config 4**— It will allow users to access core and TDP ratio lesser than **Config 3**. Default value: **Base**.

C220 M6 and C240 M6 Servers

I/O Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 7: BIOS Parameters in I/O Tab

Name	Description
Reboot Host Immediately check box	If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
MLOM OptionROM drop-down list **set PcieSlotMLOMOptionROM**	This options allows you to control the Option ROM execution of the PCIe adapter connected to the MLOM slot. This can be one of the following: • **Disabled**—Does not execute Option ROM of the PCIe adapter connected to the MLOM slot. • **Enabled**—Executes Option ROM of the PCIe adapter connected to the MLOM slot.

Name	Description
MLOM Link Speed drop-down list **set PcieSlotMLOMLinkSpeed**	This option allows you to restrict the maximum speed of an adapter card installed in PCIe MLOM slot. This can be one of the following: • **Disabled**—The maximum speed is not restricted. • **Auto**—System selects the maximum speed allowed. • **GEN1**—2.5GT/s (gigatransfers per second) is the maximum speed allowed. • **GEN2**—5GT/s is the maximum speed allowed. • **GEN3**—8GT/s is the maximum speed allowed. • **GEN4**—16GT/s is the maximum speed allowed.
PCIe Slot*n* OptionROM drop-down list **set PcieSlot*n*OptionROM**	Whether the server can use the Option ROMs present in the PCIe card slot designated by *n*. This can be one of the following: • **Disabled**—Option ROM for slot *n* is not available. • **Enabled**—Option ROM for slot *n* is available.
PCIe Slot*n* Link Speed drop-down list **set PcieSlot*n*LinkSpeed**	System IO Controller *n* (SIOCn) add-on slot (designated by *n*) link speed. This can be one of the following: • **Disabled**—Slot is disabled, and the card is not enumerated. • **Auto**— The default link speed. Link speed is automatically assigned. • **GEN1**—Link speed can reach up to first generation. • **GEN2**—Link speed can reach up to second generation. • **GEN3**—Link speed can reach up to third generation.

Name	Description
Front NVME-*n* OptionROM drop-down list **set PcieSlotFrontNvme*n*OptionROM**	This options allows you to control the Option ROM execution of the PCIe adapter connected to the SSD:NVMe slot *n*. This can be one of the following: • **Disabled**—Does not execute Option ROM of the PCIe adapter connected to the SSD:NVMe1 slot. • **Enabled**—Executes Option ROM of the PCIe adapter connected to the SSD:NVMe1 slot
Front NVME-*n* Link Speed drop-down list **set PcieSlotFrontNvme*n*LinkSpeed**	Link speed for NVMe front slot designated by slot *n*. This can be one of the following: • **Disabled**—Slot is disabled, and the card is not enumerated. • **Auto**—The default link speed. Link speed is automatically assigned. • **GEN1**—Link speed can reach up to first generation. • **GEN2**—Link speed can reach up to second generation. • **GEN3**—Link speed can reach up to third generation. • **GEN4**—Link speed can reach up to fourth generation.
Rear NVME-*n* OptionROM drop-down list **set PcieSlotRearNvme*n*OptionROM**	This options allows you to control the Option ROM execution of the PCIe adapter connected to the rear SSD:NVMe slot *n*. This can be one of the following: • **Disabled**—Does not execute Option ROM of the PCIe adapter connected to the SSD:NVMe1 slot. • **Enabled**—Executes Option ROM of the PCIe adapter connected to the SSD:NVMe1 slot

Name	Description
Rear NVME-*n* Link Speed drop-down list **set PcieSlotRearNvme*n*LinkSpeed**	Link speed for NVMe rear slot designated by slot *n*. This can be one of the following: • **Disabled**—Slot is disabled, and the card is not enumerated. • **Auto**—The default link speed. Link speed is automatically assigned. • **GEN1**—Link speed can reach up to first generation. • **GEN2**—Link speed can reach up to second generation. • **GEN3**—Link speed can reach up to third generation. • **GEN4**—Link speed can reach up to fourth generation.
Legacy USB Support drop-down list **set UsbLegacySupport**	Whether the system supports legacy USB devices. This can be one of the following: • **Disabled**—USB devices are only available to EFI applications. • **Enabled**—Legacy USB support is always available. • **Auto**—Feature is is automatically assigned.
PCIe Slot MSTOR RAID OptionROM drop-down list **set PcieSlotMSTORRAIDOptionROM**	Whether the server can use the Option ROMs present in the PCIe MSTOR RAID. This can be one of the following: • **Disabled**—Option ROM is not available. • **Enabled**—Option ROM is available.
Intel VTD Coherency Support drop-down list **set CoherencySupport**	Whether the processor supports Intel VT-d Coherency. This can be one of the following: • **Disabled**—The processor does not support coherency. • **Enabled**—The processor uses VT-d Coherency as required.

Name	Description
Intel VT for Directed IO drop-down list **set IntelVTD**	Whether the processor uses Intel Virtualization Technology (VT), which allows a platform to run multiple operating systems and applications in independent partitions. This can be one of the following: • **Disabled**—The processor does not permit virtualization. • **Enabled**—The processor allows multiple operating systems in independent partitions. **Note** If you change this option, you must power cycle the server before the setting takes effect.
VMD Enable drop-down list **set VMDenable**	Intel Volume Management Device (VMD) is for PCIe NVMe SSDs that provides hardware logic to manage and aggregate NVMe SSDs. This can be one the following: • **Enabled**— Enables benefits like robust surprise hot-plug, status LED management. • **Disabled**— Disables benefits like robust surprise hot-plug, status LED management. Default value: **Disabled**. Refer Intel® Virtual RAID on CPU User Guide and Intel® Virtual RAID on CPU (Intel® VROC) to configure VMD.
	Details of VMD supported and unsupported ports for Cisco UCS C480 M5 servers: Cisco UCS C480 NVMe SKU (32 drive NVME System) • DMI connected ports 7, 8, and 23 do not support VMD. • All other twenty nine ports support VMD. Cisco UCS C480 Non-NVMe SKU • DMI connected ports 1, 2, and 18 do not support VMD. • Ports 7, 8, 9, 10, 15, 16, 17, 23, 24 support VMD.

Name	Description
Intel VTD ATS support drop-down list **set ATS**	Whether the processor supports Intel VT-d Address Translation Services (ATS). This can be one of the following: • **Disabled**—The processor does not support ATS. • **Enabled**—The processor uses VT-d ATS as required.
LOM Port *n* OptionROM drop-down list **set LomOpromControlPort0**	Whether Option ROM is available on the LOM port slot *n*. This can be one of the following: • **Disabled**—Option ROM is not available on LOM port 1. • **Enabled**—Option ROM is available on LOM port 1.
PCIe RAS Support drop-down list **set PCIeRASSupport**	Whether PCIe RAS Support is available on the PCIe slot. This can be one of the following: • **Disabled**—PCIe RAS is not available on the slot. • **Enabled**—PCIe RAS is available on port.
All Onboard LOM Ports drop-down list **set AllLomPortControl**	Whether Option ROM is available on all LOM ports. This can be one of the following: • **Disabled**—Option ROM is disabled on all the ports. • **Enabled**—Option ROM is enabled on all the ports.
USB Port Rear drop-down list **set UsbPortRear**	Whether the rear panel USB devices are enabled or disabled. This can be one of the following • **Disabled**— Disables the rear panel USB ports. Devices connected to these ports are not detected by the BIOS and operating system. • **Enabled**— Enables the rear panel USB ports. Devices connected to these ports are detected by the BIOS and operating system.

Name	Description
VGA Priority drop-down list **set VgaPriority**	Allows you to set the priority for VGA graphics devices if multiple VGA devices are found in the system. This can be one of the following: • **OnBoard**—Priority is given to the onboard VGA device. BIOS post screen and OS boot are driven through the onboard VGA port. • **OffBoard**—Priority is given to the PCIE Graphics adapter. BIOS post screen and OS boot are driven through the external graphics adapter port. • **OnBoardDisabled**—Priority is given to the PCIe Graphics adapter, and the onboard VGA device is disabled. The vKVM does not function when the onboard VGA is disabled.
IPV6 PXE Support drop-down list **set IPV6PXE**	Enables or disables IPv6 support for PXE. This can be one of the following • **disabled**—IPv6 PXE support is not available. • **enabled**—IPv6 PXE support is always available.
USB Port Internal drop-down list **set UsbPortInt**	Whether the internal USB devices are enabled or disabled. This can be one of the following • **Disabled**— Disables the internal USB ports. Devices connected to these ports are not detected by the BIOS and operating system. • **Enabled**— Enables the internal USB ports. Devices connected to these ports are detected by the BIOS and operating system.
PCIe PLL SSC drop-down list **set PciePllSsc**	Enable this feature to reduce EMI interference by down spreading clock 0.5%. Disable this feature to centralize the clock without spreading. This can be one of the following: • **auto**—EMI interference is auto adjusted. **Disabled**—EMI interference is auto adjusted. • **ZeroPointFive**—EMI interference is reduced by down spreading the clock 0.5%.

Name	Description
Network Stack drop-down list **set NetworkStack**	This option allows you to monitor IPv6 and IPv4. This can be one of the following • **disabled**—Network Stack support is not available. **Note** When disabled, the value set for **IPV4 PXE Support** does not impact the system. • **enabled**—Network Stack support is always available.
IPV4 PXE Support drop-down list **set IPV4PXE**	Enables or disables IPv4 support for PXE. This can be one of the following • **disabled**—IPv4 PXE support is not available. • **enabled**—IPv4 PXE support is always available.
External SSC enable drop-down list **set EnableClockSpreadSpec**	This option allows you to reduce the EMI of your motherboard by modulating the signals it generates so that the spikes are reduced to flatter curves. This can be one of the following: • **Disabled**—Clock Spread Spectrum support is not available. • **Enabled**—Clock Spread Spectrum support is always available.
IPV4 HTTP Support drop-down list **set IPV4HTTP**	Enables or disables IPv4 support for HTTP. This can be one of the following: • **disabled**—IPv4 HTTP support is not available. • **enabled**—IPv4 HTTP support is always available.
IIO eDPC Support drop-down list **set EdpEn**	eDPC allows a downstream link to be disabled after an uncorrectable error, making recovery possible in a controlled and robust manner. This can be one of the following: • Disabled—eDPC support is disabled. • On Fatal Error—eDPC is enabled only for fatal errors. • On Fatal and Non-Fatal Errors—eDPC is enabled for both fatal and non-fatal errors.

Name	Description
IPV6 HTTP Support drop-down list **set IPV6HTTP**	Enables or disables IPv6 support for HTTP. This can be one of the following: • **disabled**—IPv6 HTTP support is not available. • **enabled**—IPv6 HTTP support is always available.

Server Management Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 8: BIOS Parameters in Server Management Tab

Name	Description
Reboot Host Immediately check box	If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
OS Boot Watchdog Timer Policy drop-down list **set OSBootWatchdogTimerPolicy**	What action the system takes if the watchdog timer expires. This can be one of the following: • **Power Off**—The server is powered off if the watchdog timer expires during OS boot. • **Reset**—The server is reset if the watchdog timer expires during OS boot. **Note** This option is only applicable if you enable the OS Boot Watchdog Timer.
FRB 2 Timer drop-down list **set FRB-2**	Whether the FRB2 timer is used by Cisco IMC to recover the system if it hangs during POST. This can be one of the following: • **Disabled**—The FRB2 timer is not used. • **Enabled**—The FRB2 timer is started during POST and used to recover the system if necessary.

Name	Description
OS Watchdog Timer drop-down list **set OSBootWatchdogTimer**	Whether the BIOS programs the watchdog timer with a specified timeout value. This can be one of the following: • **Disabled**—The watchdog timer is not used to track how long the server takes to boot. • **Enabled**—The watchdog timer tracks how long the server takes to boot. If the server does not boot within the length of time specified in the **OS Boot Watchdog Timer Timeout** field, the Cisco IMC logs an error and takes the action specified in the **OS Boot Watchdog Policy** field.
OS Watchdog Timer Timeout drop-down list **set OSBootWatchdogTimerTimeOut**	If OS does not boot within the specified time, OS watchdog timer expires and system takes action according to timer policy. This can be one of the following: • **5 Minutes**—The OS watchdog timer expires 5 minutes after it begins to boot. • **10 Minutes**—The OS watchdog timer expires 10 minutes after it begins to boot. • **15 Minutes**—The OS watchdog timer expires 15 minutes after it begins to boot. • **20 Minutes**—The OS watchdog timer expires 20 minutes after it begins to boot. **Note** This option is only applicable if you enable the OS Boot Watchdog Timer.
Baud Rate drop-down list **set BaudRate**	What Baud rate is used for the serial port transmission speed. If you disable Console Redirection, this option is not available. This can be one of the following: • **9.6k**—A 9,600 Baud rate is used. • **19.2k**—A 19,200 Baud rate is used. • **38.4k**—A 38,400 Baud rate is used. • **57.6k**—A 57,600 Baud rate is used. • **115.2k**—A 115,200 Baud rate is used. This setting must match the setting on the remote terminal application.

Name	Description
Flow Control drop-down list **set FlowCtrl**	Whether a handshake protocol is used for flow control. Request to Send / Clear to Send (RTS/CTS) helps to reduce frame collisions that can be introduced by a hidden terminal problem. This can be one of the following: • **None**—No flow control is used. • **RTS/CTS**—RTS/CTS is used for flow control. **Note** This setting must match the setting on the remote terminal application.
Console Redirection drop-down list **set ConsoleRedir**	Allows a serial port to be used for console redirection during POST and BIOS booting. After the OS has booted, console redirection is irrelevant. This can be one of the following: • **COM 0**—Enables console redirection on serial port A during POST. • **COM 1**—Enables console redirection on serial port B during POST. • **Disabled**—No console redirection occurs during POST.
Terminal type drop-down list **set TerminalType**	What type of character formatting is used for console redirection. This can be one of the following: • **PC-ANSI**—The PC-ANSI terminal font is used. • **VT100**—A supported VT100 video terminal and its character set are used. • **VT100-PLUS**—A supported VT100-plus video terminal and its character set are used. • **VT-UTF8**—A video terminal with the UTF-8 character set is used.

Name	Description
PCIe Slots CDN Control drop-down list **set PcieSlotsCdnEnable**	**Note** This option is available only on Cisco UCS C240 M6 servers equipped with Mellanox cards in slots 2 or 5. Whether the Ethernet Network naming convention is according to Consistent Device Naming (CDN) or the traditional way of naming conventions. This can be one of the following: • **Disabled**— CDN support for VIC cards is disabled • **Enabled**— CDN support is enabled for VIC cards.
CDN Control drop-down list **set cdnEnable**	Whether the Ethernet Network naming convention is according to Consistent Device Naming (CDN) or the traditional way of naming conventions. This can be one of the following: • **Disabled**— CDN support for VIC cards is disabled • **Enabled**— CDN support is enabled for VIC cards.
OptionROM Launch Optimization	When this option is **Enabled**, the OptionROMs only for the controllers present in the boot order policy will be launched. **Note** Some controllers such as Onboard storage controllers, Emulex FC adapters, and GPU controllers though not listed in the boot order policy will have the OptionROM launched. When this option is **Disabled**, all the OptionROMs will be launched. Default value: **Enabled**

Name	Description
Adaptive Memory Training	When this option is **Enabled**: The Memory training will not happen in every boot but the BIOS will use the saved memory training result in every re-boot. Some exceptions when memory training happens in every boot are: BIOS update, CMOS reset, CPU or Memory configuration change, SPD or run-time uncorrectable error or the last boot has occurred more than 24 hours before. When this option is **Disabled**, the Memory training happens in every boot. Default value: **Enabled**. **Note** To disable the Fast Boot option, the end user must set the following tokens as mentioned below: Adaptive Memory Training to **Disabled** BIOS Techlog level to **Normal** OptionROM Launch Optimization to **Disabled**.
BIOS Techlog Level	This option denotes the type of messages in **BIOS tech log** file. The log file can be one of the following types: • **Minimum** - Critical messages will be displayed in the log file. • **Normal** - Warning and loading messages will be displayed in the log file. • **Maximum** - Normal and information related messages will be displayed in the log file. Default value: **Minimum**. **Note** This option is mainly for internal debugging purposes.

Security Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 9: BIOS Parameters in Security Management Tab

Name	Description
Reboot Host Immediately check box	If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
SHA-1 PCR Bank drop-down list **set SHA1PCRBank**	PCR bank available for OS when BIOS is performing measurements. • **Disabled**—SHA-1 PCR Bank is not available for BIOS. • **Enabled**—SHA-1 PCR Bank is available for BIOS.
Trusted Platform Module State drop-down list **set TPMControl**	Trusted Platform Module (TPM) is a microchip designed to provide basic security-related functions primarily involving encryption keys. This option allows you to control the TPM Security Device support for the system. This can be one of the following: • **Disabled**—The server does not use the TPM. • **Enabled**—The server uses the TPM. **Note** Contact your operating system vendor to make sure the operating system supports this feature.
DMA Control Opt-In Flag drop-down list	DMA Control Opt-In Flag - Enabling this token allows the operating system to enable Input Output Memory Management Unit (IOMMU) to prevent the DMA attacks from possible malicious devices. • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.

Name	Description
TPM Pending Operation drop-down list **set TPMPendingOperation**	Trusted Platform Module (TPM) Pending Operation option allows you to control the status of the pending operation. This can be one of the following: • None—No action. • TpmClear—Clears the pending operations.
SHA256 PCR Bank drop-down list **set SHA256PCRBank**	PCR bank available for OS when BIOS is performing measurements. • **Disabled**—SHA256 PCR Bank is not available for BIOS. • **Enabled**—SHA256 PCR Bank is available for BIOS.
Power on Password drop-down list **set PowerOnPassword**	This token requires that you set a BIOS password before using the F2 BIOS configuration. If enabled, password needs to be validated before you access BIOS functions such as IO configuration, BIOS set up, and booting to an operating system using BIOS. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
TPM Minimal Physical Presence drop-down list	This token allows you to apply recommended Microsoft default settings for TPM. • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
Intel Trusted Execution Technology Support drop-down list **set TXTSupport**	Can be Enabled only when Trusted Platform Module (TPM) is Enabled. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
Multikey Total Memory Encryption (MK-TME) drop-down list **set EnableMktme**	MK-TME allows you to have multiple encryption domains with one with own key. Different memory pages can be encrypted with different keys. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.

Name	Description
Total Memory Encryption (TME) drop-down list **set EnableTme**	Allows you to provide the capability to encrypt the entirety of the physical memory of a system. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
SGX Factory Reset drop-down list **set SgxFactoryReset**	Allows the system to perform SGX factory reset on subsequent boot. This deletes all registration data. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
SW Guard Extensions (SGX) drop-down list **set EnableSgx**	Allows you to enable Software Guard Extensions (SGX) feature. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
SGX QoS drop-down list **set SgxQoS**	Allows you to enable SGX QoS. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
SGX Pkg info In-Band Access drop-down list **set SgxPackageInfoInBandAccess**	Allows you to enable SGX Package Info In-Band Access. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
SGX Write Enable drop-down list **set SgxLeWr**	Allows you to enable SGX Write feature. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.

Name	Description
Select Owner EPOCH input type drop-down list **set EpochUpdate**	Allows you to change the seed for the security key used for the locked memory region that is created. This can be one of the following: • **SGX Owner EPOCH activated**—Does not change the current input type. • **Change to New Random Owner EPOCHs**—Changes EPOCH to a system generated random number. • **Manual User Defined Owner EPOCHs**—Changes the EPOCH seed to a hexadecimal value that you enter.
SProcessor Epoch *n* field **set SgxEpoch0**	Allows you to define the SGX EPOCH owner value for the EPOCH number designated by *n*.
SGX Auto MP Registration Agent drop-down list **set SgxAutoRegistrationAgent**	Allows you to enable the registration authority service to store the platform keys. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
SGX PUBKEY HASH*n* field **set SgxLePubKeyHash*n***	Allows you to set the Software Guard Extensions (SGX) value. This value can be set between: • SGX PUBKEY HASH0—Between 7-0 • SGX PUBKEY HASH1—Between 15-8 • SGX PUBKEY HASH2—Between 23-16 • SGX PUBKEY HASH3—Between 31-24
LIMIT CPU PA to 46 Bits drop-down list **set CpuPaLimit**	Enable this option for Intel® VT-d enabling boot to boot with 2019 OS. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.

Memory Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 10: BIOS Parameters in Memory Tab

Name	Description
Reboot Host Immediately check box	If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
Select Memory RAS configuration drop-down list **set SelectMemoryRAS**	Determines how the memory reliability, availability, and serviceability (RAS) is configured for the server. This can be one of the following: • **Maximum Performance**—System performance is optimized. • **ADDDC Sparing**—Adaptive virtual lockstep is an algorithm implemented in the hardware and firmware to support the ADDDC mode. When selected, the system performance is optimized till the algorithm is activated. The algorithm is activated in case of DRAM device failure. Once the algorithm is activated, the virtual lockstep regions are activated to map out the failed region during run-time dynamically, and the performance impact is restricted at a region level. • **Mirror Mode 1LM**—System reliability is optimized by using half the system memory as backup. • **Partial Mirror Mode 1LM**—Partial DIMM Mirroring creates a mirrored copy of a specific region of memory cells, rather than keeping the complete mirror copy. Partial Mirroring creates a mirrored region in memory map with the attributes of a partial mirror copy. Up to 50% of the total memory capacity can be mirrored, using up to 4 partial mirrors.
NUMA drop-down list **set NUMAOptimize**	Whether the BIOS supports Non-Uniform Memory Access (NUMA). This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.

Name	Description
Partial Cache Line Sparing drop-down list **set PartialCacheLineSparing**	Partial cache line sparing (PCLS) is an error-prevention mechanism in memory controllers. PCLS statically encodes the locations of the faulty nibbles of bits into a sparing directory along with the corresponding data content for replacement during memory accesses. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
Select PPR Type drop-down list **set SelectPprType**	Cisco IMC supports **Hard-PPR**, which permanently remaps accesses from a designated faulty row to a designated spare row. This can be one of the following: • **Hard PPR**—Support is enabled. **Note** Hard PPR can be used only when **Memory RAS Configuration** is set to **ADDDC Sparing**. For other RAS selections, this setting should be set to **Disabled**. • **Disabled**—Support is disabled.
BME DMA Mitigation drop-down list **set BmeDmaMitigation**	Allows you to disable the PCI BME bit to mitigate the threat from an unauthorized external DMA. This can be one of the following: • **Disabled**—PCI BME bit is disabled in the BIOS. • **Enabled**—PCI BME bit is enabled in the BIOS.
Above 4G Decoding drop-down list **set MemoryMappedIOAbove4GB**	Enables or disables MMIO above 4GB or not. This can be one of the following: • **Disabled**—The server does not map I/O of 64-bit PCI devices to 4GB or greater address space. • **Enabled**—The server maps I/O of 64-bit PCI devices to 4GB or greater address space. **Note** PCI devices that are 64-bit compliant but use a legacy option ROM may not function correctly with this setting enabled.

Name	Description
Partial Memory Mirror Mode drop-down list **set PartialMirrorModeConfig**	The partial memory size is either in percentage or in GB. This can be one of the following: • **Percentage**—The partial memory mirror is defined in percentage. • **Value in GB**—The partial memory mirror is defined in GB. • **Disabled**—Partial memory mirror is disabled.
DCPMM Firmware Downgrade drop-down list **set DCPMMFirmwareDowngrade**	Whether the BIOS supports downgrading the DCPMM firmware. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
Partial Mirror*n* Size in GB field **set PartialMirrorValue1**	Size of the first partial *nth* memory mirror in GB. n = 1, 2, or 3 Enter an integer between 0 and 65535. **Note** The combined memory size of all the partial mirror should not exceed 50% of the physical memory size.
Partial Mirror percentage field **set PartialMirrorPercent**	Percentage of memory to mirror above 4GB. Enter an integer between 0 and 50.
Memory Size Limit in GB field **set MemorySizeLimit**	Use this option to reduce the size of the physical memory limit in GB. Enter an integer between 0 and 65535.
NVM Performance Setting drop-down list **set NvmdimmPerformConfig**	Enables you to configure NVM baseline performance settings depending on the workload behavior. • **BW Optimized** • **Latency Optimized** • **Balanced Profile**
CR QoS drop-down list **set CRQoS**	Enables you to select the CR QoS tuning. This can be one of the following: • **Mode 1**— • **Mode 2**— • **Mode 0**—**CR QoS** feature is disabled.

Name	Description
Snoopy mode for AD drop-down list **set SnoopyModeForAD**	Enables new AD specific feature to avoid directory updates to DDRT memory from non-NUMA optimized workloads. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
CR FastGo Config drop-down list **set CrfastgoConfig**	Enables you to select CR QoS configuration profiles. This can be one of the following: • **Enable Optimization** • **Disable Optimization** • **Auto**
Memory Refresh Rate drop-down list **set MemoryRefreshRate**	Enables you to increase or decrease memory refresh rate. Increasing the DRAM refresh rate reduces the maximum number of activates (hammers) that can occur before the next refresh. This can be one of the following: • **1X Refresh**—Refresh rate is at minimum. • **2X Refresh** —Refresh is 2X faster.
Snoopy mode for 2LM drop-down list **set SnoopyModeFor2LM**	Enables you to avoid directory updates to far-memory from non-NUMA optimized workloads. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
Memory Thermal Throttling Mode drop-down list **set MemoryThermalThrottling**	This function is used for adjusting memory temperature. If memory temperature is excessively high after the function is enabled, the memory access rate is reduced and Baseboard Management Controller (BMC) adjusts the fan to cool down the memory to avoid any DIMM damage. This can be one of the following: • **Disabled**—Support is disabled. • **CLTT with PECI**—Enables Closed Loop Thermal Throttling with Platform Environment Control Interface.

Name	Description
Panic and High Watermark drop-down list **set PanicHighWatermark**	When set to low, the memory controller does not postpone refreshes while **Memory Refresh Rate** is set to **1X Refresh**. This can be one of the following: • **Low**—Refresh rate is set to low. • **High** —Refresh rate is set to high.
UMA drop-down list **set UmaBasedClustering**	Allows you to set UMA settings. This can be one of the following: • Disable(All2All) • Hemisphere(2-clusters)
Advanced Memory Test drop-down list **set AdvancedMemTest**	**Note** This feature is applicable only to Samsung, Hynix and Micron DIMMs. You can enable advance DIMM testing during BIOS POST using this feature. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
eADR Support drop-down list **set EadrSupport**	Extended asynchronous DRAM refresh (eADR) support helps avoid the waiting period of cache-flushing commands to move data stored in the CPU cache to persistent memory. This improves performance. This can be one of the following: • **Disabled** • **Enabled** • **Auto**
Volatile Memory Mode drop-down list **set VolMemoryMode**	Volatile Memory Mode setting is displayed when the BIOS supports Intel® Optane™ PMem. This can be one of the following: • **1LM**—This option can be used to set Intel® Optane™ PMem in App-Direct Mode. • **2LM**—This options allows 2LM to facilitate the DDR4 memory operating as cache.

Name	Description
Memory Bandwidth Boost drop-down list **set MemoryBandwidthBoost**	Intel® Memory Bandwidth Boost is a feature of the Intel® Optane™ persistent memory that provides a dynamic range of power and bandwidth when thermal headroom is available. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.

Power/Performance Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 11: BIOS Parameters in Power/Performance Tab

Name	Description
Reboot Host Immediately check box	If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
Adjacent Cache Line Prefetcher drop-down list **set AdjacentCacheLinePrefetch**	Whether the processor fetches cache lines in even or odd pairs instead of fetching just the required line. This can be one of the following: • **Disabled**—The processor only fetches the required line. • **Enabled**—The processor fetches both the required line and its paired line.
Hardware Prefetcher drop-down list **set HardwarePrefetch**	Whether the processor allows the Intel hardware prefetcher to fetch streams of data and instruction from memory into the unified second-level cache when necessary. This can be one of the following: • **Disabled**—The hardware prefetcher is not used. • **Enabled**—The processor uses the hardware prefetcher when cache issues are detected.

Name	Description
DCU IP Prefetcher drop-down list **set DcuIpPrefetch**	Whether the processor uses the DCU IP Prefetch mechanism to analyze historical cache access patterns and preload the most relevant lines in the L1 cache. This can be one of the following: • **Disabled**—The processor does not preload any cache data. • **Enabled**—The DCU IP prefetcher preloads the L1 cache with the data it determines to be the most relevant.
DCU Streamer Prefetch drop-down list **set DcuStreamerPrefetch**	Whether the processor uses the DCU IP Prefetch mechanism to analyze historical cache access patterns and preload the most relevant lines in the L1 cache. This can be one of the following: • **Disabled**—The processor does not try to anticipate cache read requirements and only fetches explicitly requested lines. • **Enabled**—The DCU prefetcher analyzes the cache read pattern and prefetches the next line in the cache if it determines that it may be needed.
Virtual Numa drop-down list **set VirtualNuma**	Virtual NUMA (virtual non-uniform memory access) is a memory-access optimization method for VMware virtual machines (VMs), which helps prevent memory-bandwidth bottlenecks. This can be one of the following: • **Disabled**—Functionality is disabled. • **Enabled**—Functionality is enabled.

Name	Description
CPU Performance drop-down list **set CPUPerformance**	Sets the CPU performance profile for the options listed above. This can be one of the following: • **Enterprise**—All options are enabled. • **HPC**—All options are enabled. This setting is also known as high performance computing. • **Hight Throughput**—Only the DCU IP Prefetcher is enabled. The rest of the options are disabled. • **Custom**—All performance profile options can be configured from the BIOS setup on the server. In addition, the Hardware Prefetcher and Adjacent Cache-Line Prefetch options can be configured as well.
LLC Dead Line drop-down list **set LLCALLoc**	In CPU non-inclusive cache scheme, MLC evictions are filled into the LLC. When lines are evicted from the MLC, the core can flag them as **dead** (not likely to be read again). The LLC has the option to drop dead lines and not fill them in the LLC. If this feature is disabled, dead lines are always dropped and are never filled into the LLC. If this feature is enabled, the LLC can fill dead lines into the LLC if there is free space available. This can be one of the following: • **Disabled**—Feature is disabled. • **Enabled**—Feature is enabled. • **Auto**—CPU determines the LLC dead line allocation.
XPT Remote Prefetch drop-down list **set XPTRemotePrefetch**	This feature allows an LLC request to be duplicated and sent to an appropriate memory controller in a remote machine based on the recent LLC history to reduce latency. This can be one of the following: • **Disabled**—Feature is disabled. • **Enabled**—Feature is enabled. • **Auto**—CPU determines the functionality.

Name	Description
UPI Link Enablement drop-down list **set UPILinkEnablement**	Enables the minimum number of UPI links required by the processor. This can be one of the following: • **1** • **2** • **Auto**
Enhanced CPU Performance drop-down list **set EnhancedCPUPerformance**	**Note** Once you enable this functionality, you cannot enable **Enable Power Characterization** and **Power Capping**. Enhances CPU performance by adjusting server settings automatically. **Note** Enabling this functionality may increase power consumption. The server should meet the following requirements in order to use this functionality: • Server should not contain Barlow Pass DIMMs • DIMM module size present in the Cisco UCS C220 M6 server should be less than 64GB and in Cisco UCS C240 M6 server should be less than 256GB • No GPU cards are present in the server. This can be one of the following: • **Disabled**—The processor does not run with this functionality. • **Auto**—Allows Cisco IMC to adjust server settings to increase performance.
C1 Auto Demotion drop-down list **set C1AutoDemotion**	If enabled, CPU automatically demotes to C1 based on un-core auto-demote information. • **Disabled**—The processor does not run with this functionality. • **Enabled**—Functionality is enabled.

Name	Description
UPI Power Management drop-down list **set UPIPowerManagement**	UPI power management is used to conserve power on the server. This can be one of the following: • **Disabled**—The processor does not run with this functionality. • **Auto**—Functionality is enabled.
C1 Auto UnDemotion drop-down list **set C1AutoUnDemotion**	Select whether to enable processors to automatically undemote from C1. • **Disabled**—The processor does not run with this functionality. • **Enabled**—Functionality is enabled.

Processor Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 12: BIOS Parameters in Processor Tab

Name	Description
Reboot Host Immediately check box	If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
Extended APIC drop-down list **set LocalX2Apic**	Allows you to enable or disable extended APIC support. This can be one of the following: • Enabled—Enables APIC support. • Disabled—Disables APIC support.
Intel Virtualization Technology drop-down list **set IntelVT**	Whether the processor uses Intel Virtualization Technology (VT), which allows a platform to run multiple operating systems and applications in independent partitions. This can be one of the following: • **Disabled**—The processor does not permit virtualization. • **Enabled**—The processor allows multiple operating systems in independent partitions.

Name	Description
Processor C6 Report drop-down list **set ProcessorC6Report**	Whether the BIOS sends the C6 report to the operating system. When the OS receives the report, it can transition the processor into the lower C6 power state to decrease energy usage while maintaining optimal processor performance. This can be one of the following: • **Disabled**—The BIOS does not send the C6 report. • **Enabled**—The BIOS sends the C6 report, allowing the OS to transition the processor to the C6 low power state. **Note** **CPUPowerManagement** must be set to **Custom** or the server ignores the setting for this parameter. **Note** This option is available only on some C-Series servers.
Processor C1E drop-down list **set ProcessorC1E**	Whether the CPU transitions to its minimum frequency when entering the C1 state. This can be one of the following: • **Disabled**—The CPU continues to run at its maximum frequency in C1 state. • **Enabled**—The CPU transitions to its minimum frequency. This option saves the maximum amount of power in C1 state. **Note** This option is available only on some C-Series servers.

Name	Description
EIST PSD Function drop-down list **set ExecuteDisable**	EIST reduces the latency inherent with changing the voltage-frequency pair (P-state), thus allowing those transitions to occur more frequently. This allows for more granular, demand-based switching and can optimize the power-to-performance balance, based on the demands of the applications. This can be one of the following: • **HW ALL**— The processor is coordinates the P-state among logical processors dependencies. The OS keeps the P-state request up to date on all logical processors. • **SW ALL**—The OS Power Manager coordinates the P-state among logical processors with dependencies and initiates the transition on all of those Logical Processors.
Turbo Mode drop-down list **set IntelTurboBoostTech**	Whether the processor uses Intel Turbo Boost Technology, which allows the processor to automatically increase its frequency if it is running below power, temperature, or voltage specifications. This can be one of the following: • **Disabled**—The processor does not increase its frequency automatically. • **Enabled**—The processor utilizes Turbo Boost Technology if required. **Note** **CPUPowerManagement** must be set to **Custom** or the server ignores the setting for this parameter.
Uncore Frequency Scaling drop-down list **set UFSDisable**	This feature allows you configure the scaling of uncore frequency of the processor. This can be one of the following: • **enabled**—Uncore frequency of the processor scales up or down based on the load. • **disabled**—Uncore frequency of the processor remains fixed. Refer Intel® Dear Customer Letter (DCL) to know the fixed higher and lower values for **Uncore Frequency Scaling**.

Name	Description
Boot Performance Mode drop-down list **set BootPerformanceMode**	Allows you to select the BIOS performance state that is set before the operating system handoff. This can be one of the following: • **Max Performance**—Processor P-state ratio is maximum • **Max Efficient**—Processor P-state ratio is minimum • **Set by Intel NM**—Value is set automatically.
Configurable TDP Level drop-down list **set ConfigTDPLevel**	**Configurable TDP Level** feature allows adjustments in processor thermal design power values. By modifying the processor behavior and the performance levels, power consumption of a processor can be configured and TDP can be adjusted as the same time. Hence, a processor operates at higher or lower performance levels, depending on the available cooling capacities and desired power consumption. This can be one of the following: • **Normal** • **Level 1** • **Level 2** Refer Intel® Dear Customer Letter (DCL) to know the values for **TDP level**.
SpeedStep (Pstates) drop-down list **set EnhancedIntelSpeedStep**	Whether the processor uses Enhanced Intel SpeedStep Technology, which allows the system to dynamically adjust processor voltage and core frequency. This technology can result in decreased average power consumption and decreased average heat production. This can be one of the following: • **Disabled**—The processor never dynamically adjusts its voltage or frequency. • **Enabled**—The processor utilizes Enhanced Intel SpeedStep Technology and enables all supported processor sleep states to further conserve power. We recommend that you contact your operating system vendor to make sure the operating system supports this feature. **Note** **CPUPowerManagement** must be set to **Custom** or the server ignores the setting for this parameter.

BIOS Parameters by Server Model

Name	Description
Processor CMCI drop-down list **set ProcessorCMCI**	Allows the CPU to trigger interrupts on corrected machine check events. The corrected machine check interrupt (CMCI) allows faster reaction than the traditional polling timer. This can be one of the following: • **Disabled**—Disables CMCI. • **Enabled**—Enables CMCI. This is the default value.
HyperThreading [ALL] drop-down list **set IntelHyperThread**	Whether the processor uses Intel Hyper-Threading Technology, which allows multithreaded software applications to execute threads in parallel within each processor. This can be one of the following: • **Disabled**—The processor does not permit hyperthreading. • **Enabled**—The processor allows for the parallel execution of multiple threads.
Workload Configuration drop-down list **set WorkLdConfig**	This feature allows for workload optimization. The options are Balanced and I/O Sensitive: • **Balanced** • **IO Sensitive**
Cores Enabled drop-down list **set CoreMultiProcessing**	Allows you to disable one or more of the physical cores on the server. This can be one of the following: • **All**—Enables all physical cores. This also enables Hyper Threading on the associated logical processor cores. • **1 through 48**—Specifies the number of physical processor cores that can run on the server. Each physical core has an associated logical core. **Note** Contact your operating system vendor to make sure the operating system supports this feature.

Name	Description
UPI Link Frequency Select drop-down list **set QpiLinkSpeed**	**Note** **UPI Link Frequency Select** token is not applicable for single socket configuration. This feature allows you to configure the Intel Ultra Path Interconnect (UPI) link speed between multiple sockets. This can be one of the following: • **Auto**—This option configures the optimal link speed automatically. • **9.6 GT/s**—This option configures the optimal link speed at 9.6GT/s. • **10.4 GT/s**—This option configures the optimal link speed at 10.4GT/s
UPI Prefetch drop-down list **set KTIPrefetch**	UPI prefetch is a mechanism to get the memory read started early on a DDR bus. This can be one of the following: • **disabled**—The processor does not preload any cache data. • **enabled**—The UPI prefetcher preloads the L1 cache with the data it determines to be the most relevant. • **Auto** —CPU determines the UPI Prefetch mode.
Sub NUMA Clustering drop-down list **set SNC**	Whether the CPU supports sub NUMA clustering, in which the tag directory and the memory channel are always in the same region. This can be one of the following: • **disabled**— Sub NUMA clustering does not occur. • **enabled**— Sub NUMA clustering occurs.
Power Performance Tuning drop-down list **set PwrPerfTuning**	Determines if the BIOS or Operating System can turn on the energy performance bias tuning. The options are BIOS and OS. • **BIOS**—Chooses BIOS for energy performance tuning. • **OS**—Chooses OS for energy performance tuning. • **PECI**—Chooses Platform Environmental Control Interface for energy performance tuning.

Name	Description
XPT Prefetch drop-down list **set XPTPrefetch**	Whether XPT prefetch is used to enable a read request sent to the last level cache to issue a copy of that request to the memory controller prefetcher. This can be one of the following: • **disabled**—The CPU does not use the XPT Prefetch option. • **enabled**—The CPU enables the XPT prefetch option.
Package C State **set PackageCstateLimit**	The amount of power available to the server components when they are idle. This can be one of the following: • **no-limit**—The server may enter any available C state. • **auto** —The CPU determines the physical elevation. • —The server provides all server components with full power at all times. This option maintains the highest level of performance and requires the greatest amount of power. • —When the CPU is idle, the system reduces the power consumption further than with the C1 option. This requires less power than C1 or C0, but it takes the server slightly longer to return to high performance mode. • —When the CPU is idle, the system reduces the power consumption further than with the C3 option. This option saves more power than C0, C1, or C3, but there may be performance issues until the server returns to full power. • —When the CPU is idle, the system reduces the power consumption further than with the C3 option. This option saves more power than C0, C1, or C3, but there may be performance issues until the server returns to full power.

Name	Description
Energy Performance Bias Config drop-down list **set CpuEngPerfBias**	Allows you to determine whether system performance or energy efficiency is more important on this server. This can be one of the following: • — The server provides all server components with full power at all times. This option maintains the highest level of performance and requires the greatest amount of power. • — The server provides all server components with enough power to keep a balance between performance and power. • — The server provides all server components with enough power to keep a balance between performance and power. • — The server provides all server components with maximum power to keep reduce power consumption.
Hardware P-States drop-down list **set CpuHWPM**	Enables processor Hardware P-State. This can be one of the following: • **disabled**—HWPM is disabled. • **hwpm-native-mode**—HWPM native mode is enabled. • **hwpm-oob-mode**—HWPM Out-Of-Box mode is enabled. • **Native Mode with no Legacy** (only GUI)
LLC Prefetch drop-down list **set LLCPrefetch**	Whether the processor uses the LLC Prefetch mechanism to fetch the date into the LLC. This can be one of the following: • **disabled**—The processor does not preload any cache data. • **enabled**—The LLC prefetcher preloads the L1 cache with the data it determines to be the most relevant.
Autonomous Core C-state drop-down list **set AutoCCState**	Enables CPU Autonomous C-State, which converts the HALT instructions to the MWAIT instructions. This can be one of the following: • **Disabled**—CPU Autonomous C-state is disabled. • **Enabled**—CPU Autonomous C-state is enabled.

Name	Description
Energy Efficient Turbo drop-down list **set EnergyEfficientTurbo**	When energy efficient turbo is enabled, the optimal turbo frequency of the CPU turns dynamic based on CPU utilization. The power/performance bias setting also influences energy efficient turbo. This can be one of the following: • **Disabled**—Energy Efficient Turbo is disabled. • **Enabled**—Energy Efficient Turbo is enabled.
Patrol Scrub drop-down list **set PatrolScrub**	Allows the system to actively search for, and correct, single bit memory errors even in unused portions of the memory on the server. This can be one of the following: • **Disabled**—The system checks for memory ECC errors only when the CPU reads or writes a memory address. • **Enabled**—The system periodically reads and writes memory searching for ECC errors. If any errors are found, the system attempts to fix them. This option may correct single bit errors before they become multi-bit errors, but it may adversely affect performance when the patrol scrub is running. • **Enable at End of POST**—The system checks for memory ECC errors after BIOS POST.
Processor EPP Profile drop-down list **set EPPProfile**	Allows you to determine whether system performance or energy efficiency is more important on this server. This can be one of the following: • Performance • Balanced Performance • Balanced Power • Power
Intel Dynamic Speed Select drop-down list **set IntelDynamicSpeedSelect**	**Intel Dynamic Speed Select** modes allow you to run the CPU with different speed and cores in auto mode. This can be one of the following: • **Disabled**—**Intel Dynamic Speed Select** is disabled. • **Enabled**—**Intel Dynamic Speed Select** is enabled.

Name	Description
Intel Speed Select drop-down list **set IntelSpeedSelect**	**Intel Speed Select** modes allows you to run the CPU with different speed and cores. This can be one of the following: • **Base**— It will allow users to access maximum core and Thermal Design Power (TDP) ratio. • **Config 3**— It will allow users to access core and TDP ratio lesser than **Base**. • **Config 4**— It will allow users to access core and TDP ratio lesser than **Config 3**. Default value: **Base**.

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I/O Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 13: BIOS Parameters in I/O Tab

Name	Description
Reboot Host Immediately check box	If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
MLOM OptionROM drop-down list **set PcieSlotMLOMOptionROM**	This options allows you to control the Option ROM execution of the PCIe adapter connected to the MLOM slot. This can be one of the following: • **Disabled**—Does not execute Option ROM of the PCIe adapter connected to the MLOM slot. • **Enabled**—Executes Option ROM of the PCIe adapter connected to the MLOM slot.

Name	Description
MLOM Link Speed drop-down list **set PcieSlotMLOMLinkSpeed**	This option allows you to restrict the maximum speed of an adapter card installed in PCIe MLOM slot. This can be one of the following: • **Disabled**—The maximum speed is not restricted. • **Auto**—System selects the maximum speed allowed. • **GEN1**—2.5GT/s (gigatransfers per second) is the maximum speed allowed. • **GEN2**—5GT/s is the maximum speed allowed. • **GEN3**—8GT/s is the maximum speed allowed. • **GEN3**—16GT/s is the maximum speed allowed.
PCIe Slot*n* OptionROM drop-down list **set PcieSlot*n*OptionROM**	Whether the server can use the Option ROMs present in the PCIe card slot designated by *n*. This can be one of the following: • **Disabled**—Option ROM for slot *n* is not available. • **Enabled**—Option ROM for slot *n* is available.
PCIe Slot*n* Link Speed drop-down list **set PcieSlot*n*LinkSpeed**	System IO Controller *n* (SIOCn) add-on slot (designated by *n*) link speed. This can be one of the following: • **Disabled**—Slot is disabled, and the card is not enumerated. • **Auto**— The default link speed. Link speed is automatically assigned. • **GEN1**—Link speed can reach up to first generation. • **GEN2**—Link speed can reach up to second generation. • **GEN3**—Link speed can reach up to third generation. • **GEN4**—Link speed can reach up to fourth generation.

Name	Description
MRAID OptionROM **set PcieSlotMRAID*n*OptionROM**	Whether the server can use the RAID Option ROMs present in the PCIe card slot designated by *n*. This can be one of the following: • **Disabled**—Option ROM for slot *n* is not available. • **Enabled**—Option ROM for slot *n* is available.
MRAID Link Speed drop-down list **set PcieSlotMRAID*n*LinkSpeed**	RAID IO Controller *n* (SIOCn) add-on slot (designated by *n*) link speed. This can be one of the following: • **Disabled**—Slot is disabled, and the card is not enumerated. • **Auto**— The default link speed. Link speed is automatically assigned. • **GEN1**—Link speed can reach up to first generation. • **GEN2**—Link speed can reach up to second generation. • **GEN3**—Link speed can reach up to third generation. • **GEN4**—Link speed can reach up to fourth generation.
Front NVME-*n* OptionROM drop-down list **set PcieSlotFrontNvme*n*OptionROM**	This options allows you to control the Option ROM execution of the PCIe adapter connected to the SSD:NVMe slot *n*. This can be one of the following: • **Disabled**—Does not execute Option ROM of the PCIe adapter connected to the SSD:NVMe1 slot. • **Enabled**—Executes Option ROM of the PCIe adapter connected to the SSD:NVMe1 slot

Name	Description
Front NVME-*n* Link Speed drop-down list **set PcieSlotFrontNvme*n*LinkSpeed**	Link speed for NVMe front slot designated by slot *n*. This can be one of the following: • **Disabled**—Slot is disabled, and the card is not enumerated. • **Auto**—The default link speed. Link speed is automatically assigned. • **GEN1**—Link speed can reach up to first generation. • **GEN2**—Link speed can reach up to second generation. • **GEN3**—Link speed can reach up to third generation. • **GEN4**—Link speed can reach up to fourth generation.
Rear NVME-*n* OptionROM drop-down list **set PcieSlotRearNvme*n*OptionROM**	**Note** This options is applicable only to Cisco UCS C245 M6 servers. This options allows you to control the Option ROM execution of the PCIe adapter connected to the SSD:NVMe slot *n*. This can be one of the following: • **Disabled**—Does not execute Option ROM of the PCIe adapter connected to the SSD:NVMe1 slot. • **Enabled**—Executes Option ROM of the PCIe adapter connected to the SSD:NVMe1 slot

Name	Description
Rear NVME-*n* Link Speed drop-down list **set PcieSlotRearNvme*n*LinkSpeed**	**Note** This options is applicable only to Cisco UCS C245 M6 servers. Link speed for NVMe front slot designated by slot *n*. This can be one of the following: • **Disabled**—Slot is disabled, and the card is not enumerated. • **Auto**—The default link speed. Link speed is automatically assigned. • **GEN1**—Link speed can reach up to first generation. • **GEN2**—Link speed can reach up to second generation. • **GEN3**—Link speed can reach up to third generation. • **GEN4**—Link speed can reach up to fourth generation.
PCIe Slot MSTOR RAID OptionROM drop-down list **set PcieSlotMSTORRAIDOptionROM**	Whether the server can use the Option ROMs present in the PCIe MSTOR RAID. This can be one of the following: • **Disabled**—Option ROM is not available. • **Enabled**—Option ROM is available.
PCIe Slot MSTOR Link Speed drop-down list **set PcieSlotMSTORRAIDLinkSpeed**	Link speed for PCIe front slot designated by slot *n*. This can be one of the following: • **Disabled**—Slot is disabled, and the card is not enumerated. • **Auto**—The default link speed. Link speed is automatically assigned. • **GEN1**—Link speed can reach up to first generation. • **GEN2**—Link speed can reach up to second generation. • **GEN3**—Link speed can reach up to third generation. • **GEN4**—Link speed can reach up to fourth generation.

Name	Description
IPV6 PXE Support drop-down list **set IPV6PXE**	Enables or disables IPv6 support for PXE. This can be one of the following • **disabled**—IPv6 PXE support is not available. • **enabled**—IPv6 PXE support is always available.
IPV4 PXE Support drop-down list **set IPV4PXE**	Enables or disables IPv4 support for PXE. This can be one of the following • **disabled**—IPv4 PXE support is not available. • **enabled**—IPv4 PXE support is always available.
PCIe ARI Support drop-down list **set PcieARISupport**	Whether PCI Alternative Routing ID Interpretation (ARI) support in Windows is enabled. This can be one of the following: • **auto**—ARI support is set to auto controlled by the system. • **disabled**—ARI support is not available. • **enabled**—ARI support is always available.
SR-IOV Support drop-down list **set SrIov**	SR-IOV feature allows a PCIe device to appear to be multiple separate physical PCIe devices. This can be one of the following: • **Disabled**—SR-IOV feature is disabled. • **Enabled**—SR-IOV feature is enabled.
IPV6 HTTP Support drop-down list **set IPV6HTTP**	Enables or disables IPv6 support for HTTP. This can be one of the following: • **disabled**—IPv6 HTTP support is not available. • **enabled**—IPv6 HTTP support is always available.
IPV4 HTTP Support drop-down list **set IPV4HTTP**	Enables or disables IPv4 support for HTTP. This can be one of the following: • **disabled**—IPv4 HTTP support is not available. • **enabled**—IPv4 HTTP support is always available.

Name	Description
Network Stack drop-down list **set NetworkStack**	This option allows you to monitor IPv6 and IPv4. This can be one of the following • **disabled**—Network Stack support is not available. **Note** When disabled, the value set for **IPV4 PXE Support** does not impact the system. • **enabled**—Network Stack support is always available.

Server Management Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 14: BIOS Parameters in Server Management Tab

Name	Description
Reboot Host Immediately check box	If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
OS Boot Watchdog Timer Policy drop-down list **set OSBootWatchdogTimerPolicy**	What action the system takes if the watchdog timer expires. This can be one of the following: • **Power Off**—The server is powered off if the watchdog timer expires during OS boot. • **Reset**—The server is reset if the watchdog timer expires during OS boot. **Note** This option is only applicable if you enable the OS Boot Watchdog Timer.
FRB 2 Timer drop-down list **set FRB-2**	Whether the FRB2 timer is used by Cisco IMC to recover the system if it hangs during POST. This can be one of the following: • **Disabled**—The FRB2 timer is not used. • **Enabled**—The FRB2 timer is started during POST and used to recover the system if necessary.

Name	Description
OS Watchdog Timer drop-down list **set OSBootWatchdogTimer**	Whether the BIOS programs the watchdog timer with a specified timeout value. This can be one of the following: • **Disabled**—The watchdog timer is not used to track how long the server takes to boot. • **Enabled**—The watchdog timer tracks how long the server takes to boot. If the server does not boot within the length of time specified in the **OS Boot Watchdog Timer Timeout** field, the Cisco IMC logs an error and takes the action specified in the **OS Boot Watchdog Policy** field.
OS Watchdog Timer Timeout drop-down list **set OSBootWatchdogTimerTimeOut**	If OS does not boot within the specified time, OS watchdog timer expires and system takes action according to timer policy. This can be one of the following: • **5 Minutes**—The OS watchdog timer expires 5 minutes after it begins to boot. • **10 Minutes**—The OS watchdog timer expires 10 minutes after it begins to boot. • **15 Minutes**—The OS watchdog timer expires 15 minutes after it begins to boot. • **20 Minutes**—The OS watchdog timer expires 20 minutes after it begins to boot. **Note** This option is only applicable if you enable the OS Boot Watchdog Timer.
Baud Rate drop-down list **set BaudRate**	What Baud rate is used for the serial port transmission speed. If you disable Console Redirection, this option is not available. This can be one of the following: • **9.6k**—A 9,600 Baud rate is used. • **19.2k**—A 19,200 Baud rate is used. • **38.4k**—A 38,400 Baud rate is used. • **57.6k**—A 57,600 Baud rate is used. • **115.2k**—A 115,200 Baud rate is used. This setting must match the setting on the remote terminal application.

Name	Description
Flow Control drop-down list **set FlowCtrl**	Whether a handshake protocol is used for flow control. Request to Send / Clear to Send (RTS/CTS) helps to reduce frame collisions that can be introduced by a hidden terminal problem. This can be one of the following: • **None**—No flow control is used. • **RTS/CTS**—RTS/CTS is used for flow control. **Note** This setting must match the setting on the remote terminal application.
Console Redirection drop-down list **set ConsoleRedir**	Allows a serial port to be used for console redirection during POST and BIOS booting. After the OS has booted, console redirection is irrelevant. This can be one of the following: • **COM 0**—Enables console redirection on COM 1 during POST. • **COM 1**—Enables console redirection on COM 1 during POST. • **Disabled**—No console redirection occurs during POST.
Terminal type drop-down list **set TerminalType**	What type of character formatting is used for console redirection. This can be one of the following: • **PC-ANSI**—The PC-ANSI terminal font is used. • **VT100**—A supported VT100 video terminal and its character set are used. • **VT100-PLUS**—A supported VT100-plus video terminal and its character set are used. • **VT-UTF8**—A video terminal with the UTF-8 character set is used.

Name	Description
PCIe Slots CDN Control drop-down list **set PcieSlotsCdnEnable**	**Note** This option is available only on Cisco UCS C245 M6 servers equipped with Mellanox cards in slots 2 or 5. Whether the Ethernet Network naming convention is according to Consistent Device Naming (CDN) or the traditional way of naming conventions. This can be one of the following: • **Disabled**— CDN support for VIC cards is disabled • **Enabled**— CDN support is enabled for VIC cards.
CDN Control drop-down list **set cdnEnable**	Whether the Ethernet Network naming convention is according to Consistent Device Naming (CDN) or the traditional way of naming conventions. This can be one of the following: • **Disabled**— CDN support for VIC cards is disabled • **Enabled**— CDN support is enabled for VIC cards.
OptionROM Launch Optimization **set CiscoOpromLaunchOptimization**	When this option is **Enabled**, the OptionROMs only for the controllers present in the boot order policy will be launched. **Note** Some controllers such as Onboard storage controllers, Emulex FC adapters, and GPU controllers though not listed in the boot order policy will have the OptionROM launched. When this option is **Disabled**, all the OptionROMs will be launched.

Name	Description
BIOS Techlog Level **set CiscoDebugLevel**	This option denotes the type of messages in **BIOS tech log** file. The log file can be one of the following types: • **Minimum** - Critical messages will be displayed in the log file. • **Normal** - Warning and loading messages will be displayed in the log file. • **Maximum** - Normal and information related messages will be displayed in the log file. Default value: **Minimum**. **Note** This option is mainly for internal debugging purposes.

Security Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 15: BIOS Parameters in Security Management Tab

Name	Description
Reboot Host Immediately check box	If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
Trusted Platform Module State drop-down list **set TPMControl**	Trusted Platform Module (TPM) is a microchip designed to provide basic security-related functions primarily involving encryption keys. This option allows you to control the TPM Security Device support for the system. This can be one of the following: • **Disabled**—The server does not use the TPM. • **Enabled**—The server uses the TPM. **Note** Contact your operating system vendor to make sure the operating system supports this feature.

Name	Description
SHA-1 PCR Bank drop-down list **set SHA1PCRBank**	Enable or Disable SHA-1 PCR Bank. This can be one of the following: • **Disabled**—The server does not use this feature. • **Enabled**—The server uses this feature.
SHA256 PCR Bank drop-down list **set SHA256PCRBank**	Enable or Disable SHA256 PCR Bank. This can be one of the following: • **Disabled**—The server does not use this feature. • **Enabled**—The server uses this feature.
Power on Password drop-down list **set PowerOnPassword**	This token requires that you set a BIOS password before using the F2 BIOS configuration. If enabled, password needs to be validated before you access BIOS functions such as IO configuration, BIOS set up, and booting to an operating system using BIOS. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.

Memory Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 16: BIOS Parameters in Memory Tab

Name	Description
Reboot Host Immediately check box	If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.

Name	Description
NUMA Nodes per Socket drop-down list **set CbsDfCmnDramNps**	Allows you to configure the memory NUMA domains per socket. This can be one of the following: • **Auto**—Number of channels is set to auto. • **NPS0**—One NUMA node per system. • **NPS1**—One NUMA node per socket. • **NPS2**—Two NUMA nodes per socket, one per Left/Right Half of the SoC. • **NPS4**—Four NUMA nodes per socket, one per Quadrant.
Above 4G Decoding drop-down list **set MemoryMappedIOAbove4GB**	Enables or disables MMIO above 4GB or not. This can be one of the following: • **Disabled**—The server does not map I/O of 64-bit PCI devices to 4GB or greater address space. • **Enabled**—The server maps I/O of 64-bit PCI devices to 4GB or greater address space. **Note** PCI devices that are 64-bit compliant but use a legacy option ROM may not function correctly with this setting enabled.
Chipselect Interleaving drop-down list **set CbsCmnMemMapBankInterleaveDdr4**	Whether memory blocks across the DRAM chip selects for node 0 are interleaved. This can be one of the following: • **Disabled**—Chip selects are not interleaved within the memory controller. • **Auto**—The CPU automatically determines how to interleave chip selects.

Name	Description
Memory interleaving Size drop-down list **set CbsDfCmnMemIntlvSize**	Determines the size of the memory blocks to be interleaved. It also determines the starting address of the interleave (bit 8,9,10 or 11). This can be one of the following: • **Auto** • **256 Bytes** • **512 Bytes** • **1 KB** • **2 KB** • **4 KB**
IOMMU drop-down list **set CbsCmnGnbNbIOMMU**	Input Output Memory Management Unit (IOMMU) allows AMD processors to map virtual addresses to physical addresses. This can be one of the following: • **Auto**—The CPU determines how map these addresses. • **Disabled**—IOMMU is not used. • **Enabled**—Address mapping takes place through the IOMMU.
BankGroupSwap **set CbsCmnMemCtrlBankGroupSwapDdr4**	Determines how physical addresses are assigned to applications. This can be one of the following: • **Auto**—The CPU automatically determines how to assign physical addresses to applications. • **Disabled**—Bank group swap is not used. • **Enabled**—Bank group swap is used to improve the performance of applications.
TSME drop-down list **set TSME**	Allows you to enable Transparent Secure Memory Encryption (TSME). This can be one of the following: • **Auto**—Feature usage is set to auto. • **Disabled**—The processor does not use the TSME function. • **Enabled**—The processor uses the TSME function.

Name	Description
SMEE drop-down list **set CbsCmnCpuSmee**	Whether the processor uses the Secure Memory Encryption Enable (SMEE) function, which provides memory encryption support. This can be one of the following: • **Auto**—The CPU determines how map these addresses. • **Disabled**—The processor does not use the SMEE function. • **Enabled**—The processor uses the SMEE function.
SNP Memory Coverage drop-down list **set CbsDbgCpuSnpMemCover**	Allows you to configure SNP memory coverage. This can be one of the following: • **Auto**—System decides the memory coverage. • **Disabled**—The processor does not use this function. • **Enabled**—This feature is enabled. • **Custom**—Custom size can be defined in **SNP Memory Size to Cover**.
SEV-SNP Support drop-down list **set CbsSevSnpSupport**	Allows you to enable Secure Nested Paging feature. This can be one of the following: • **Disabled**—The processor does not use the SEV-SNP function. • **Enabled**—The processor uses the SEV-SNP function.
BME DMA Mitigation drop-down list **set BmeDmaMitigation**	Allows you to disable the PCI BME bit to mitigate the threat from an unauthorized external DMA. This can be one of the following: • **Disabled**—PCI BME bit is disabled in the BIOS. • **Enabled**—PCI BME bit is enabled in the BIOS.
SNP Memory Size to Cover in MB field **set CbsDbgCpuSnpMemSizeCover**	Allows you to configure SNP memory size.
Burst and Postponed Refresh field **set BurstAndPostponedRefresh**	• **disabled**—The processor does not use the function. • **enabled**—The processor uses the function.

Name	Description
Post Package Repair field **set PostPackageRepair**	Cisco IMC supports Hard-PPR, which permanently remaps accesses from a designated faulty row to a designated spare row. This can be one of the following: • **Hard PPR**—Support is enabled. • **Disabled**—Support is disabled.

Power/Performance Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 17: BIOS Parameters in Power/Performance Tab

Name	Description
Reboot Host Immediately check box	If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
Core Performance Boost drop-down list **set CbsCmnCpuCpb**	Whether the AMD processor increases its frequency on some cores when it is idle or not being used much. This can be one of the following: • **auto**—The CPU automatically determines how to boost performance. • **disabled**—Core performance boost is disabled.
Global C-state Control drop-down list **set CbsCmnCpuGlobalCstateCtrl**	Whether the AMD processors control IO-based C-state generation and DF C-states This can be one of the following: • **auto**—The CPU automatically determines how to control IO-based C-state generation. • **disabled**—Global C-state control is disabled. • **enabled**—Global C-state control is enabled.

Name	Description
L1 Stream HW Prefetcher drop-down list **set CbsCmnCpuL1StreamHwPrefetcher**	Whether the processor allows the AMD hardware prefetcher to speculatively fetch streams of data and instruction from memory into the L1 cache when necessary. This can be one of the following: • **auto**—The CPU determines how to place data from I/O devices into the processor cache. • **disabled**—The hardware prefetcher is not used. • **enabled**—The processor uses the hardware prefetcher when cache issues are detected.
L2 Stream HW Prefetcher drop-down list **set CbsCmnCpuL2StreamHwPrefetcher**	Whether the processor allows the AMD hardware prefetcher to speculatively fetch streams of data and instruction from memory into the L2 cache when necessary. This can be one of the following: • **auto**—The CPU determines how to place data from I/O devices into the processor cache. • **disabled**—The hardware prefetcher is not used. • **enabled**—The processor uses the hardware prefetcher when cache issues are detected.
Determinism Slider drop-down list **set CbsCmnDeterminismSlider**	Allows AMD processors to determine how to operate. This can be one of the following: • **auto**—The CPU automatically uses default power determinism settings. • **performance**—Processor operates at the best performance in a consistent manner. • **power**—Processor operates at the maximum allowable performance on a per die basis.
CPPC drop-down list **set CbsCmnGnbSMUCPPC**	Allows you to configure Collaborative Processor Performance Control. This can be one of the following: • **auto**—The CPU automatically uses default CPPC settings. • **disabled**—Feature is disabled. • **enabled**—Collaborative Processor Performance is enabled.

Name	Description
Efficiency Mode Enable drop-down list **set CbsCmnEfficiencyModeEn**	Allows you to configure power consumption based on efficiency. This can be one of the following: • **auto**—The CPU automatically uses default settings. • **enabled**—Efficiency mode is enabled.

Processor Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 18: BIOS Parameters in Processor Tab

Name	Description
Reboot Host Immediately check box	If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
SVM Mode drop-down list **set SvmMode**	Whether the processor uses AMD Secure Virtual Machine Technology. This can be one of the following: This can be one of the following: • **disabled**—The processor does not use SVM Technology. • **enabled**—The processor uses SVM Technology.
SMT Mode drop-down list **set CbsCpuSmtCtrl**	Whether the processor uses AMD Simultaneous MultiThreading Technology, which allows multithreaded software applications to execute threads in parallel within each processor. This can be one of the following: • **auto**—The processor allows for the parallel execution of multiple threads. • **disabled**—The processor does not use SMT Mode. • **enabled**—The processor uses SMT Mode.

Name	Description
Downcore control 7xx2 drop-down list **set CbsCmnCpuGenDowncoreCtrl**	**Note** This Token is applicable for Tehama servers with 7xx2 Model processors only. The ability to remove one or more cores from operation is supported in the silicon. It may be desirable to reduce the number of cores due to OS restrictions, or power reduction requirements of the system. This item allows the control of how many cores are running. This setting can only reduce the number of cores from those available in the processor. This can be one of the following: • **auto**—The CPU determines how many cores need to be enabled. • TWO (1+1)—Two cores enabled on one CPU complex. • FOUR (2+2)—Four cores enabled on one CPU complex. • SIX (3+3)—Six cores enabled on one CPU complex.

Name	Description
CPU Downcore control 7xx3 drop-down list **set CbsCpuCoreCtrl**	**Note** This Token is applicable for Tehama servers with 7xx3 Model processors only. The ability to remove one or more cores from operation is supported in the silicon. It may be desirable to reduce the number of cores due to OS restrictions, or power reduction requirements of the system. This item allows the control of how many cores are running. This setting can only reduce the number of cores from those available in the processor. This can be one of the following: • **auto**—The CPU determines how many cores need to be enabled. • One (1+0)—One cores enabled on one CPU complex. • TWO (2+0)—Two cores enabled on one CPU complex. • THREE (3+0)—Three cores enabled on one CPU complex. • FOUR (4+0)—Four cores enabled on one CPU complex. • Five (5+0)—Five cores enabled on one CPU complex. • SIX (6+0)—Six cores enabled on one CPU complex. • SEVEN (7+0)—Seven cores enabled on one CPU complex.
Fixed SOC P-State drop-down list **set CbsCmnFixedSocPstate**	This option defines the target PState when APBDIS is set. **P*x*** – Specify a valid PState for the processor installed. This can be one of the following: • P0 • P1 • P2 • P3 • Auto

Name	Description
APBDIS drop-down list **set CbsCmnApbdis**	Allows you to select the APB Disable value for the SMU. This can be one of the following: • **0**—Clear ApbDis to SMU • **1**—Set ApbDis to SMU. • **auto**—The CPU determines the value.
CCD Control drop-down list **set CbsCpuCcdCtrlSsp**	Allows you to specify the number of CCDs that are desired to be enable in the system. This can be one of the following: • **Auto**—The maximum CCDs provided by the processor is enabled. • 2 CCDs • 3 CCDs • 4 CCDs • 6 CCDs
Cisco xGMI Max Speed drop-down list **set CiscoXgmiMaxSpeed**	This option enables 18 Gbps XGMI link speed. This can be one of the following: • **Disabled**—Feature is disabled. • **Enabled**—Feature is enabled.
ACPI SRAT L3 Cache As NUMA Domain drop-down list **set CbsDfCmnAcpiSratL3Numa**	Creates a layer of virtual domains on top of the physical domains in which each CCX is declared to be in its on domain. This can be one of the following: • **Auto**—Set to auto mode. • **Disabled**—Use NPS settings for domain configuration. • **Enabled**— Each CCX is declared to be in its own domain.
Streaming Stores Control drop-down list **set CbsCmnCpuStreamingStoresCtrl**	Enables the streaming stores functionality. This can be one of the following: • **Auto**—Set to auto mode. • **Disabled**—Feature is disabled. • **Enabled**—Feature is enabled.

Name	Description
DF C-States drop-down list **set CbsCmnGnbSMUDfCstates**	When long duration idleness is expected in a system, this control allows the system to transition into a DF Cstate which can set the system into an even lower power state. This can be one of the following: • **Auto**—Set to auto mode. • **Disabled**—Long periods of idleness are not expected so no power savings would be achieved. • **Enabled**— This option is active, saving power when the system is very idle.

For C125 Servers

Server Management Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 19: BIOS Parameters in Server Management Tab

Name	Description
Reboot Host Immediately checkbox	If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
OS Boot Watchdog Timer Policy drop-down list **set OSBootWatchdogTimerPolicy**	What action the system takes if the watchdog timer expires. This can be one of the following: • **Power Off**—The server is powered off if the watchdog timer expires during OS boot. • **Reset**—The server is reset if the watchdog timer expires during OS boot. **Note** This option is only applicable if you enable the OS Boot Watchdog Timer.

Name	Description
OS Watchdog Timer drop-down list **set OSBootWatchdogTimer**	Whether the BIOS programs the watchdog timer with a specified timeout value. This can be one of the following: • **Disabled**—The watchdog timer is not used to track how long the server takes to boot. • **Enabled**—The watchdog timer tracks how long the server takes to boot. If the server does not boot within the length of time specified in the **OS Boot Watchdog Timer Timeout** field, the Cisco IMC logs an error and takes the action specified in the **OS Boot Watchdog Policy** field.
Baud Rate drop-down list **set BaudRate**	What Baud rate is used for the serial port transmission speed. If you disable Console Redirection, this option is not available. This can be one of the following: • **9.6k**—A 9,600 Baud rate is used. • **19.2k**—A 19,200 Baud rate is used. • **38.4k**—A 38,400 Baud rate is used. • **57.6k**—A 57,600 Baud rate is used. • **115.2k**—A 115,200 Baud rate is used. This setting must match the setting on the remote terminal application.
Console Redirection drop-down list **set ConsoleRedir**	Allows a serial port to be used for console redirection during POST and BIOS booting. After the OS has booted, console redirection is irrelevant. This can be one of the following: • **Serial Port A**—Enables console redirection on serial port A during POST. • **Serial Port B**—Enables console redirection on serial port B during POST. • **Disabled**—No console redirection occurs during POST.

Name	Description
BIOS Techlog Level	This option denotes the type of messages in **BIOS tech log** file. The log file can be one of the following types: • **Minimum** - Critical messages will be displayed in the log file. • **Normal** - Warning and loading messages will be displayed in the log file. • **Maximum** - Normal and information related messages will be displayed in the log file. Default value: **Minimum**. **Note** This option is mainly for internal debugging purposes. **Note** To disable the Fast Boot option, the end user must set the following tokens as mentioned below: BIOS Techlog level to **Normal** OptionROM Launch Optimization to **Disabled**.
OptionROM Launch Optimization	When this option is **Enabled**, the OptionROMs only for the controllers present in the boot order policy will be launched. **Note** Onboard storage controllers though not listed in the boot order policy will have the OptionROM launched. When this option is **Disabled**, all the OptionROMs will be launched. Default value: **Enabled**
FRB 2 Timer drop-down list **set FRB-2**	Whether the FRB2 timer is used by Cisco IMC to recover the system if it hangs during POST. This can be one of the following: • **Disabled**—The FRB2 timer is not used. • **Enabled**—The FRB2 timer is started during POST and used to recover the system if necessary.

Name	Description
OS Watchdog Timer Timeout drop-down list **set OSBootWatchdogTimerTimeOut**	If OS does not boot within the specified time, OS watchdog timer expires and system takes action according to timer policy. This can be one of the following: • **5 Minutes**—The OS watchdog timer expires 5 minutes after it begins to boot. • **10 Minutes**—The OS watchdog timer expires 10 minutes after it begins to boot. • **15 Minutes**—The OS watchdog timer expires 15 minutes after it begins to boot. • **20 Minutes**—The OS watchdog timer expires 20 minutes after it begins to boot. **Note** This option is only applicable if you enable the OS Boot Watchdog Timer.
Flow Control drop-down list **set FlowCtrl**	Whether a handshake protocol is used for flow control. Request to Send / Clear to Send (RTS/CTS) helps to reduce frame collisions that can be introduced by a hidden terminal problem. This can be one of the following: • **None**—No flow control is used. • **RTS/CTS**—RTS/CTS is used for flow control. **Note** This setting must match the setting on the remote terminal application.
Terminal type drop-down list **set TerminalType**	What type of character formatting is used for console redirection. This can be one of the following: • **PC-ANSI**—The PC-ANSI terminal font is used. • **VT100**—A supported VT100 video terminal and its character set are used. • **VT100-PLUS**—A supported VT100-plus video terminal and its character set are used. • **VT-UTF8**—A video terminal with the UTF-8 character set is used.

Name	Description
CDN Control drop-down list **set cdnEnable**	Whether the Ethernet Network naming convention is according to Consistent Device Naming (CDN) or the traditional way of naming conventions. This can be one of the following: • **Disabled**— CDN support for VIC cards is disabled. • **Enabled**— CDN support is enabled for VIC cards.

Security Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 20: BIOS Parameters in Security Tab

Name	Description
Reboot Host Immediately checkbox	**If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.**
Trusted Platform Module Support drop-down list **set TPMAdminCtrl**	Trusted Platform Module (TPM) is a microchip designed to provide basic security-related functions primarily involving encryption keys. This option allows you to control the TPM Security Device support for the system. It can be one of the following: • **Disabled**—The server does not use the TPM. • **Enabled**—The server uses the TPM. **Note** Contact your operating system vendor to make sure the operating system supports this feature.
Power on Password drop-down list **set PowerOnPassword**	This token requires that you set a BIOS password before using the F2 BIOS configuration. If enabled, password needs to be validated before you access BIOS functions such as IO configuration, BIOS set up, and booting to an operating system using BIOS. It can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.

Memory Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 21: BIOS Parameters in Memory Tab

Name	Description
Reboot Host Immediately checkbox	Upon checking, reboots the host server immediately. You must check the checkbox after saving changes.
Above 4G Decoding drop-down list **set MemoryMappedIOAbove4GB**	Enables or disables MMIO above 4GB or not. This can be one of the following: • **Disabled**—The server does not map I/O of 64-bit PCI devices to 4GB or greater address space. • **Enabled**—The server maps I/O of 64-bit PCI devices to 4GB or greater address space. **Note** PCI devices that are 64-bit compliant but use a legacy option ROM may not function correctly with this setting enabled.

Name	Description
Memory Interleaving drop-down list	Whether the AMD CPU interleaves the physical memory so that the memory can be accessed while another is being refreshed. This controls fabric level memory interleaving. Channel, die and socket have requirements based on memory populations and will be ignored if the memory does not support the selected option.This can be one of the following: • **auto**—The CPU determines how to interleave memory. • **channel**—Interleaves the physical address space over multiple channels, as opposed to each channel owning single consecutive address spaces. • **die**—Interleaves the physical address space over multiple dies, as opposed to each die owning single consecutive address spaces. • **none**—Consecutive memory blocks are accessed from the same physical memory. • **socket**—Interleaves the physical address space over multiple sockets, as opposed to each socket owning single consecutive address spaces. • **platform-default** —The BIOS uses the value for this attribute contained in the BIOS defaults for the server type and vendor.
Memory Interleaving Size drop-down list	Determines the size of the memory blocks to be interleaved. It also determines the starting address of the interleave (bit 8,9,10 or 11). This can be one of the following: • 1 KB • 2 KB • 256 Bytes • 512 Bytes • **auto**—The CPU determines the size of the memory block. • **platform-default** —The BIOS uses the value for this attribute contained in the BIOS defaults for the server type and vendor.

Name	Description
Chipselect Interleaving drop-down list	Whether memory blocks across the DRAM chip selects for node 0 are interleaved. This can be one of the following: • **auto**—The CPU automatically determines how to interleave chip selects. • **disabled**—Chip selects are not interleaved within the memory controller. • **platform-default** —The BIOS uses the value for this attribute contained in the BIOS defaults for the server type and vendor.
Bank Group Swap drop-down list	Determines how physical addresses are assigned to applications. This can be one of the following: • **auto**—The CPU automatically determines how to assign physical addresses to applications. • **disabled**—Bank group swap is not used. • **enabled**—Bank group swap is used to improve the performance of applications. • **platform-default** —The BIOS uses the value for this attribute contained in the BIOS defaults for the server type and vendor.
IOMMU drop-down list	Input Output Memory Management Unit (IOMMU) allows AMD processors to map virtual addresses to physical addresses. This can be one of the following: • **auto**—The CPU determines how map these addresses. • **disabled**—IOMMU is not used. • **enabled**—Address mapping takes place through the IOMMU. • **platform-default** —The BIOS uses the value for this attribute contained in the BIOS defaults for the server type and vendor.

Name	Description
SMEE drop-down list	Whether the processor uses the Secure Memory Encryption Enable (SMEE) function, which provides memory encryption support. This can be one of the following: • **disabled**—The processor does not use the SMEE function. • **enabled**—The processor uses the SMEE function. • **platform-default** —The BIOS uses the value for this attribute contained in the BIOS defaults for the server type and vendor.
TSME drop-down list	Whether the processor uses the Transparent Secure Memory Encryption (TSME) function, which provides memory encryption support. This can be one of the following: • **disabled**—The processor does not use the TSME function. • **enabled**—The processor uses the TSME function. • **auto** —The BIOS uses the value for this attribute contained in the BIOS defaults for the server type and vendor.
SEV drop-down list	Enables running encrypted virtual machines (VMs) in which the code and data of the VM are isolated. This can be one of the following: • **253_ASIDs**—The value is set to 253 Minimum Address Space Identifier (ASIDs). • **509_ASIDs**—The value is set to 509 Minimum Address Space Identifier (ASIDs). • **auto** —The BIOS uses the value for this attribute contained in the BIOS defaults for the server type and vendor.

Name	Description
DRAM SW Thermal Throttling drop-down list	Provides a protective mechanism to ensure that the software functions within the temperature limits. When the temperature exceeds the maximum threshold value, the performance is permitted to drop allowing to cool down to the minimum threshold value. This can be one of the following: • **disabled**—The processor does not use the function. • **enabled**—The processor uses the function. • **auto** —The BIOS uses the value for this attribute contained in the BIOS defaults for the server type and vendor.
Burst and Postponed Refresh drop-down list	• **disabled**—The processor does not use the function. • **enabled**—The processor uses the function. • **auto** —The BIOS uses the value for this attribute contained in the BIOS defaults for the server type and vendor.

I/O Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 22: BIOS Parameters in I/O Tab

Name	Description
Reboot Host Immediately checkbox	Upon checking, reboots the host server immediately. You must check the checkbox after saving changes.
Pcie Slot*n* Oprom drop-down list **set PcieSlotnOptionROM**	Whether the server can use the Option ROMs present in the PCIe card slot designated by *n*. This can be one of the following: • **Disabled**—Option ROM for slot *n* is not available. • **Enabled**—Option ROM for slot *n* is available.

Name	Description
PCIe Slot*n* Link Speed drop-down list **set PcieSlotnLinkSpeed**	System IO Controller *n* (SIOCn) add-on slot (designated by *n*) link speed. This can be one of the following: • **Disabled**—Slot is disabled, and the card is not enumerated. • **Auto**— The default link speed. Link speed is automatically assigned. • **GEN1**—Link speed can reach up to first generation. • **GEN2**—Link speed can reach up to second generation. • **GEN3**—Link speed can reach up to third generation.
IPV6 PXE Support drop-down list **set IPV6PXE**	Enables or disables IPV6 support for PXE. This can be one of the following • **disabled**—IPV6 PXE support is not available. • **enabled**—IPV6 PXE support is always available.
IPV4 PXE Support drop-down list **set IPV4PXE**	Enables or disables IPV4 support for PXE. This can be one of the following • **disabled**—IPV4 PXE support is not available. • **enabled**—IPV4 PXE support is always available.
SR-IOV Support drop-down list **set SrIov**	Whether SR-IOV (Single Root I/O Virtualization) is enabled or disabled on the server. This can be one of the following: • **Disabled**—SR-IOV is disabled. • **Enabled**—SR-IOV is enabled.
Front NVME *n* OptionROM drop-down list **set PcieSlot *n*OptionROM**	This options allows you to control the Option ROM execution of the PCIe adapter connected to the SSD:NVMe *n* slot. This can be one of the following: • **disabled**—Does not execute Option ROM of the PCIe adapter connected to the SSD:NVMe *n* slot. • **enabled**—Executes Option ROM of the PCIe adapter connected to the SSD:NVMe *n* slot

Name	Description
Front NVME *n* Link Speed drop-down list **set PcieSlotFrontNvme1LinkSpeed**	Link speed for NVMe front slot *n*. This can be one of the following: • **Disabled**—Slot is disabled, and the card is not enumerated. • **Auto**—The default link speed. Link speed is automatically assigned. • **GEN1**—Link speed can reach up to first generation. • **GEN2**—Link speed can reach up to second generation. • **GEN3**—Link speed can reach up to third generation.
PCIe Slot MSTOR RAID OptionROM drop-down list **set PcieSlotMSTORRAIDOptionROM**	Whether the server can use the Option ROMs present in the PCIe MSTOR RAID. This can be one of the following: • **Disabled**—Option ROM is not available. • **Enabled**—Option ROM is available.
PCIe ARI Support drop-down list **set PcieARISupport**	Beginning with release 4.1(2a), Cisco IMC supports PCIe Alternative Routing ID (ARI) Interpretation feature. The PCIe specification supports greater numbers of virtual funtions through the implementation of ARI, which reinterprets the device number field in the PCIe header allowing for more than eight functions. This can be one of the following: • **Disabled**—PCIe ARI Support is not available. • **Enabled**—PCIe ARI Support is available. • **Auto**—PCIe ARI Support is in auto mode.
IPV6 HTTP Support drop-down list **set IPV6HTTP**	Enables or disables IPv6 support for HTTP. This can be one of the following: • **disabled**—IPv6 HTTP support is not available. • **enabled**—IPv6 HTTP support is always available.
IPV4 HTTP Support drop-down list **set IPV4HTTP**	Enables or disables IPv4 support for HTTP. This can be one of the following: • **disabled**—IPv4 HTTP support is not available. • **enabled**—IPv4 HTTP support is always available.

Power/Performance Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 23: BIOS Parameters in Power/Performance Tab

Name	Description
Reboot Host Immediately checkbox	Upon checking, reboots the host server immediately. You must check the checkbox after saving changes.
Core Performance Boost drop-down list	Whether the AMD processor increases its frequency on some cores when it is idle or not being used much. This can be one of the following: • **auto**—The CPU automatically determines how to boost performance. • **disabled**—Core performance boost is disabled. • **platform-default** —The BIOS uses the value for this attribute contained in the BIOS defaults for the server type and vendor.
Global C-state Control drop-down list	Whether the AMD processors control IO-based C-state generation and DF C-states This can be one of the following: • **auto**—The CPU automatically determines how to control IO-based C-state generation. • **disabled**—Global C-state control is disabled. • **enabled**—Global C-state control is enabled. • **platform-default** —The BIOS uses the value for this attribute contained in the BIOS defaults for the server type and vendor.
L1 Stream HW Prefetcher drop-down list	Whether the processor allows the AMD hardware prefetcher to speculatively fetch streams of data and instruction from memory into the L1 cache when necessary. This can be one of the following: • **auto**—The CPU determines how to place data from I/O devices into the processor cache. • **disabled**—The hardware prefetcher is not used. • **enabled**—The processor uses the hardware prefetcher when cache issues are detected. • **platform-default** —The BIOS uses the value for this attribute contained in the BIOS defaults for the server type and vendor.

Name	Description
L2 Stream HW Prefetcher drop-down list	Whether the processor allows the AMD hardware prefetcher to speculatively fetch streams of data and instruction from memory into the L2 cache when necessary. This can be one of the following: • **auto**—The CPU determines how to place data from I/O devices into the processor cache. • **disabled**—The hardware prefetcher is not used. • **enabled**—The processor uses the hardware prefetcher when cache issues are detected. • **platform-default** —The BIOS uses the value for this attribute contained in the BIOS defaults for the server type and vendor.
Determinism Slider drop-down list	Allows AMD processors to determine how to operate. This can be one of the following: • **auto**—The CPU automatically uses default power determinism settings. • **performance**—Processor operates at the best performance in a consistent manner. • **power**—Processor operates at the maximum allowable performance on a per die basis. • **platform-default** —The BIOS uses the value for this attribute contained in the BIOS defaults for the server type and vendor.

Processor Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 24: BIOS Parameters in Processor Tab

Name	Description
Reboot Host Immediately checkbox	If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.

Name	Description
SMT Mode drop-down list	Whether the processor uses AMD Simultaneous MultiThreading Technology, which allows multithreaded software applications to execute threads in parallel within each processor. This can be one of the following: • **auto**—The processor allows for the parallel execution of multiple threads. • **off**—The processor does not permit multithreading. • **platform-default** —The BIOS uses the value for this attribute contained in the BIOS defaults for the server type and vendor.
SVM Mode drop-down list	Whether the processor uses AMD Secure Virtual Machine Technology. This can be one of the following: This can be one of the following: • **disabled**—The processor does not use SVM Technology. • **enabled**—The processor uses SVM Technology. • **platform-default** —The BIOS uses the value for this attribute contained in the BIOS defaults for the server type and vendor.

Name	Description
Downcore control drop-down list	Allows AMD processors to disable cores and, thus, select how many cores to enable. This can be one of the following: • FOUR (2+2)—Two cores enabled on each CPU complex. • FOUR (4+0)—Four cores enabled on one CPU complex. • SIX (3+3)—Three cores enabled on each CPU complex. • THREE (3+0)—Three cores enabled on one CPU complex. • TWO (1+1)—Two cores enabled on each CPU complex. • TWO (2+0)—Two cores enabled on one CPU complex. • **auto**—The CPU determines how many cores need to be enabled. • **platform-default** —The BIOS uses the value for this attribute contained in the BIOS defaults for the server type and vendor.

C220 M5, C240 M5, C240 SD M5, and C480 M5 Servers

I/O Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 25: BIOS Parameters in I/O Tab

Name	Description
Reboot Host Immediately checkbox	Upon checking, reboots the host server immediately. You must check the checkbox after saving changes.
Legacy USB Support drop-down list **set UsbLegacySupport**	Whether the system supports legacy USB devices. This can be one of the following: • **Disabled**—USB devices are only available to EFI applications. • **Enabled**—Legacy USB support is always available.

Name	Description
Intel VT for directed IO drop-down list **set IntelVTD**	Whether the processor uses Intel Virtualization Technology (VT), which allows a platform to run multiple operating systems and applications in independent partitions. This can be one of the following: • **Disabled**—The processor does not permit virtualization. • **Enabled**—The processor allows multiple operating systems in independent partitions. **Note** If you change this option, you must power cycle the server before the setting takes effect.
Intel VTD coherency support drop-down list **set CoherencySupport**	Whether the processor supports Intel VT-d Coherency. This can be one of the following: • **Disabled**—The processor does not support coherency. • **Enabled**—The processor uses VT-d Coherency as required.
Intel VTD ATS support drop-down list **set ATS**	Whether the processor supports Intel VT-d Address Translation Services (ATS). This can be one of the following: • **Disabled**—The processor does not support ATS. • **Enabled**—The processor uses VT-d ATS as required.
VMD Enable drop-down list	Intel Volume Management Device (VMD) is for PCIe NVMe SSDs that provides hardware logic to manage and aggregate NVMe SSDs. This can be one the following: • **Enabled**— Enables benefits like robust surprise hot-plug, status LED management. • **Disabled**— Disables benefits like robust surprise hot-plug, status LED management. Default value: **Disabled**. Refer Intel® Virtual RAID on CPU User Guide and Intel® Virtual RAID on CPU (Intel® VROC) to configure VMD.
PCIe RAS Support drop-down list	Whether PCIe RAS Support is available on the PCIe slot. This can be one of the following: • **Enabled**— PCIe RAS is available on the slot. • **Disabled**— PCIe RAS is not available on port.

Name	Description
	Details of VMD supported and unsupported ports for Cisco UCS C480 M5 servers: Cisco UCS C480 NVMe SKU (32 drive NVME System) • DMI connected ports 7, 8, and 23 do not support VMD. • All other twenty nine ports support VMD. Cisco UCS C480 Non-NVMe SKU • DMI connected ports 1, 2, and 18 do not support VMD. • Ports 7, 8, 9, 10, 15, 16, 17, 23, 24 support VMD.
All Onboard LOM Ports drop-down list	Whether all LOM ports are enabled or disabled. This can be one of the following: • **Enabled**— All LOM ports are enabled. • **Disabled**— All LOM ports are disabled.
LOM Port 0 OptionROM drop-down list	Whether Option ROM is available on the LOM port 0. This can be one of the following: • **Disabled**—Option ROM is not available on LOM port 0. • **Enabled**—Option ROM is available on LOM port 0.
LOM Port 1 OptionROM	Whether Option ROM is available on the LOM port 1. This can be one of the following: • **Disabled**—Option ROM is not available on LOM port 1. • **Enabled**—Option ROM is available on LOM port 1.
PCIe Slot *n***OptionROM**drop-down list	Whether the server can use the Option ROMs present in the PCIe Cards. This can be one of the following: • **Disabled**—Option ROM is not available on slot *n*. • **Enabled**—Option ROM is available on slot *n*.
MRAID OptionROM	Whether the server can use the RAID Option ROMs present in the PCIe card slot designated by *n*. This can be one of the following: • **Disabled**—Option ROM for slot *n* is not available. • **Enabled**—Option ROM for slot *n* is available.

Name	Description
MLOM Oprom drop-down list **set PcieSlotMLOMOptionROM**	This options allows you to control the Option ROM execution of the PCIe adapter connected to the MLOM slot. This can be one of the following: • **Disabled**—Does not execute Option ROM of the PCIe adapter connected to the MLOM slot. • **Enabled**—Executes Option ROM of the PCIe adapter connected to the MLOM slot.
HBA Oprom drop-down list **set PcieSlotHBAOptionROM**	This options allows you to control the Option ROM execution of the PCIe adapter connected to the HBA slot. This can be one of the following: • **Disabled**—Does not execute Option ROM of the PCIe adapter connected to the HBA slot. • **Enabled**—Executes Option ROM of the PCIe adapter connected to the HBA slot.
Front NVME1 Oprom drop-down list **set PcieSlotN1OptionROM**	This options allows you to control the Option ROM execution of the PCIe adapter connected to the SSD:NVMe1 slot. This can be one of the following: • **Disabled**—Does not execute Option ROM of the PCIe adapter connected to the SSD:NVMe1 slot. • **Enabled**—Executes Option ROM of the PCIe adapter connected to the SSD:NVMe1 slot
Front NVME2 Oprom drop-down list **set PcieSlotN2OptionROM**	This options allows you to control the Option ROM execution of the PCIe adapter connected to the SSD:NVMe2 slot. This can be one of the following: • **Disabled**—Does not execute Option ROM of the PCIe adapter connected to the SSD:NVMe2 slot. • **Enabled**—Executes Option ROM of the PCIe adapter connected to the SSD:NVMe2 slot
HBA Link Speed drop-down list **set PcieSlotHBALinkSpeed**	This option allows you to restrict the maximum speed of an adapter card installed in PCIe HBA slot. This can be one of the following: • **Disabled**—The maximum speed is not restricted. • **Auto**—System selects the maximum speed allowed. • **GEN1**—2.5GT/s (gigatransfers per second) is the maximum speed allowed. • **GEN2**—5GT/s is the maximum speed allowed. • **GEN3**—8GT/s is the maximum speed allowed.

Name	Description
MLOM Link Speed drop-down list **set PcieSlotMLOMLinkSpeed**	This option allows you to restrict the maximum speed of an adapter card installed in PCIe MLOM slot. This can be one of the following: • **Disabled**—The maximum speed is not restricted. • **Auto**—System selects the maximum speed allowed. • **GEN1**—2.5GT/s (gigatransfers per second) is the maximum speed allowed. • **GEN2**—5GT/s is the maximum speed allowed. • **GEN3**—8GT/s is the maximum speed allowed.
MRAID Link Speed drop-down list	This option allows you to restrict the maximum speed of an adapter card installed in MRAID slot. This can be one of the following: • **Disabled**—The maximum speed is not restricted. • **Auto**—System selects the maximum speed allowed. • **GEN1**—2.5GT/s (gigatransfers per second) is the maximum speed allowed. • **GEN2**—5GT/s is the maximum speed allowed. • **GEN3**—8GT/s is the maximum speed allowed.
PCIe Slot*n* Link Speed drop-down list **set PcieSlotnLinkSpeed**	System IO Controller *n* (SIOCn) add-on slot (designated by *n*) link speed. This can be one of the following: • **Disabled**—Slot is disabled, and the card is not enumerated. • **Auto**— The default link speed. Link speed is automatically assigned. • **GEN1**—Link speed can reach up to first generation. • **GEN2**—Link speed can reach up to second generation. • **GEN3**—Link speed can reach up to third generation.
Front NVME1 Link Speed drop-down list **set PcieSlotFrontNvme1LinkSpeed**	Link speed for NVMe front slot 1. This can be one of the following: • **Disabled**—Slot is disabled, and the card is not enumerated. • **Auto**—The default link speed. Link speed is automatically assigned. • **GEN1**—Link speed can reach up to first generation. • **GEN2**—Link speed can reach up to second generation. • **GEN3**—Link speed can reach up to third generation.

Name	Description
Front NVME2 Link Speed drop-down list **set PcieSlotFrontNvme2LinkSpeed**	Link speed for NVMe front slot 2. This can be one of the following: • **Disabled**—Slot is disabled, and the card is not enumerated. • **Auto**—The default link speed. Link speed is automatically assigned. • **GEN1**—Link speed can reach up to first generation. • **GEN2**—Link speed can reach up to second generation. • **GEN3**—Link speed can reach up to third generation.
Rear NVME1 Link Speed drop-down list **set PcieSlotRearNvme1LinkSpeed**	Link speed for NVMe rear slot 1. This can be one of the following: • **Disabled**—Slot is disabled, and the card is not enumerated. • **Auto**—The default link speed. Link speed is automatically assigned. • **GEN1**—Link speed can reach up to first generation. • **GEN2**—Link speed can reach up to second generation. • **GEN3**—Link speed can reach up to third generation.
Rear NVME2 Link Speed drop-down list **set PcieSlotRearNvme2LinkSpeed**	Link speed for NVMe rear slot 2. This can be one of the following: • **Disabled**—Slot is disabled, and the card is not enumerated. • **Auto**—The default link speed. Link speed is automatically assigned. • **GEN1**—Link speed can reach up to first generation. • **GEN2**—Link speed can reach up to second generation. • **GEN3**—Link speed can reach up to third generation.
VGA Priority drop-down list **set VgaPriority**	Allows you to set the priority for VGA graphics devices if multiple VGA devices are found in the system. This can be one of the following: • **OnBoard**—Priority is given to the onboard VGA device. BIOS post screen and OS boot are driven through the onboard VGA port. • **OffBoard**—Priority is given to the PCIE Graphics adapter. BIOS post screen and OS boot are driven through the external graphics adapter port. • **OnBoard VGA Disabled**—Priority is given to the PCIe Graphics adapter, and the onboard VGA device is disabled. The vKVM does not function when the onboard VGA is disabled.
P-SATA OptionROM drop-down list **set pSATA**	Allows you to select the PCH SATA optionROM mode. This can be one of the following: • **LSI SW Raid**— Sets both SATA and sSATA controllers to raid mode for LSI SW Raid. • **Disabled**— Disables both SATA and sSATA controllers.

Name	Description
M2.SATA OptionROM drop-down list **set SataModeSelect**	Mode of operation of Serial Advanced Technology Attachment (SATA) Solid State Drives (SSD). This can be one of the following: • **AHCI**— Sets both SATA and sSATA controllers to AHCI mode. • **LSI SW Raid**— Sets both SATA and sSATA controllers to raid mode for LSI SW Raid. • **Disabled**— Disables both SATA and sSATA controllers.
USB Port Rear drop-down list **set UsbPortRear**	Whether the rear panel USB devices are enabled or disabled. This can be one of the following • **Disabled**— Disables the rear panel USB ports. Devices connected to these ports are not detected by the BIOS and operating system. • **Enabled**— Enables the rear panel USB ports. Devices connected to these ports are detected by the BIOS and operating system.
USB Port Front drop-down list **set UsbPortFront**	Whether the front panel USB devices are enabled or disabled. This can be one of the following • **Disabled**— Disables the front panel USB ports. Devices connected to these ports are not detected by the BIOS and operating system. • **Enabled**— Enables the front panel USB ports. Devices connected to these ports are detected by the BIOS and operating system.
USB Port Internal drop-down list **set UsbPortInt**	Whether the internal USB devices are enabled or disabled. This can be one of the following • **Disabled**— Disables the internal USB ports. Devices connected to these ports are not detected by the BIOS and operating system. • **Enabled**— Enables the internal USB ports. Devices connected to these ports are detected by the BIOS and operating system.
USB Port KVM drop-down list **set UsbPortKVM**	Whether the vKVM ports are enabled or disabled. This can be one of the following • **Disabled**— Disables the vKVM keyboard and/or mouse devices. Keyboard and/or mouse will not work in the KVM window. • **Enabled**— Enables the vKVM keyboard and/or mouse devices.
USB Port Internal drop-down list	Whether the USB Port Internal is enabled or disabled. This can be one of the following • **Disabled**— Disables the USB Port Internal. Devices connected to these ports are not detected by the BIOS and operating system. • **Enabled**— Enables the USB Port Internal. Devices connected to these ports are detected by the BIOS and operating system.

Name	Description
IPV6 PXE Support drop-down list **set IPV6PXE**	Enables or disables IPv6 support for PXE. This can be one of the following • **disabled**—IPv6 PXE support is not available. • **enabled**—IPv6 PXE support is always available.
IPv4 HTTP Support	Enables or disables IPv4 support for HTTP. This can be one of the following • **disabled**—IPv4 HTTP support is not available. • **enabled**—IPv4 HTTP support is always available.
IPv6 HTTP Support	Enables or disables IPv6 support for HTTP. This can be one of the following • **disabled**—IPv6 PXE support is not available. • **enabled**—IPv6 PXE support is always available.
PCIe PLL SSC drop-down list **set PciePllSsc**	Enable this feature to reduce EMI interference by down spreading clock 0.5%. Disable this feature to centralize the clock without spreading. This can be one of the following: • **auto**—EMI interference is auto adjusted. **Disabled**—EMI interference is auto adjusted. • **ZeroPointFive**—EMI interference is reduced by down spreading the clock 0.5%.
IPV4 PXE Support drop-down list **set IPV4PXE**	Enables or disables IPv4 support for PXE. This can be one of the following • **disabled**—IPv4 PXE support is not available. • **enabled**—IPv4 PXE support is always available.
Network Stack drop-down list **set NetworkStack**	This option allows you to monitor IPv6 and IPv4. This can be one of the following • **disabled**—Network Stack support is not available. **Note** When disabled, the value set for **IPV4 PXE Support** does not impact the system. • **enabled**—Network Stack support is always available.
External SSC enable drop-down list **set EnableClockSpreadSpec**	This option allows you to reduce the EMI of your motherboard by modulating the signals it generates so that the spikes are reduced to flatter curves. This can be one of the following: • **Disabled**—Clock Spread Spectrum support is not available. • **Enabled**—Clock Spread Spectrum support is always available.

Name	Description
PCIe Slot MSTOR RAID OptionROM drop-down list **set PcieSlotMSTORRAIDOptionROM**	Whether the server can use the Option ROMs present in the PCIe MSTOR RAID. This can be one of the following: • **Disabled**—Option ROM is not available. • **Enabled**—Option ROM is available.

Server Management Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 26: BIOS Parameters in Server Management Tab

Name	Description
Reboot Host Immediately checkbox	If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
OS Boot Watchdog Timer Policy drop-down list **set OSBootWatchdogTimerPolicy**	What action the system takes if the watchdog timer expires. This can be one of the following: • **Power Off**—The server is powered off if the watchdog timer expires during OS boot. • **Reset**—The server is reset if the watchdog timer expires during OS boot. **Note** This option is only applicable if you enable the OS Boot Watchdog Timer.
OS Watchdog Timer drop-down list **set OSBootWatchdogTimer**	Whether the BIOS programs the watchdog timer with a specified timeout value. This can be one of the following: • **Disabled**—The watchdog timer is not used to track how long the server takes to boot. • **Enabled**—The watchdog timer tracks how long the server takes to boot. If the server does not boot within the length of time specified in the **OS Boot Watchdog Timer Timeout** field, the Cisco IMC logs an error and takes the action specified in the **OS Boot Watchdog Policy** field.

Name	Description
OS Watchdog Timer Timeout drop-down list **set OSBootWatchdogTimerTimeOut**	If OS does not boot within the specified time, OS watchdog timer expires and system takes action according to timer policy. This can be one of the following: • **5 Minutes**—The OS watchdog timer expires 5 minutes after it begins to boot. • **10 Minutes**—The OS watchdog timer expires 10 minutes after it begins to boot. • **15 Minutes**—The OS watchdog timer expires 15 minutes after it begins to boot. • **20 Minutes**—The OS watchdog timer expires 20 minutes after it begins to boot. **Note** This option is only applicable if you enable the OS Boot Watchdog Timer.
Baud Rate drop-down list **set BaudRate**	What Baud rate is used for the serial port transmission speed. If you disable Console Redirection, this option is not available. This can be one of the following: • **9.6k**—A 9,600 Baud rate is used. • **19.2k**—A 19,200 Baud rate is used. • **38.4k**—A 38,400 Baud rate is used. • **57.6k**—A 57,600 Baud rate is used. • **115.2k**—A 115,200 Baud rate is used. This setting must match the setting on the remote terminal application.
Console Redirection drop-down list **set ConsoleRedir**	Allows a serial port to be used for console redirection during POST and BIOS booting. After the OS has booted, console redirection is irrelevant. This can be one of the following: • **Serial Port A**—Enables console redirection on serial port A during POST. • **Serial Port B**—Enables console redirection on serial port B during POST. • **Disabled**—No console redirection occurs during POST.

Name	Description
Adaptive Memory Training	When this option is **Enabled**: The Memory training will not happen in every boot but the BIOS will use the saved memory training result in every re-boot. Some exceptions when memory training happens in every boot are: BIOS update, CMOS reset, CPU or Memory configuration change, SPD or run-time uncorrectable error or the last boot has occurred more than 24 hours before. When this option is **Disabled**, the Memory training happens in every boot. Default value: **Enabled**. **Note** To disable the Fast Boot option, the end user must set the following tokens as mentioned below: Adaptive Memory Training to **Disabled** BIOS Techlog level to **Normal** OptionROM Launch Optimization to **Disabled**.
BIOS Techlog Level	This option denotes the type of messages in **BIOS tech log** file. The log file can be one of the following types: • **Minimum** - Critical messages will be displayed in the log file. • **Normal** - Warning and loading messages will be displayed in the log file. • **Maximum** - Normal and information related messages will be displayed in the log file. Default value: **Minimum**. **Note** This option is mainly for internal debugging purposes.

Name	Description
OptionROM Launch Optimization	When this option is **Enabled**, the OptionROMs only for the controllers present in the boot order policy will be launched. **Note** Some controllers such as Onboard storage controllers, Emulex FC adapters, and GPU controllers though not listed in the boot order policy will have the OptionROM launched. When this option is **Disabled**, all the OptionROMs will be launched. Default value: **Enabled**
CDN Control drop-down list **set cdnEnable**	Whether the Ethernet Network naming convention is according to Consistent Device Naming (CDN) or the traditional way of naming conventions. This can be one of the following: • **Disabled**— CDN support for VIC cards is disabled • **Enabled**— CDN support is enabled for VIC cards.
FRB 2 Timer drop-down list **set FRB-2**	Whether the FRB2 timer is used by Cisco IMC to recover the system if it hangs during POST. This can be one of the following: • **Disabled**—The FRB2 timer is not used. • **Enabled**—The FRB2 timer is started during POST and used to recover the system if necessary.
Flow Control drop-down list **set FlowCtrl**	Whether a handshake protocol is used for flow control. Request to Send / Clear to Send (RTS/CTS) helps to reduce frame collisions that can be introduced by a hidden terminal problem. This can be one of the following: • **None**—No flow control is used. • **RTS/CTS**—RTS/CTS is used for flow control. **Note** This setting must match the setting on the remote terminal application.

Name	Description
Terminal type drop-down list **set TerminalType**	What type of character formatting is used for console redirection. This can be one of the following: • **PC-ANSI**—The PC-ANSI terminal font is used. • **VT100**—A supported VT100 video terminal and its character set are used. • **VT100-PLUS**—A supported VT100-plus video terminal and its character set are used. • **VT-UTF8**—A video terminal with the UTF-8 character set is used.
PCIe Slots CDN Control drop-down list **set PcieSlotsCdnEnable**	**Note** This option is available only on Cisco UCS C240 M5 servers equipped with Qlogic cards in slots 2 or 5. Whether the Ethernet Network naming convention is according to Consistent Device Naming (CDN) or the traditional way of naming conventions. This can be one of the following: • **Disabled**— CDN support for VIC cards is disabled • **Enabled**— CDN support is enabled for VIC cards.

Security Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 27: BIOS Parameters in Security Tab

Name	Description
Reboot Host Immediately checkbox	**If the Reboot Host Immediately check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.**
Trusted Platform Module State drop-down list **set TPMAdminCtrl**	Trusted Platform Module (TPM) is a microchip designed to provide basic security-related functions primarily involving encryption keys. This option allows you to control the TPM Security Device support for the system. It can be one of the following: • **Disabled**—The server does not use the TPM. • **Enabled**—The server uses the TPM. **Note** Contact your operating system vendor to make sure the operating system supports this feature.
SHA-1 PCR Bank	Enable or Disable SHA-1 PCR Bank. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
SHA256 PCR Bank	Enable or Disable SHA256 PCR Bank. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
Intel Trusted Execution Technology Support	Can be Enabled only when Trusted Platform Module (TPM) is Enabled. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
Power ON Password drop-down list **set PowerOnPassword**	This token requires that you set a BIOS password before using the F2 BIOS configuration. If enabled, password needs to be validated before you access BIOS functions such as IO configuration, BIOS set up, and booting to an operating system using BIOS. It can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.

Processor Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 28: BIOS Parameters in Processor Tab

Name	Description
Intel Virtualization Technology drop-down list **set IntelVT**	Whether the processor uses Intel Virtualization Technology (VT), which allows a platform to run multiple operating systems and applications in independent partitions. This can be one of the following: • **Disabled**—The processor does not permit virtualization. • **Enabled**—The processor allows multiple operating systems in independent partitions.
Extended APIC drop-down list **set LocalX2Apic**	Allows you to enable or disable extended APIC support. This can be one of the following: • **Enabled**—Enables APIC support • **Disabled**—Disables APIC support.
Processor C1E drop-down list **set ProcessorC1E**	Whether the CPU transitions to its minimum frequency when entering the C1 state. This can be one of the following: • **Disabled**—The CPU continues to run at its maximum frequency in C1 state. • **Enabled**—The CPU transitions to its minimum frequency. This option saves the maximum amount of power in C1 state. **Note** This option is available only on some C-Series servers.

Name	Description
Processor C6 Report drop-down list **set ProcessorC6Report**	Whether the BIOS sends the C6 report to the operating system. When the OS receives the report, it can transition the processor into the lower C6 power state to decrease energy usage while maintaining optimal processor performance. This can be one of the following: • **Disabled**—The BIOS does not send the C6 report. • **Enabled**—The BIOS sends the C6 report, allowing the OS to transition the processor to the C6 low power state. **Note** **CPUPowerManagement** must be set to **Custom** or the server ignores the setting for this parameter. **Note** This option is available only on some C-Series servers.
Execute Disable Bit drop-down list **set ExecuteDisable**	Classifies memory areas on the server to specify where application code can execute. As a result of this classification, the processor disables code execution if a malicious worm attempts to insert code in the buffer. This setting helps to prevent damage, worm propagation, and certain classes of malicious buffer overflow attacks. This can be one of the following: • **Disabled**—The processor does not classify memory areas. • **Enabled**—The processor classifies memory areas. **Note** Contact your operating system vendor to make sure the operating system supports this feature.

Name	Description
Turbo Mode drop-down list **set IntelTurboBoostTech**	Whether the processor uses Intel Turbo Boost Technology, which allows the processor to automatically increase its frequency if it is running below power, temperature, or voltage specifications. This can be one of the following: • **Disabled**—The processor does not increase its frequency automatically. • **Enabled**—The processor utilizes Turbo Boost Technology if required. **Note** **CPUPowerManagement** must be set to **Custom** or the server ignores the setting for this parameter.
EIST PSD Function drop-down list	EIST reduces the latency inherent with changing the voltage-frequency pair (P-state), thus allowing those transitions to occur more frequently. This allows for more granular, demand-based switching and can optimize the power-to-performance balance, based on the demands of the applications. This can be one of the following: • HW ALL: The processor is coordinates the P-state among logical processors dependencies. The OS keeps the P-state request up to date on all logical processors. • SW ALL: The OS Power Manager coordinates the P-state among logical processors with dependencies and initiates the transition on all of those Logical Processors.

Name	Description
SpeedStep (Pstates) drop-down list **set EnhancedIntelSpeedStep**	Whether the processor uses Enhanced Intel SpeedStep Technology, which allows the system to dynamically adjust processor voltage and core frequency. This technology can result in decreased average power consumption and decreased average heat production. This can be one of the following: • **Disabled**—The processor never dynamically adjusts its voltage or frequency. • **Enabled**—The processor utilizes Enhanced Intel SpeedStep Technology and enables all supported processor sleep states to further conserve power. We recommend that you contact your operating system vendor to make sure the operating system supports this feature. **Note** **CPUPowerManagement** must be set to **Custom** or the server ignores the setting for this parameter.
HyperThreading [ALL] drop-down list **set IntelHyperThread**	Whether the processor uses Intel Hyper-Threading Technology, which allows multithreaded software applications to execute threads in parallel within each processor. This can be one of the following: • **Disabled**—The processor does not permit hyperthreading. • **Enabled**—The processor allows for the parallel execution of multiple threads.
Cores Enabled drop-down list **set CoreMultiProcessing**	Allows you to disable one or more of the physical cores on the server. This can be one of the following: • **All**—Enables all physical cores. This also enables Hyper Threading on the associated logical processor cores. • **1 through 27**—Specifies the number of physical processor cores that can run on the server. Each physical core has an associated logical core. **Note** Contact your operating system vendor to make sure the operating system supports this feature.

Name	Description
Processor CMCI drop-down list **set ProcessorCMCI**	Allows the CPU to trigger interrupts on corrected machine check events. The corrected machine check interrupt (CMCI) allows faster reaction than the traditional polling timer. This can be one of the following: • **Disabled**—Disables CMCI. • **Enabled**—Enables CMCI. This is the default value.
Enhanced Intel SpeedStep Tech drop-down list **set EnhancedIntelSpeedStep**	Whether the processor uses Enhanced Intel SpeedStep Technology, which allows the system to dynamically adjust processor voltage and core frequency. This technology can result in decreased average power consumption and decreased average heat production. This can be one of the following: • **Disabled**—The processor never dynamically adjusts its voltage or frequency. • **Enabled**—The processor utilizes Enhanced Intel SpeedStep Technology and enables all supported processor sleep states to further conserve power. We recommend that you contact your operating system vendor to make sure the operating system supports this feature. **Note** **CPUPowerManagement** must be set to **Custom** or the server ignores the setting for this parameter.
Workload Configuration drop-down list **set WorkLdConfig**	This feature allows for workload optimization. The options are Balanced and I/O Sensitive: • **NUMA** • **UMA**
Sub NUMA Clustering drop-down list	Whether the CPU supports sub NUMA clustering, in which the tag directory and the memory channel are always in the same region. This can be one of the following: • **disabled**— Sub NUMA clustering does not occur. • **enabled**— Sub NUMA clustering occurs. • **auto** — The BIOS determines what Sub NUMA clustering is done.

Name	Description
Energy/Performance Bias Config	Displays the energy or performance bias configuration. This can be one of the following: • Balanced Performance • Performance • Balanced Power • Power
XPT Prefetch drop-down list	Whether XPT prefetch is used to enable a read request sent to the last level cache to issue a copy of that request to the memory controller prefetcher. This can be one of the following: • **disabled**—The CPU does not use the XPT Prefetch option. • **enabled**—The CPU enables the XPT prefetch option.
UPI Prefetch drop-down list	UPI prefetch is a mechanism to get the memory read started early on a DDR bus. This can be one of the following: • **disabled**—The processor does not preload any cache data. • **enabled**—The UPI prefetcher preloads the L1 cache with the data it determines to be the most relevant.

Name	Description
Energy Performance Bias Config drop-down list **set CpuEngPerfBias**	Allows you to determine whether system performance or energy efficiency is more important on this server. This can be one of the following: • — The server provides all server components with full power at all times. This option maintains the highest level of performance and requires the greatest amount of power. • — The server provides all server components with enough power to keep a balance between performance and power. • — The server provides all server components with enough power to keep a balance between performance and power. • — The server provides all server components with maximum power to keep reduce power consumption.
Power Performance Tuning drop-down list **set PwrPerfTuning**	Determines if the BIOS or Operating System can turn on the energy performance bias tuning. The options are BIOS and OS. • **bios**— Chooses BIOS for energy performance tuning. • **os**— Chooses OS for energy performance tuning.
LLC Prefetch drop-down list	Whether the processor uses the LLC Prefetch mechanism to fetch the date into the LLC. This can be one of the following: • **disabled**—The processor does not preload any cache data. • **enabled**—The LLC prefetcher preloads the L1 cache with the data it determines to be the most relevant.

Name	Description
Package C State **set package-c-state-limit-config package-c-state-limit**	The amount of power available to the server components when they are idle. This can be one of the following: • **no-limit**—The server may enter any available C state. • **auto** —The CPU determines the physical elevation. • —The server provides all server components with full power at all times. This option maintains the highest level of performance and requires the greatest amount of power. • —When the CPU is idle, the system reduces the power consumption further than with the C1 option. This requires less power than C1 or C0, but it takes the server slightly longer to return to high performance mode. • —When the CPU is idle, the system reduces the power consumption further than with the C3 option. This option saves more power than C0, C1, or C3, but there may be performance issues until the server returns to full power. • —When the CPU is idle, the system reduces the power consumption further than with the C3 option. This option saves more power than C0, C1, or C3, but there may be performance issues until the server returns to full power.
Hardware P-States drop-down list **set CpuHWPM**	Enables processor Hardware P-State. This can be one of the following: • **disabled**—HWPM is disabled. • **hwpm-native-mode**—HWPM native mode is enabled. • **hwpm-oob-mode**—HWPM Out-Of-Box mode is enabled. • **Native Mode with no Legacy** (only GUI)

Name	Description
Intel Speed Select drop-down list **set IntelSpeedSelect**	**Intel Speed Select** modes will allow users to run the CPU with different speed and cores. This can be one of the following: • **Base**— It will allow users to access maximum core and Thermal Design Power (TDP) ratio. • **Config 1**— It will allow users to access core and TDP ratio lesser than **Base**. • **Config 2**— It will allow users to access core and TDP ratio lesser than **Config 1**. Default value: **Base**.
Uncore Frequency Scaling drop-down list **set UFSDisable**	This feature allows you configure the scaling of uncore frequency of the processor. This can be one of the following: • **enabled**—Uncore frequency of the processor scales up or down based on the load. • **disabled**—Uncore frequency of the processor remains fixed. Refer Intel® Dear Customer Letter (DCL) to know the fixed higher and lower values for **Uncore Frequency Scaling**.
Configurable TDP Level drop-down list **set ConfigTDPLevel**	**Configurable TDP Level** feature allows adjustments in processor thermal design power values. By modifying the processor behavior and the performance levels, power consumption of a processor can be configured and TDP can be adjusted as the same time. Hence, a processor operates at higher or lower performance levels, depending on the available cooling capacities and desired power consumption. This can be one of the following: • **Normal** • **Level 1** • **Level 2** Refer Intel® Dear Customer Letter (DCL) to know the values for **TDP level**.

Name	Description
UPI Link Speed drop-down list **set QpiLinkSpeed**	**Note** **UPI Link Frequency Select** token is not applicable for single socket configuration. This feature allows you to configure the Intel Ultra Path Interconnect (UPI) link speed between multiple sockets. This can be one of the following: • **Auto**—This option configures the optimal link speed automatically. • **9.6 GT/s**—This option configures the optimal link speed at 9.6GT/s. • **10.4 GT/s**—This option configures the optimal link speed at 10.4GT/s
Energy Efficient Turbo drop-down list **set EnergyEfficientTurbo**	When energy efficient turbo is enabled, the optimal turbo frequency of the CPU turns dynamic based on CPU utilization. The power/performance bias setting also influences energy efficient turbo. This can be one of the following: • **Disabled**—Energy Efficient Turbo is disabled. • **Enabled**—Energy Efficient Turbo is enabled.
Processor EPP Enable	Displays the selected value for Processor EPP Enable. • **Disabled**—Processor EPP Enable is disabled. • **Enabled**—Processor EPP Enable is enabled.
Autonomous Core C-state drop-down list **set AutoCCState**	Enables CPU Autonomous C-State, which converts the HALT instructions to the MWAIT instructions. This can be one of the following: • **Disabled**—CPU Autonomous C-state is disabled. • **Enabled**—CPU Autonomous C-state is enabled.

Name	Description
Patrol Scrub drop-down list **set PatrolScrub**	Allows the system to actively search for, and correct, single bit memory errors even in unused portions of the memory on the server. This can be one of the following: • **Disabled**—The system checks for memory ECC errors only when the CPU reads or writes a memory address. • **Enabled**—The system periodically reads and writes memory searching for ECC errors. If any errors are found, the system attempts to fix them. This option may correct single bit errors before they become multi-bit errors, but it may adversely affect performance when the patrol scrub is running. • **Enable at End of POST**—The system checks for memory ECC errors after BIOS POST.
Processor EPP Profile drop-down list **set EPPProfile**	Allows you to determine whether system performance or energy efficiency is more important on this server. This can be one of the following: • Performance • Balanced Performance • Balanced Power • Power

Memory Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 29: BIOS Parameters in Memory Tab

Name	Description
Reboot Host Immediately checkbox	Upon checking, reboots the host server immediately. You must check the checkbox after saving changes.

Name	Description
Select Memory RAS configuration drop-down list **set SelectMemoryRAS**	Determines how the memory reliability, availability, and serviceability (RAS) is configured for the server. This can be one of the following: • **Maximum Performance**—System performance is optimized. • **ADDDC Sparing**—Adaptive virtual lockstep is an algorithm implemented in the hardware and firmware to support the ADDDC mode. When selected, the system performance is optimized till the algorithm is activated. The algorithm is activated in case of DRAM device failure. Once the algorithm is activated, the virtual lockstep regions are activated to map out the failed region during run-time dynamically, and the performance impact is restricted at a region level. • **Mirror Mode 1LM**—System reliability is optimized by using half the system memory as backup. • **Partial Mirror Mode 1LM**—Partial DIMM Mirroring creates a mirrored copy of a specific region of memory cells, rather than keeping the complete mirror copy. Partial Mirroring creates a mirrored region in memory map with the attributes of a partial mirror copy. Up to 50% of the total memory capacity can be mirrored, using up to 4 partial mirrors.
Above 4G Decoding drop-down list **set MemoryMappedIOAbove4GB**	Enables or disables MMIO above 4GB or not. This can be one of the following: • **Disabled**—The server does not map I/O of 64-bit PCI devices to 4GB or greater address space. • **Enabled**—The server maps I/O of 64-bit PCI devices to 4GB or greater address space. **Note** PCI devices that are 64-bit compliant but use a legacy option ROM may not function correctly with this setting enabled.
DCPMM Firmware Downgrade drop-down list **set DCPMMFirmwareDowngrade**	Whether the BIOS supports downgrading the DCPMM firmware. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.

Name	Description
Partial Memory Mirror Mode drop-down list **set PartialMirrorModeConfig**	The partial memory size is either in percentage or in GB. This can be one of the following: • **Percentage**—The partial memory mirror is defined in percentage. • **Value in GB**—The partial memory mirror is defined in GB. • **Disabled**—Partial memory mirror is disabled.
Partial Mirror percentage field **set PartialMirrorPercent**	Percentage of memory to mirror above 4GB. Enter an integer between 0 and 50.
Partial Mirror1 Size in GB field **set PartialMirrorValue1**	Size of the first partial memory mirror in GB. Enter an integer between 0 and 65535. **Note** The combined memory size of all the partial mirror should not exceed 50% of the physical memory size.
Partial Mirror2 Size in GB field **set PartialMirrorValue2**	Size of the second partial memory mirror in GB. Enter an integer between 0 and 65535. **Note** The combined memory size of all the partial mirror should not exceed 50% of the physical memory size.
Partial Mirror3 Size in GB field **set PartialMirrorValue3**	Size of the third partial memory mirror in GB. Enter an integer between 0 and 65535. **Note** The combined memory size of all the partial mirror should not exceed 50% of the physical memory size.
Partial Mirror4 Size in GB field **set PartialMirrorValue4**	Size of the fourth partial memory mirror in GB. Enter an integer between 0 and 65535. **Note** The combined memory size of all the partial mirror should not exceed 50% of the physical memory size.
Memory Size Limit in GB field **set MemorySizeLimit**	Use this option to reduce the size of the physical memory limit in GB. Enter an integer between 0 and 65535.

Name	Description
NUMA drop-down list **set NUMAOptimize**	Whether the BIOS supports Non-Uniform Memory Access (NUMA). This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
BME DMA Mitigation drop-down list **set BmeDmaMitigation**	Allows you to disable the PCI BME bit to mitigate the threat from an unauthorized external DMA. This can be one of the following: • **Disabled**—PCI BME bit is disabled in the BIOS. • **Enabled**—PCI BME bit is enabled in the BIOS.
Select PPR Type drop-down list **set SelectPprType**	Cisco IMC supports **Hard-PPR**, which permanently remaps accesses from a designated faulty row to a designated spare row. This can be one of the following: • **Hard PPR**—Support is enabled. **Note** Hard PPR can be used only when **Memory RAS Configuration** is set to **ADDDC Sparing**. For other RAS selections, this setting should be set to **Disabled**. • **Disabled**—Support is disabled.
CR QoS drop-down list **CRQoS**	Enables you to select the CR QoS tuning. This can be one of the following: • **Recipe 1**—For QoS knobs and is recommended for 2-2-2 memory configuration in active directory. • **Recipe 2**—For QoS knobs and is recommended for other memory configuration in active directory. • **Recipe 3**—For QoS knobs and is recommended for 1 DIMM per channel configuration. • **Disabled**—**CR QoS** feature is disabled.

Name	Description
Snoopy mode for AD drop-down list **SnoopyModeForAD**	Enables new AD specific feature to avoid directory updates to DDRT memory from non-NUMA optimized workloads. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
CR FastGo Config drop-down list **CrfastgoConfig**	Enables you to select CR QoS configuration profiles. This can be one of the following: • **Default** • **Option 1** • **Option 2** • **Option 3** • **Option 4** • **Option 5** • **Auto**
NVM Performance Setting drop-down list **NvmdimmPerformConfig**	Enables you to configure NVM baseline performance settings depending on the workload behavior. • **BW Optimized** • **Latency Optimized** • **Balanced Profile**
Snoopy mode for 2LM drop-down list **SnoopyModeFor2LM**	Enables you to avoid directory updates to far-memory from non-NUMA optimized workloads. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.

Name	Description
Memory Thermal Throttling Mode drop-down list **MemoryThermalThrottling**	This function is used for adjusting memory temperature. If memory temperature is excessively high after the function is enabled, the memory access rate is reduced and Baseboard Management Controller (BMC) adjusts the fan to cool down the memory to avoid any DIMM damage. This can be one of the following: • **Disabled**—Support is disabled. • **CLTT with PECI**—Enables Closed Loop Thermal Throttling with Platform Environment Control Interface.
Memory Refresh Rate drop-down list **MemoryRefreshRate**	Enables you to increase or decrease memory refresh rate. Increasing the DRAM refresh rate reduces the maximum number of activates (hammers) that can occur before the next refresh. This can be one of the following: • **1X Refresh**—Refresh rate is at minimum. • **2X Refresh** —Refresh is 2X faster.
Panic and High Watermark drop-down list **PanicHighWatermark**	When set to low, the memory controller does not postpone refreshes while **Memory Refresh Rate** is set to **1X Refresh**. This can be one of the following: • **Low**—Refresh rate is set to low. • **High** —Refresh rate is set to high.
Advanced Memory Test drop-down list **AdvancedMemTest**	**Note** This feature is applicable only to Samsung, Hynix and Micron DIMMs. You can enable advance DIMM testing during BIOS POST using this feature. This can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.
Enhanced Memory Test drop-down list	This can be one of the following: • **Auto**—Support is set to Auto. • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.

Power/Performance Tab

Note BIOS parameters listed in this tab may vary depending on the server.

Table 30: BIOS Parameters in Power/Performance Tab

Name	Description
Reboot Host Immediately checkbox	Upon checking, reboots the host server immediately. You must check the checkbox after saving changes.
Hardware Prefetcher drop-down list **set HardwarePrefetch**	Whether the processor allows the Intel hardware prefetcher to fetch streams of data and instruction from memory into the unified second-level cache when necessary. This can be one of the following: • **Disabled**—The hardware prefetcher is not used. • **Enabled**—The processor uses the hardware prefetcher when cache issues are detected.
Adjacent Cache Line Prefetcher drop-down list **set AdjacentCacheLinePrefetch**	Whether the processor fetches cache lines in even or odd pairs instead of fetching just the required line. This can be one of the following: • **Disabled**—The processor only fetches the required line. • **Enabled**—The processor fetches both the required line and its paired line.
DCU Streamer Prefetch drop-down list **set DcuStreamerPrefetch**	Whether the processor uses the DCU IP Prefetch mechanism to analyze historical cache access patterns and preload the most relevant lines in the L1 cache. This can be one of the following: • **Disabled**—The processor does not try to anticipate cache read requirements and only fetches explicitly requested lines. • **Enabled**—The DCU prefetcher analyzes the cache read pattern and prefetches the next line in the cache if it determines that it may be needed.
DCU IP Prefetcher drop-down list **set DcuIpPrefetch**	Whether the processor uses the DCU IP Prefetch mechanism to analyze historical cache access patterns and preload the most relevant lines in the L1 cache. This can be one of the following: • **Disabled**—The processor does not preload any cache data. • **Enabled**—The DCU IP prefetcher preloads the L1 cache with the data it determines to be the most relevant.

Name	Description
CPU Performance drop-down list **set CPUPerformance**	Sets the CPU performance profile for the options listed above. This can be one of the following: • **Enterprise**—All options are enabled. • **HPC**—All options are enabled. This setting is also known as high performance computing. • **Hight Throughput**—Only the DCU IP Prefetcher is enabled. The rest of the options are disabled. • **Custom**—All performance profile options can be configured from the BIOS setup on the server. In addition, the Hardware Prefetcher and Adjacent Cache-Line Prefetch options can be configured as well.

C460 M4 Servers

Main Tab for C460 M4 Servers

Main BIOS Parameters

Name	Description
Reboot Host Immediately checkbox	Upon checking, reboots the host server immediately. You must check the checkbox after saving changes.
TPM Support **set TPMAdminCtrl**	TPM (Trusted Platform Module) is a microchip designed to provide basic security-related functions primarily involving encryption keys. This option allows you to control the TPM Security Device support for the system. It can be one of the following: • **Disabled**—The server does not use the TPM. • **Enabled**—The server uses the TPM. **Note** We recommend that you contact your operating system vendor to make sure the operating system supports this feature.
Power ON Password Support drop-down	This token requires that you set a BIOS password before using the F2 BIOS configuration. If enabled, password needs to be validated before you access BIOS functions such as IO configuration, BIOS set up, and booting to an operating system using BIOS. It can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.

Actions Area

Name	Description
Save button	Saves the settings for the BIOS parameter and closes the dialog box. If the **Reboot Host Immediately** check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
Reset button	Resets the values for the BIOS parameters on all three tabs to the settings that were in effect when this dialog box was first opened.
Restore Defaults button	Sets the BIOS parameters on all three tabs to their default settings.

Advanced Tab for C460 M4 Servers

Reboot Server Option

If you want your changes applied automatically after you click **Save Changes**, check the **Reboot Host Immediately** check box. Cisco IMC immediately reboots the server and applies your changes.

If you want to apply your changes at a later time, clear the **Reboot Host Immediately** check box. Cisco IMC stores the changes and applies them the next time the server reboots.

Note If there are existing BIOS parameter changes pending, Cisco IMC automatically overwrites the stored values with the current settings when you click **Save Changes**.

Processor Configuration Parameters

Name	Description
Intel Hyper-Threading Technology **set IntelHyperThread**	Whether the processor uses Intel Hyper-Threading Technology, which allows multithreaded software applications to execute threads in parallel within each processor. This can be one of the following: • **Disabled**—The processor does not permit hyperthreading. • **Enabled**—The processor allows for the parallel execution of multiple threads. We recommend that you contact your operating system vendor to make sure the operating system supports this feature.

Name	Description
Number of Enabled Cores **set CoreMultiProcessing**	Allows you to disable one or more of the physical cores on the server. This can be one of the following: • **All**—Enables all physical cores. This also enables Hyper Threading on the associated logical processor cores. • **1** through ***n***—Specifies the number of physical processor cores that can run on the server. Each physical core has an associated logical core. We recommend that you contact your operating system vendor to make sure the operating system supports this feature.
Execute Disable **set ExecuteDisable**	Classifies memory areas on the server to specify where application code can execute. As a result of this classification, the processor disables code execution if a malicious worm attempts to insert code in the buffer. This setting helps to prevent damage, worm propagation, and certain classes of malicious buffer overflow attacks. This can be one of the following: • **Disabled**—The processor does not classify memory areas. • **Enabled**—The processor classifies memory areas. We recommend that you contact your operating system vendor to make sure the operating system supports this feature.
Intel VT **set IntelVT**	Whether the processor uses Intel Virtualization Technology (VT), which allows a platform to run multiple operating systems and applications in independent partitions. This can be one of the following: • **Disabled**—The processor does not permit virtualization. • **Enabled**—The processor allows multiple operating systems in independent partitions. **Note** If you change this option, you must power cycle the server before the setting takes effect.
Intel VT-d **set IntelVTD**	Whether the processor uses Intel Virtualization Technology for Directed I/O (VT-d). This can be one of the following: • **Disabled**—The processor does not use virtualization technology. • **Enabled**—The processor uses virtualization technology.

Name	Description
Intel(R) Interrupt Remapping drop-down list **set InterruptRemap**	Whether the processor supports Intel VT-d Interrupt Remapping. This can be one of the following: • **Disabled**—The processor does not support remapping. • **Enabled**—The processor uses VT-d Interrupt Remapping as required.
Intel(R) Passthrough DMA drop-down list **set PassThroughDMA**	Whether the processor supports Intel VT-d Pass-through DMA. This can be one of the following: • **Disabled**—The processor does not support pass-through DMA. • **Enabled**—The processor uses VT-d Pass-through DMA as required.
Intel VT-d Coherency Support **set CoherencySupport**	Whether the processor supports Intel VT-d Coherency. This can be one of the following: • **Disabled**—The processor does not support coherency. • **Enabled**—The processor uses VT-d Coherency as required.
Intel VT-d ATS Support **set ATS**	Whether the processor supports Intel VT-d Address Translation Services (ATS). This can be one of the following: • **Disabled**—The processor does not support ATS. • **Enabled**—The processor uses VT-d ATS as required.

Name	Description
CPU Performance **set CPUPerformance**	Sets the CPU performance profile for the server. The performance profile consists of the following options: • DCU Streamer Prefetcher • DCU IP Prefetcher • Hardware Prefetcher • Adjacent Cache-Line Prefetch This can be one of the following: • **Enterprise**—All options are enabled. • **High_Throughput**—Only the DCU IP Prefetcher is enabled. The rest of the options are disabled. • **HPC**—All options are enabled. This setting is also known as high performance computing. • **Custom**—All performance profile options can be configured from the BIOS setup on the server. In addition, the Hardware Prefetcher and Adjacent Cache-Line Prefetch options can be configured in the fields below.
Hardware Prefetcher **set HardwarePrefetch**	Whether the processor allows the Intel hardware prefetcher to fetch streams of data and instruction from memory into the unified second-level cache when necessary. This can be one of the following: • **Disabled**—The hardware prefetcher is not used. • **Enabled**—The processor uses the hardware prefetcher when cache issues are detected.
Adjacent Cache Line Prefetcher **set AdjacentCacheLinePrefetch**	Whether the processor fetches cache lines in even/odd pairs instead of fetching just the required line. This can be one of the following: • **Disabled**—The processor only fetches the required line. • **Enabled**— The processor fetches both the required line and its paired line.

Name	Description
DCU Streamer Prefetch **set DcuStreamerPrefetch**	Whether the processor uses the DCU IP Prefetch mechanism to analyze historical cache access patterns and preload the most relevant lines in the L1 cache. This can be one of the following: • **Disabled**—The processor does not try to anticipate cache read requirements and only fetches explicitly requested lines. • **Enabled**—The DCU prefetcher analyzes the cache read pattern and prefetches the next line in the cache if it determines that it may be needed.
DCU IP Prefetcher **set DcuIpPrefetch**	Whether the processor uses the DCU IP Prefetch mechanism to analyze historical cache access patterns and preload the most relevant lines in the L1 cache. This can be one of the following: • **Disabled**—The processor does not preload any cache data. • **Enabled**—The DCU IP prefetcher preloads the L1 cache with the data it determines to be the most relevant.
Direct Cache Access Support **set DirectCacheAccess**	Allows processors to increase I/O performance by placing data from I/O devices directly into the processor cache. This setting helps to reduce cache misses. This can be one of the following: • **Disabled**—Data from I/O devices is not placed directly into the processor cache. • **Enabled**—Data from I/O devices is placed directly into the processor cache.
Power Technology **set CPUPowerManagement**	Enables you to configure the CPU power management settings for the following options: • Enhanced Intel Speedstep Technology • Intel Turbo Boost Technology • Processor Power State C6 Power Technology can be one of the following: • **Custom**—The server uses the individual settings for the BIOS parameters mentioned above. You must select this option if you want to change any of these BIOS parameters. • **Disabled**—The server does not perform any CPU power management and any settings for the BIOS parameters mentioned above are ignored. • **Energy_Efficient**—The server determines the best settings for the BIOS parameters mentioned above and ignores the individual settings for these parameters.

Name	Description
Enhanced Intel Speedstep Technology **set EnhancedIntelSpeedStep**	Whether the processor uses Enhanced Intel SpeedStep Technology, which allows the system to dynamically adjust processor voltage and core frequency. This technology can result in decreased average power consumption and decreased average heat production. This can be one of the following: • **Disabled**—The processor never dynamically adjusts its voltage or frequency. • **Enabled**—The processor utilizes Enhanced Intel SpeedStep Technology and enables all supported processor sleep states to further conserve power. We recommend that you contact your operating system vendor to make sure the operating system supports this feature. **Note** **CPUPowerManagement** must be set to **Custom** or the server ignores the setting for this parameter.
Intel Turbo Boost Technology **set IntelTurboBoostTech**	Whether the processor uses Intel Turbo Boost Technology, which allows the processor to automatically increase its frequency if it is running below power, temperature, or voltage specifications. This can be one of the following: • **Disabled**—The processor does not increase its frequency automatically. • **Enabled**—The processor utilizes Turbo Boost Technology if required. **Note** **CPUPowerManagement** must be set to **Custom** or the server ignores the setting for this parameter.
Processor C3 Report **set ProcessorC3Report**	Whether the BIOS sends the C3 report to the operating system. When the OS receives the report, it can transition the processor into the lower C3 power state to decrease energy usage while maintaining optimal processor performance. This can be one of the following: • **Disabled**—BIOS does not send C3 report. • **Enabled**—BIOS sends the C3 report, allowing the OS to transition the processor to the C3 low power state. **Note** **CPUPowerManagement** must be set to **Custom** or the server ignores the setting for this parameter.

Name	Description
Processor C6 Report **set ProcessorC6Report**	Whether the BIOS sends the C6 report to the operating system. When the OS receives the report, it can transition the processor into the lower C6 power state to decrease energy usage while maintaining optimal processor performance. This can be one of the following: • **Disabled**—The BIOS does not send the C6 report. • **Enabled**—The BIOS sends the C6 report, allowing the OS to transition the processor to the C6 low power state. **Note** **CPUPowerManagement** must be set to **Custom** or the server ignores the setting for this parameter.
Processor Power State C1 Enhanced **set ProcessorC1EReport**	Whether the CPU transitions to its minimum frequency when entering the C1 state. This can be one of the following: • **Disabled**—The CPU continues to run at its maximum frequency in C1 state. • **Enabled**—The CPU transitions to its minimum frequency. This option saves the maximum amount of power in C1 state.
P-STATE Coordination **set PsdCoordType**	Allows you to define how BIOS communicates the P-state support model to the operating system. There are 3 models as defined by the Advanced Configuration and Power Interface (ACPI) specification. • **HW_ALL**—The processor hardware is responsible for coordinating the P-state among logical processors with dependencies (all logical processors in a package). • **SW_ALL**—The OS Power Manager (OSPM) is responsible for coordinating the P-state among logical processors with dependencies (all logical processors in a physical package), and must initiate the transition on all of the logical processors. • **SW_ANY**—The OS Power Manager (OSPM) is responsible for coordinating the P-state among logical processors with dependencies (all logical processors in a package), and may initiate the transition on any of the logical processors in the domain. **Note** **CPUPowerManagement** must be set to **Custom** or the server ignores the setting for this parameter.

Name	Description
SINGLE_PCTL drop-down list **get SinglePCTLEn**	Facilitates single PCTL support for better processor power management. This can be one of the following: • **No** • **Yes**
Config TDP drop-down list **get ConfigTDP**	Allows you to configure the Thermal Design Power (TDP) settings for the system. TDP is the maximum amount of power allowed for running applications without triggering an overheating event. This can be one of the following: • **Disabled**—Disables the TDP settings. This is the default value. • **Enabled**—Enables the TDP settings.
Energy Performance Tuning **set PwrPerfTuning**	Allows you to choose BIOS or Operating System for energy performance bias tuning. This can be one of the following: • **OS**— Chooses OS for energy performance tuning. • **BIOS**— Chooses BIOS for energy performance tuning.
Energy Performance **set CpuEngPerfBias**	Allows you to determine whether system performance or energy efficiency is more important on this server. This can be one of the following: • **Balanced_Energy** • **Balanced_Performance** • **Energy_Efficient** • **Performance**

Name	Description
Package C State Limit **set PackageCStateLimit**	The amount of power available to the server components when they are idle. This can be one of the following: • **C0_state**—The server provides all server components with full power at all times. This option maintains the highest level of performance and requires the greatest amount of power. • **C1_state**—When the CPU is idle, the system slightly reduces the power consumption. This option requires less power than C0 and allows the server to return quickly to high performance mode. • **C3_state**—When the CPU is idle, the system reduces the power consumption further than with the C1 option. This requires less power than C1 or C0, but it takes the server slightly longer to return to high performance mode. • **C6_state**—When the CPU is idle, the system reduces the power consumption further than with the C3 option. This option saves more power than C0, C1, or C3, but there may be performance issues until the server returns to full power. • **C7_state**—When the CPU is idle, the server makes a minimal amount of power available to the components. This option saves the maximum amount of power but it also requires the longest time for the server to return to high performance mode. • **No_Limit**—The server may enter any available C state.
Extended APIC **set LocalX2Apic**	Allows you to enable or disable extended APIC support. This can be one of the following: • **XAPIC**—Enables APIC support. • **X2APIC**—Enables APIC and also enables Intel VT-d and Interrupt Remapping .
Workload Configuration **set WorkLdConfig**	Allows you to set a parameter to optimize workload characterization. This can be one of the following: • **Balanced**— Chooses balanced option for optimization. • **I/O Sensitive**— Chooses I/O sensitive option for optimization. **Note** We recommend you to set the workload configuration to **Balanced**.

Name	Description
IIO Error Enable drop-down list **get IohErrorEn**	Allows you to generate the IIO-related errors. This can be one of the following: • **Yes** • **No**

Memory Configuration Parameters

Name	Description
Select Memory RAS **set SelectMemoryRAS**	How the memory reliability, availability, and serviceability (RAS) is configured for the server. This can be one of the following: • **Maximum_Performance**—System performance is optimized. • **Mirroring**—System reliability is optimized by using half the system memory as backup. • **Lockstep**—If the DIMM pairs in the server have an identical type, size, and organization and are populated across the SMI channels, you can enable lockstep mode to minimize memory access latency and provide better performance. This option offers better system performance than Mirroring and better reliability than Maximum Performance but lower reliability than Mirroring and lower system performance than Maximum Performance.
DRAM Clock Throttling **set DRAMClockThrottling**	Allows you to tune the system settings between the memory bandwidth and power consumption. This can be one of the following: • **Balanced**— DRAM clock throttling is reduced, providing a balance between performance and power. • **Performance**—DRAM clock throttling is disabled, providing increased memory bandwidth at the cost of additional power. • **Energy_Efficient**—DRAM clock throttling is increased to improve energy efficiency.

Name	Description
Low Voltage DDR Mode **set LvDDRMode**	Whether the system prioritizes low voltage or high frequency memory operations. This can be one of the following: • **Power_Saving_Mode**—The system prioritizes low voltage memory operations over high frequency memory operations. This mode may lower memory frequency in order to keep the voltage low. • **Performance_Mode**—The system prioritizes high frequency operations over low voltage operations.
Closed Loop Therm Throt drop-down list **set closedLoopThermThrotl**	Allows for the support of Closed-Loop Thermal Throttling, which improves reliability and reduces CPU power consumption through the automatic voltage control while the CPUs are in the idle state. This can be one of the following: • **Disabled**—Disables closed loop thermal throttling. • **Enabled**—Enables closed loop thermal throttling. This is the default value.
Channel Interleaving **set ChannelInterLeave**	Whether the CPU divides memory blocks and spreads contiguous portions of data across interleaved channels to enable simultaneous read operations. This can be one of the following: • **Auto**—The CPU determines what interleaving is done. • **1_Way**—Some channel interleaving is used. • **2_Way** • **3_Way** • **4_Way**—The maximum amount of channel interleaving is used.
Rank Interleaving **set RankInterLeave**	Whether the CPU interleaves physical ranks of memory so that one rank can be accessed while another is being refreshed. This can be one of the following: • **Auto**—The CPU determines what interleaving is done. • **1_Way**—Some rank interleaving is used. • **2_Way** • **4_Way** • **8_Way**—The maximum amount of rank interleaving is used.

BIOS Parameters by Server Model

Name	Description
Patrol Scrub **set PatrolScrub**	Whether the system actively searches for, and corrects, single bit memory errors even in unused portions of the memory on the server. This can be one of the following: • **Disabled**—The system checks for memory ECC errors only when the CPU reads or writes a memory address. • **Enabled**—The system periodically reads and writes memory searching for ECC errors. If any errors are found, the system attempts to fix them. This option may correct single bit errors before they become multi-bit errors, but it may adversely affect performance when the patrol scrub is running.
Demand Scrub **set DemandScrub**	Whether the system corrects single bit memory errors encountered when the CPU or I/O makes a demand read. This can be one of the following: • **Disabled**— Single bit memory errors are not corrected. • **Enabled**— Single bit memory errors are corrected in memory and the corrected data is set in response to the demand read.
Altitude **set Altitude**	The approximate number of meters above sea level at which the physical server is installed. This can be one of the following: • **Auto**—The CPU determines the physical elevation. • **300_M**—The server is approximately 300 meters above sea level. • **900_M**—The server is approximately 900 meters above sea level. • **1500_M**—The server is approximately 1500 meters above sea level. • **3000_M**—The server is approximately 3000 meters above sea level.
Panic and High Watermark drop-down list **PanicHighWatermark**	When set to low, the memory controller does not postpone refreshes while **Memory Refresh Rate** is set to **1X Refresh**. This can be one of the following: • **Low**—Refresh rate is set to low. • **High** —Refresh rate is set to high.

QPI Configuration Parameters

Name	Description
QPI Link Frequency Select **set QPILinkFrequency**	The Intel QuickPath Interconnect (QPI) link frequency, in gigatransfers per second (GT/s). This can be one of the following: • **Auto**—The CPU determines the QPI link frequency. • **6.4_GT/s** • **7.2_GT/s** • **8.0_GT/s**
QPI Snoop Mode **set QpiSnoopMode**	The Intel QuickPath Interconnect (QPI) snoop mode. This can be one of the following: • **Disabled**—Disables the QPI snoop mode. • **Cluster on Die**—Enables Cluster On Die. When enabled LLC is split into two parts with an independent caching agent for each. This helps increase the performance in some workloads. This mode is available only for processors that have 10 or more cores. It is the best mode for highly NUMA optimized workloads. • **Auto**—The CPU automatically recognizes this as Early Snoop mode. This is the default value.

USB Configuration Parameters

Name	Description
Legacy USB Support **set LegacyUSBSupport**	Whether the system supports legacy USB devices. This can be one of the following: • **Disabled**—USB devices are only available to EFI applications. • **Enabled**—Legacy USB support is always available. • **Auto**—Disables legacy USB support if no USB devices are connected.
Port 60/64 Emulation **set UsbEmul6064**	Whether the system supports 60h/64h emulation for complete USB keyboard legacy support. This can be one of the following: • **Disabled**—60h/64 emulation is not supported. • **Enabled**—60h/64 emulation is supported. You should select this option if you are using a non-USB aware operating system on the server.

Name	Description
All USB Devices **set AllUsbDevices**	Whether all physical and virtual USB devices are enabled or disabled. This can be one of the following: • **Disabled**—All USB devices are disabled. • **Enabled**—All USB devices are enabled.
USB Port: Rear **set UsbPortRear**	Whether the rear panel USB devices are enabled or disabled. This can be one of the following: • **Disabled**—Disables the rear panel USB ports. Devices connected to these ports are not detected by the BIOS and operating system. • **Enabled**—Enables the rear panel USB ports. Devices connected to these ports are detected by the BIOS and operating system.
USB Port: Internal **set UsbPortInt**	Whether the internal USB devices are enabled or disabled. This can be one of the following: • **Disabled**—Disables the internal USB ports. Devices connected to these ports are not detected by the BIOS and operating system. • **Enabled**—Enables the internal USB ports. Devices connected to these ports are detected by the BIOS and operating system.
USB Port: KVM **set UsbPortKVM**	Whether the vKVM ports are enabled or disabled. This can be one of the following: • **Disabled**—Disables the vKVM keyboard and/or mouse devices. Keyboard and/or mouse will not work in the vKVM window. • **Enabled**—Enables the vKVM keyboard and/or mouse devices.
USB Port: vMedia **set UsbPortVMedia**	Whether the virtual media devices are enabled or disabled. This can be one of the following: • **Disabled**—Disables the vMedia devices. • **Enabled**—Enables the vMedia devices.
xHCI Mode **set PchUsb30Mode**	Whether the xHCI controller legacy support is enabled or disabled. This can be one of the following: • **Disabled**—Disables the xHCI controller legacy support. • **Enabled**—Enables the xHCI controller legacy support.

PCI Configuration Parameters

Name	Description
Memory Mapped I/O Above 4GB **set MemoryMappedIOAbove4GB**	Whether to enable or disable MMIO above 4GB or not. This can be one of the following: • **Disabled**—The server does not map I/O of 64-bit PCI devices to 4GB or greater address space. • **Enabled**—The server maps I/O of 64-bit PCI devices to 4GB or greater address space. **Note** PCI devices that are 64-bit compliant but use a legacy option ROM may not function correctly with this setting enabled.
SR-IOV Support drop-down list **set SrIov**	Whether SR-IOV (Single Root I/O Virtualization) is enabled or disabled on the server. This can be one of the following: • **Disabled**—SR-IOV is disabled. • **Enabled**—SR-IOV is enabled.

Serial Configuration Parameters

Name	Description
Out-of-Band Mgmt Port **set comSpcrEnable**	Allows you to configure the COM port 0 that can be used for Windows Emergency Management services. ACPI SPCR table is reported based on this setup option. This can be one of the following: • **Disabled**—Configures the COM port 0 as a general purpose port for use with the Windows Operating System. • **Enabled**—Configures the COM port 0 as a remote management port for Windows Emergency Management services.
Console Redirection **set ConsoleRedir**	Allows a serial port to be used for console redirection during POST and BIOS booting. After the BIOS has booted and the operating system is responsible for the server, console redirection is irrelevant and has no effect. This can be one of the following: • **Disabled**—No console redirection occurs during POST. • **COM_0**—Enables console redirection on COM port 0 during POST. • **COM_1**—Enables console redirection on COM port 1 during POST.

Name	Description
Terminal Type **set TerminalType**	What type of character formatting is used for console redirection. This can be one of the following: • **PC-ANSI**—The PC-ANSI terminal font is used. • **VT100**—A supported vt100 video terminal and its character set are used. • **VT100+**—A supported vt100-plus video terminal and its character set are used. • **VT-UTF8**—A video terminal with the UTF-8 character set is used. **Note** This setting must match the setting on the remote terminal application.
Bits per second **set BaudRate**	What BAUD rate is used for the serial port transmission speed. If you disable Console Redirection, this option is not available. This can be one of the following: • **9600**—A 9,600 BAUD rate is used. • **19200**—A 19,200 BAUD rate is used. • **38400**—A 38,400 BAUD rate is used. • **57600**—A 57,600 BAUD rate is used. • **115200**—A 115,200 BAUD rate is used. **Note** This setting must match the setting on the remote terminal application.
Flow Control **set FlowCtrl**	Whether a handshake protocol is used for flow control. Request to Send / Clear to Send (RTS/CTS) helps to reduce frame collisions that can be introduced by a hidden terminal problem. This can be one of the following: • **None**—No flow control is used. • **Hardware_RTS/CTS**—RTS/CTS is used for flow control. **Note** This setting must match the setting on the remote terminal application.

Name	Description
Putty KeyPad **set PuttyFunctionKeyPad**	Allows you to change the action of the PuTTY function keys and the top row of the numeric keypad. This can be one of the following: • **VT100**—The function keys generate **ESC OP** through **ESC O[.** • **LINUX**—Mimics the Linux virtual console. Function keys F6 to F12 behave like the default mode, but F1 to F5 generate **ESC [[A** through **ESC [[E**. • **XTERMR6**—Function keys F5 to F12 behave like the default mode. Function keys F1 to F4 generate **ESC OP** through ESC OS, which are the sequences produced by the top row of the keypad on Digital terminals. • **SCO**—The function keys F1 to F12 generate **ESC [M** through **ESC [X**. The function and shift keys generate **ESC [Y** through **ESC [j**. The control and function keys generate **ESC [k** through **ESC [v**. The shift, control and function keys generate **ESC [w** through **ESC [{**. • **ESCN**—The default mode. The function keys match the general behavior of Digital terminals. The function keys generate sequences such as **ESC [11~** and **ESC [12~**. • **VT400**—The function keys behave like the default mode. The top row of the numeric keypad generates **ESC OP** through **ESC OS**.
Redirection After BIOS POST **set RedirectionAfterPOST**	Whether BIOS console redirection should be active after BIOS POST is complete and control given to the OS bootloader. This can be one of the following: • **Always_Enable**—BIOS Legacy console redirection is active during the OS boot and run time. • **Bootloader**—BIOS Legacy console redirection is disabled before giving control to the OS boot loader.

LOM and PCIe Slots Configuration Parameters

Name	Description
CDN Support for VIC **set CdnEnable**	Whether the Ethernet Network naming convention is according to Consistent Device Naming (CDN) or the traditional way of naming conventions. This can be one of the following: • **Disabled**— CDN support for VIC cards is disabled. • **Enabled**— CDN support is enabled for VIC cards. **Note** CDN support for VIC cards work with Windows 2012 or the latest OS only.

Name	Description
PCI ROM CLP **set PciRomClp**	PCI ROM Command Line Protocol (CLP) controls the execution of different Option ROMs such as PxE and iSCSI that are present in the card. By default, it is disabled. • **Enabled**— Enables you to configure execution of different option ROMs such as PxE and iSCSI for an individual ports separately. • **Disabled**—The default option. You cannot choose different option ROMs. A default option ROM is executed during PCI enumeration.
PCH SATA Mode **set SataModeSelect**	This options allows you to select the PCH SATA mode. This can be one of the following: • **AHCI**—Sets both SATA and sSATA controllers to AHCI mode. • **Disabled**—Disables both SATA and sSATA controllers. • **LSI SW Raid**— Sets both SATA and sSATA controllers to raid mode for LSI SW Raid
All Onboard LOM Ports **set AllLomPortControl**	Whether all LOM ports are enabled or disabled. This can be one of the following: • **Disabled**—All LOM ports are disabled. • **Enabled**—All LOM ports are enabled.
LOM Port *n* OptionROM **set LomOpromControlPort*n***	Whether Option ROM is available on the LOM port designated by ***n***. This can be one of the following: • **Disabled**—The Option ROM for slot ***n*** is not available. • **Enabled**—The Option ROM for slot ***n*** is available. • **UEFI_Only**—The Option ROM for slot ***n*** is available for UEFI only. • **Legacy_Only**—The Option ROM for slot ***n*** is available for legacy only.
All PCIe Slots OptionROM **set PcieOptionROMs**	Whether the server can use Option ROM present in the PCIe Cards. This can be one of the following: • **Disabled**—The Option ROM for slot ***n*** is not available. • **Enabled**—The Option ROM for slot ***n*** is available. • **UEFI_Only**—The Option ROM for slot ***n*** is available for UEFI only. • **Legacy_Only**—The Option ROM for slot ***n*** is available for legacy only.

Name	Description
PCIe Slot:*n* OptionROM **set PcieSlot*n*OptionROM**	Whether the server can use the Option ROMs present in the PCIe Cards. This can be one of the following: • **Disabled**—The Option ROM for slot ***n*** is not available. • **Enabled**—The Option ROM for slot ***n*** is available. • **UEFI_Only**—The Option ROM for slot ***n*** is available for UEFI only. • **Legacy_Only**—The Option ROM for slot ***n*** is available for legacy only.
PCIe Slot:MLOM OptionROM **set PcieSlotMLOMOptionROM**	This options allows you to control the Option ROM execution of the PCIe adapter connected to the MLOM slot. This can be one of the following: • **Enabled**—Executes both legacy and UEFI Option ROM. • **Disabled**—Both legacy and UEFI Option ROM will not be executed. • **UEFI Only**—Executes only UEFI Option ROM. • **Legacy Only**—Executes only Legacy Option ROM.
PCIe Slot:HBA OptionROM **set PcieSlotHBAOptionROM**	This options allows you to control the Option ROM execution of the PCIe adapter connected to the HBA slot. This can be one of the following: • **Enabled**—Executes both legacy and UEFI Option ROM. • **Disabled**—Both legacy and UEFI Option ROM will not be executed. • **UEFI Only**—Executes only UEFI Option ROM. • **Legacy Only**—Executes only Legacy Option ROM.
PCIe Slot:N1 OptionROM **set PcieSlotN1OptionROM**	This options allows you to control the Option ROM execution of the PCIe adapter connected to the SSD:NVMe1 slot. This can be one of the following: • **Enabled**—Executes both legacy and UEFI Option ROM. • **Disabled**—Both legacy and UEFI Option ROM will not be executed. • **UEFI Only**—Executes only UEFI Option ROM. • **Legacy Only**—Executes only Legacy Option ROM.

Name	Description
PCIe Slot:N2 OptionROM **set PcieSlotN2OptionROM**	This options allows you to control the Option ROM execution of the PCIe adapter connected to the SSD:NVMe2 slot. This can be one of the following: • **Enabled**—Executes both legacy and UEFI Option ROM. • **Disabled**—Both legacy and UEFI Option ROM will not be executed. • **UEFI Only**—Executes only UEFI Option ROM. • **Legacy Only**—Executes only Legacy Option ROM.
PCIe Slot:N2 OptionROM **set PcieSlotN2OptionROM**	This options allows you to control the Option ROM execution of the PCIe adapter connected to the SSD:NVMe2 slot. This can be one of the following: • **Enabled**—Executes both legacy and UEFI Option ROM. • **Disabled**—Both legacy and UEFI Option ROM will not be executed. • **UEFI Only**—Executes only UEFI Option ROM. • **Legacy Only**—Executes only Legacy Option ROM.
PCIe Slot:HBA Link Speed **PCIe SlotHBALinkSpeed**	This option allows you to restrict the maximum speed of an adapter card installed in PCIe HBA slot. This can be one of the following: • **Auto**— System selects the maximum speed allowed. • **GEN1**—2.5GT/s (gigatransfers per second) is the maximum speed allowed. • **GEN2**—5GT/s is the maximum speed allowed. • **GEN3**—8GT/s is the maximum speed allowed. • **Disabled**—The maximum speed is not restricted.

BIOS Configuration Dialog Box Button Bar

Important The buttons in this dialog box affect all BIOS parameters on all available tabs, not just the parameters on the tab that you are viewing.

Name	Description
Save Changes button	Saves the settings for the BIOS parameters on all three tabs and closes the dialog box. If the **Reboot Host Immediately** check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
Reset Values button	Restores the values for the BIOS parameters on all three tabs to the settings that were in effect when this dialog box was first opened.
Restore Defaults button	Sets the BIOS parameters on all three tabs to their default settings.
Cancel button	Closes the dialog box without making any changes.

Server Management Tab for C460 M4 Servers

Reboot Server Option

If you want your changes applied automatically after you click **Save Changes**, check the **Reboot Host Immediately** check box. Cisco IMC immediately reboots the server and applies your changes.

If you want to apply your changes at a later time, clear the **Reboot Host Immediately** check box. Cisco IMC stores the changes and applies them the next time the server reboots.

Note If there are existing BIOS parameter changes pending, Cisco IMC automatically overwrites the stored values with the current settings when you click **Save Changes**.

Server Management BIOS Parameters

Name	Description
FRB-2 Timer **set FRB-2**	Whether the FRB2 timer is used by Cisco IMC to recover the system if it hangs during POST. This can be one of the following: • **Disabled**—The FRB2 timer is not used. • **Enabled**—The FRB2 timer is started during POST and used to recover the system if necessary.

Name	Description
OS Watchdog Timer **set OSBootWatchdogTimer**	Whether the BIOS programs the watchdog timer with a specified timeout value. This can be one of the following: • **Disabled**—The watchdog timer is not used to track how long the server takes to boot. • **Enabled**—The watchdog timer tracks how long the server takes to boot. If the server does not boot within the length of time specified by the **set OSBootWatchdogTimerTimeout** command, the Cisco IMC logs an error and takes the action specified by the **set OSBootWatchdogTimerPolicy** command.
OS Watchdog Timer Timeout **set OSBootWatchdogTimerTimeOut**	If OS does not boot within the specified time, OS watchdog timer expires and system takes action according to timer policy. This can be one of the following: • **5_Minutes**—The OS watchdog timer expires 5 minutes after it begins to boot. • **10_Minutes**—The OS watchdog timer expires 10 minutes after it begins to boot. • **15_Minutes**—The OS watchdog timer expires 15 minutes after it begins to boot. • **20_Minutes**—The OS watchdog timer expires 20 minutes after it begins to boot. **Note** This option is only applicable if you enable the OS Boot Watchdog Timer.
OS Watchdog Timer Policy **set OSBootWatchdogTimerPolicy**	What action the system takes if the watchdog timer expires. This can be one of the following: • **Do_Nothing**—The server takes no action if the watchdog timer expires during OS boot. • **Power_Down**—The server is powered off if the watchdog timer expires during OS boot. • **Reset**—The server is reset if the watchdog timer expires during OS boot. **Note** This option is only applicable if you enable the OS Boot Watchdog Timer.

BIOS Configuration Dialog Box Button Bar

Important The buttons in this dialog box affect all BIOS parameters on all available tabs, not just the parameters on the tab that you are viewing.

Name	Description
Save Changes button	Saves the settings for the BIOS parameters on all three tabs and closes the dialog box. If the **Reboot Host Immediately** check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
Reset Values button	Restores the values for the BIOS parameters on all three tabs to the settings that were in effect when this dialog box was first opened.
Restore Defaults button	Sets the BIOS parameters on all three tabs to their default settings.
Cancel button	Closes the dialog box without making any changes.

C220 M4 and C240 M4 Servers

Main Tab for C220M4 and C240M4 Servers

Main BIOS Parameters

Name	Description
Reboot Host Immediately checkbox	Upon checking, reboots the host server immediately. You must check the checkbox after saving changes.
TPM Support **set TPMAdminCtrl**	TPM (Trusted Platform Module) is a microchip designed to provide basic security-related functions primarily involving encryption keys. This option allows you to control the TPM Security Device support for the system. It can be one of the following: • **Disabled**—The server does not use the TPM. • **Enabled**—The server uses the TPM. **Note** We recommend that you contact your operating system vendor to make sure the operating system supports this feature.

Name	Description
Power ON Password Support drop-down	This token requires that you set a BIOS password before using the F2 BIOS configuration. If enabled, password needs to be validated before you access BIOS functions such as IO configuration, BIOS set up, and booting to an operating system using BIOS. It can be one of the following: • **Disabled**—Support is disabled. • **Enabled**—Support is enabled.

Actions Area

Name	Description
Save button	Saves the settings for the BIOS parameters and closes the dialog box. If the **Reboot Host Immediately** check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
Reset button	Resets the values for the BIOS parameters on all three tabs to the settings that were in effect when this dialog box was first opened.
Restore Defaults button	Sets the BIOS parameters on all three tabs to their default settings.

Advanced Tab for C220M4 and C240M4 Servers

Reboot Server Option

If you want your changes applied automatically after you click **Save Changes**, check the **Reboot Host Immediately** check box. Cisco IMC immediately reboots the server and applies your changes.

If you want to apply your changes at a later time, clear the **Reboot Host Immediately** check box. Cisco IMC stores the changes and applies them the next time the server reboots.

Note If there are existing BIOS parameter changes pending, Cisco IMC automatically overwrites the stored values with the current settings when you click **Save Changes**.

Processor Configuration Parameters

Name	Description
Intel Hyper-Threading Technology **set IntelHyperThread**	Whether the processor uses Intel Hyper-Threading Technology, which allows multithreaded software applications to execute threads in parallel within each processor. This can be one of the following: • **Disabled**—The processor does not permit hyperthreading. • **Enabled**—The processor allows for the parallel execution of multiple threads. We recommend that you contact your operating system vendor to make sure the operating system supports this feature.
Number of Enabled Cores **set CoreMultiProcessing**	Allows you to disable one or more of the physical cores on the server. This can be one of the following: • **All**—Enables all physical cores. This also enables Hyper Threading on the associated logical processor cores. • **1** through ***n***—Specifies the number of physical processor cores that can run on the server. Each physical core has an associated logical core. We recommend that you contact your operating system vendor to make sure the operating system supports this feature.
Execute Disable **set ExecuteDisable**	Classifies memory areas on the server to specify where application code can execute. As a result of this classification, the processor disables code execution if a malicious worm attempts to insert code in the buffer. This setting helps to prevent damage, worm propagation, and certain classes of malicious buffer overflow attacks. This can be one of the following: • **Disabled**—The processor does not classify memory areas. • **Enabled**—The processor classifies memory areas. We recommend that you contact your operating system vendor to make sure the operating system supports this feature.
Intel VT **set IntelVT**	Whether the processor uses Intel Virtualization Technology (VT), which allows a platform to run multiple operating systems and applications in independent partitions. This can be one of the following: • **Disabled**—The processor does not permit virtualization. • **Enabled**—The processor allows multiple operating systems in independent partitions. **Note** If you change this option, you must power cycle the server before the setting takes effect.

Name	Description
Intel VT-d **set IntelVTD**	Whether the processor uses Intel Virtualization Technology for Directed I/O (VT-d). This can be one of the following: • **Disabled**—The processor does not use virtualization technology. • **Enabled**—The processor uses virtualization technology.
Intel VT-d Interrupt Remapping **set InterruptRemap**	Whether the processor supports Intel VT-d Interrupt Remapping. This can be one of the following: • **Disabled**—The processor does not support remapping. • **Enabled**—The processor uses VT-d Interrupt Remapping as required.
Intel VT-d PassThrough DMA **set PassThroughDMA**	Whether the processor supports Intel VT-d Pass-through DMA. This can be one of the following: • **Disabled**—The processor does not support pass-through DMA. • **Enabled**—The processor uses VT-d Pass-through DMA as required.
Intel VT-d Coherency Support **set CoherencySupport**	Whether the processor supports Intel VT-d Coherency. This can be one of the following: • **Disabled**—The processor does not support coherency. • **Enabled**—The processor uses VT-d Coherency as required.
Intel VT-d ATS Support **set ATS**	Whether the processor supports Intel VT-d Address Translation Services (ATS). This can be one of the following: • **Disabled**—The processor does not support ATS. • **Enabled**—The processor uses VT-d ATS as required.

Name	Description
CPU Performance **set CPUPerformance**	Sets the CPU performance profile for the server. The performance profile consists of the following options: • DCU Streamer Prefetcher • DCU IP Prefetcher • Hardware Prefetcher • Adjacent Cache-Line Prefetch This can be one of the following: • **Enterprise**—All options are enabled. • **High_Throughput**—Only the DCU IP Prefetcher is enabled. The rest of the options are disabled. • **HPC**—All options are enabled. This setting is also known as high performance computing. • **Custom**—All performance profile options can be configured from the BIOS setup on the server. In addition, the Hardware Prefetcher and Adjacent Cache-Line Prefetch options can be configured in the fields below.
Hardware Prefetcher **set HardwarePrefetch**	Whether the processor allows the Intel hardware prefetcher to fetch streams of data and instruction from memory into the unified second-level cache when necessary. This can be one of the following: • **Disabled**—The hardware prefetcher is not used. • **Enabled**—The processor uses the hardware prefetcher when cache issues are detected.
Adjacent Cache Line Prefetcher **set AdjacentCacheLinePrefetch**	Whether the processor fetches cache lines in even/odd pairs instead of fetching just the required line. This can be one of the following: • **Disabled**—The processor only fetches the required line. • **Enabled**— The processor fetches both the required line and its paired line.

Name	Description
DCU Streamer Prefetch **set DcuStreamerPrefetch**	Whether the processor uses the DCU IP Prefetch mechanism to analyze historical cache access patterns and preload the most relevant lines in the L1 cache. This can be one of the following: • **Disabled**—The processor does not try to anticipate cache read requirements and only fetches explicitly requested lines. • **Enabled**—The DCU prefetcher analyzes the cache read pattern and prefetches the next line in the cache if it determines that it may be needed.
DCU IP Prefetcher **set DcuIpPrefetch**	Whether the processor uses the DCU IP Prefetch mechanism to analyze historical cache access patterns and preload the most relevant lines in the L1 cache. This can be one of the following: • **Disabled**—The processor does not preload any cache data. • **Enabled**—The DCU IP prefetcher preloads the L1 cache with the data it determines to be the most relevant.
Direct Cache Access Support **set DirectCacheAccess**	Allows processors to increase I/O performance by placing data from I/O devices directly into the processor cache. This setting helps to reduce cache misses. This can be one of the following: • **Disabled**—Data from I/O devices is not placed directly into the processor cache. • **Enabled**—Data from I/O devices is placed directly into the processor cache.
Power Technology **set CPUPowerManagement**	Enables you to configure the CPU power management settings for the following options: • Enhanced Intel Speedstep Technology • Intel Turbo Boost Technology • Processor Power State C6 Power Technology can be one of the following: • **Custom**—The server uses the individual settings for the BIOS parameters mentioned above. You must select this option if you want to change any of these BIOS parameters. • **Disabled**—The server does not perform any CPU power management and any settings for the BIOS parameters mentioned above are ignored. • **Energy_Efficient**—The server determines the best settings for the BIOS parameters mentioned above and ignores the individual settings for these parameters.

Name	Description
Enhanced Intel Speedstep Technology **set EnhancedIntelSpeedStep**	Whether the processor uses Enhanced Intel SpeedStep Technology, which allows the system to dynamically adjust processor voltage and core frequency. This technology can result in decreased average power consumption and decreased average heat production. This can be one of the following: • **Disabled**—The processor never dynamically adjusts its voltage or frequency. • **Enabled**—The processor utilizes Enhanced Intel SpeedStep Technology and enables all supported processor sleep states to further conserve power. We recommend that you contact your operating system vendor to make sure the operating system supports this feature. **Note** **CPUPowerManagement** must be set to **Custom** or the server ignores the setting for this parameter.
Intel Turbo Boost Technology **set IntelTurboBoostTech**	Whether the processor uses Intel Turbo Boost Technology, which allows the processor to automatically increase its frequency if it is running below power, temperature, or voltage specifications. This can be one of the following: • **Disabled**—The processor does not increase its frequency automatically. • **Enabled**—The processor utilizes Turbo Boost Technology if required. **Note** **CPUPowerManagement** must be set to **Custom** or the server ignores the setting for this parameter.
Processor C3 Report **set ProcessorC3Report**	Whether the BIOS sends the C3 report to the operating system. When the OS receives the report, it can transition the processor into the lower C3 power state to decrease energy usage while maintaining optimal processor performance. This can be one of the following: • **Disabled**—BIOS does not send C3 report. • **Enabled**—BIOS sends the C3 report, allowing the OS to transition the processor to the C3 low power state. **Note** **CPUPowerManagement** must be set to **Custom** or the server ignores the setting for this parameter.

Name	Description
Processor C6 Report **set ProcessorC6Report**	Whether the BIOS sends the C6 report to the operating system. When the OS receives the report, it can transition the processor into the lower C6 power state to decrease energy usage while maintaining optimal processor performance. This can be one of the following: • **Disabled**—The BIOS does not send the C6 report. • **Enabled**—The BIOS sends the C6 report, allowing the OS to transition the processor to the C6 low power state. **Note** **CPUPowerManagement** must be set to **Custom** or the server ignores the setting for this parameter.
Processor Power State C1 Enhanced **set ProcessorC1EReport**	Whether the CPU transitions to its minimum frequency when entering the C1 state. This can be one of the following: • **Disabled**—The CPU continues to run at its maximum frequency in C1 state. • **Enabled**—The CPU transitions to its minimum frequency. This option saves the maximum amount of power in C1 state.
P-STATE Coordination **set PsdCoordType**	Allows you to define how BIOS communicates the P-state support model to the operating system. There are 3 models as defined by the Advanced Configuration and Power Interface (ACPI) specification. • **HW_ALL**—The processor hardware is responsible for coordinating the P-state among logical processors with dependencies (all logical processors in a package). • **SW_ALL**—The OS Power Manager (OSPM) is responsible for coordinating the P-state among logical processors with dependencies (all logical processors in a physical package), and must initiate the transition on all of the logical processors. • **SW_ANY**—The OS Power Manager (OSPM) is responsible for coordinating the P-state among logical processors with dependencies (all logical processors in a package), and may initiate the transition on any of the logical processors in the domain. **Note** **CPUPowerManagement** must be set to **Custom** or the server ignores the setting for this parameter.

Name	Description
Boot Performance Mode drop-down list **set BootPerformanceMode**	Allows the user to select the BIOS performance state that is set before the operating system handoff. This can be one of the following: • **Max Performance**—Processor P-state ratio is maximum • **Max Efficient**— Processor P-state ratio is minimum
Energy Performance Tuning **set PwrPerfTuning**	Allows you to choose BIOS or Operating System for energy performance bias tuning. This can be one of the following: • **OS**— Chooses OS for energy performance tuning. • **BIOS**— Chooses BIOS for energy performance tuning.
Energy Performance **set CpuEngPerfBias**	Allows you to determine whether system performance or energy efficiency is more important on this server. This can be one of the following: • **Balanced_Energy** • **Balanced_Performance** • **Energy_Efficient** • **Performance**

Name	Description
Package C State Limit **set PackageCStateLimit**	The amount of power available to the server components when they are idle. This can be one of the following: • **C0_state**—The server provides all server components with full power at all times. This option maintains the highest level of performance and requires the greatest amount of power. • **C1_state**—When the CPU is idle, the system slightly reduces the power consumption. This option requires less power than C0 and allows the server to return quickly to high performance mode. • **C3_state**—When the CPU is idle, the system reduces the power consumption further than with the C1 option. This requires less power than C1 or C0, but it takes the server slightly longer to return to high performance mode. • **C6_state**—When the CPU is idle, the system reduces the power consumption further than with the C3 option. This option saves more power than C0, C1, or C3, but there may be performance issues until the server returns to full power. • **C7_state**—When the CPU is idle, the server makes a minimal amount of power available to the components. This option saves the maximum amount of power but it also requires the longest time for the server to return to high performance mode. • **No_Limit**—The server may enter any available C state.
Extended APIC **set LocalX2Apic**	Allows you to enable or disable extended APIC support. This can be one of the following: • **XAPIC**—Enables APIC support. • **X2APIC**—Enables APIC and also enables Intel VT-d and Interrupt Remapping .
Workload Configuration **set WorkLdConfig**	Allows you to set a parameter to optimize workload characterization. This can be one of the following: • **Balanced**— Chooses balanced option for optimization. • **I/O Sensitive**— Chooses I/O sensitive option for optimization. **Note** We recommend you to set the workload configuration to **Balanced**.

Name	Description
CPU HWPM drop-down list **set HWPMEnable**	Enables the Hardware Power Management (HWPM) interface for better CPU performance and energy efficiency. This can be one of the following: • **Disabled**—The P-States are controlled the same way as on predecessor processor generations. • **Native Mode**—HWPM works with the operating system through a software interface. • **OOB Mode**—The CPU autonomously controls its frequency based on the operating system energy efficiency.
CPU Autonomous Cstate drop-down list **set AutonumousCstateEnable**	Enables CPU Autonomous C-State, which converts the HALT instructions to the MWAIT instructions. This can be one of the following: • **Disabled**—CPU Autonomous C-state is disabled. This is the default value. • **Enabled**—CPU Autonomous C-state is enabled.
Processor CMCI drop-down list **set CmciEnable**	Allows the CPU to trigger interrupts on corrected machine check events. The corrected machine check interrupt (CMCI) allows faster reaction than the traditional polling timer. This can be one of the following: • **Disabled**—Disables CMCI. • **Enabled**—Enables CMCI. This is the default value.

Memory Configuration Parameters

Name	Description
Select Memory RAS **set SelectMemoryRAS**	How the memory reliability, availability, and serviceability (RAS) is configured for the server. This can be one of the following: • **Maximum_Performance**—System performance is optimized. • **Mirroring**—System reliability is optimized by using half the system memory as backup. • **Lockstep**—If the DIMM pairs in the server have an identical type, size, and organization and are populated across the SMI channels, you can enable lockstep mode to minimize memory access latency and provide better performance. This option offers better system performance than Mirroring and better reliability than Maximum Performance but lower reliability than Mirroring and lower system performance than Maximum Performance.

Name	Description
NUMA **set NUMAOptimize**	Whether the BIOS supports Non-Uniform Memory Access (NUMA). This can be one of the following: • **Disabled**—The BIOS does not support NUMA. • **Enabled**—The BIOS includes the ACPI tables that are required for NUMA-aware operating systems. If you enable this option, the system must disable Inter-Socket Memory interleaving on some platforms.
Channel Interleaving **set ChannelInterLeave**	Whether the CPU divides memory blocks and spreads contiguous portions of data across interleaved channels to enable simultaneous read operations. This can be one of the following: • **Auto**—The CPU determines what interleaving is done. • **1_Way**—Some channel interleaving is used. • **2_Way** • **3_Way** • **4_Way**—The maximum amount of channel interleaving is used.
Rank Interleaving **set RankInterLeave**	Whether the CPU interleaves physical ranks of memory so that one rank can be accessed while another is being refreshed. This can be one of the following: • **Auto**—The CPU determines what interleaving is done. • **1_Way**—Some rank interleaving is used. • **2_Way** • **4_Way** • **8_Way**—The maximum amount of rank interleaving is used.
Patrol Scrub **set PatrolScrub**	Whether the system actively searches for, and corrects, single bit memory errors even in unused portions of the memory on the server. This can be one of the following: • **Disabled**—The system checks for memory ECC errors only when the CPU reads or writes a memory address. • **Enabled**—The system periodically reads and writes memory searching for ECC errors. If any errors are found, the system attempts to fix them. This option may correct single bit errors before they become multi-bit errors, but it may adversely affect performance when the patrol scrub is running.

Name	Description
Demand Scrub **set DemandScrub**	Whether the system corrects single bit memory errors encountered when the CPU or I/O makes a demand read. This can be one of the following: • **Disabled**— Single bit memory errors are not corrected. • **Enabled**— Single bit memory errors are corrected in memory and the corrected data is set in response to the demand read.
Altitude **set Altitude**	The approximate number of meters above sea level at which the physical server is installed. This can be one of the following: • **Auto**—The CPU determines the physical elevation. • **300_M**—The server is approximately 300 meters above sea level. • **900_M**—The server is approximately 900 meters above sea level. • **1500_M**—The server is approximately 1500 meters above sea level. • **3000_M**—The server is approximately 3000 meters above sea level.
Panic and High Watermark drop-down list **PanicHighWatermark**	When set to low, the memory controller does not postpone refreshes while **Memory Refresh Rate** is set to **1X Refresh**. This can be one of the following: • **Low**—Refresh rate is set to low. • **High** —Refresh rate is set to high.

QPI Configuration Parameters

Name	Description
QPI Link Frequency Select **set QPILinkFrequency**	The Intel QuickPath Interconnect (QPI) link frequency, in gigatransfers per second (GT/s). This can be one of the following: • **Auto**—The CPU determines the QPI link frequency. • **6.4_GT/s** • **7.2_GT/s** • **8.0_GT/s**

Name	Description
QPI Snoop Mode **set QpiSnoopMode**	The Intel QuickPath Interconnect (QPI) snoop mode. This can be one of the following: • **Auto**—The CPU automatically recognizes this as Early Snoop mode. • **Early Snoop**—The distributed cache ring stops can send a snoop probe or a request to another caching agent directly. This mode has lower latency and it is best for workloads that have shared data sets across threads and can benefit from a cache-to-cache transfer, or for workloads that are not NUMA optimized. • **Home Snoop**—The snoop is always spawned by the home agent (centralized ring stop) for the memory controller. This mode has a higher local latency than early snoop, but it provides extra resources for a larger number of outstanding transactions. • **Home Directory Snoop**— The home directory is an optional enabled feature that is implemented at both the HA and iMC logic in the processor. The goal of the directory is to filter snoops to the remote sockets and a node controller in scalable platforms and 2S and 4S configurations. • **Home Directory Snoop with OSB**— In the Opportunistic Snoop Broadcast (OSB) directory mode, the HA could choose to do speculative home snoop broadcast under very lightly loaded conditions even before the directory information has been collected and checked. • **Cluster on Die**—Enables Cluster On Die. When enabled LLC is split into two parts with an independent caching agent for each. This helps increase the performance in some workloads. This mode is available only for processors that have 10 or more cores. It is the best mode for highly NUMA optimized workloads.

USB Configuration Parameters

Name	Description
Legacy USB Support **set LegacyUSBSupport**	Whether the system supports legacy USB devices. This can be one of the following: • **Disabled**—USB devices are only available to EFI applications. • **Enabled**—Legacy USB support is always available. • **Auto**—Disables legacy USB support if no USB devices are connected.

Name	Description
Port 60/64 Emulation **set UsbEmul6064**	Whether the system supports 60h/64h emulation for complete USB keyboard legacy support. This can be one of the following: • **Disabled**—60h/64 emulation is not supported. • **Enabled**—60h/64 emulation is supported. You should select this option if you are using a non-USB aware operating system on the server.
xHCI Mode **set PchUsb30Mode**	Whether the xHCI controller legacy support is enabled or disabled. This can be one of the following: • **Disabled**—Disables the xHCI controller legacy support. • **Enabled**—Enables the xHCI controller legacy support.
xHCI Legacy Support drop-down list **set UsbXhciSupport**	Whether the system supports legacy xHCI controller. This can be one of the following: • **Disabled**—Disables xHCI legacy support. • **Enabled**—Enables xHCI legacy support. This is the default value.
All USB Devices **set AllUsbDevices**	Whether all physical and virtual USB devices are enabled or disabled. This can be one of the following: • **Disabled**—All USB devices are disabled. • **Enabled**—All USB devices are enabled.
USB Port: Rear **set UsbPortRear**	Whether the rear panel USB devices are enabled or disabled. This can be one of the following: • **Disabled**—Disables the rear panel USB ports. Devices connected to these ports are not detected by the BIOS and operating system. • **Enabled**—Enables the rear panel USB ports. Devices connected to these ports are detected by the BIOS and operating system.
USB Port: Front **set UsbPortFront**	Whether the front panel USB devices are enabled or disabled. This can be one of the following: • **Disabled**—Disables the front panel USB ports. Devices connected to these ports are not detected by the BIOS and operating system • **Enabled**—Enables the front panel USB ports. Devices connected to these ports are detected by the BIOS and operating system.

Name	Description
USB Port: Internal **set UsbPortInt**	Whether the internal USB devices are enabled or disabled. This can be one of the following: • **Disabled**—Disables the internal USB ports. Devices connected to these ports are not detected by the BIOS and operating system. • **Enabled**—Enables the internal USB ports. Devices connected to these ports are detected by the BIOS and operating system.
USB Port: KVM **set UsbPortKVM**	Whether the vKVM ports are enabled or disabled. This can be one of the following: • **Disabled**—Disables the vKVM keyboard and/or mouse devices. Keyboard and/or mouse will not work in the vKVM window. • **Enabled**—Enables the vKVM keyboard and/or mouse devices.
USB Port: vMedia **set UsbPortVMedia**	Whether the virtual media devices are enabled or disabled. This can be one of the following: • **Disabled**—Disables the vMedia devices. • **Enabled**—Enables the vMedia devices.

PCI Configuration Parameters

Name	Description
Memory Mapped I/O Above 4GB **set MemoryMappedIOAbove4GB**	Whether to enable or disable MMIO above 4GB or not. This can be one of the following: • **Disabled**—The server does not map I/O of 64-bit PCI devices to 4GB or greater address space. • **Enabled**—The server maps I/O of 64-bit PCI devices to 4GB or greater address space. **Note** PCI devices that are 64-bit compliant but use a legacy option ROM may not function correctly with this setting enabled.
Sriov **set SrIov**	Whether SR-IOV (Single Root I/O Virtualization) is enabled or disabled on the server. This can be one of the following: • **Disabled**—SR-IOV is disabled. • **Enabled**—SR-IOV is enabled.

Name	Description
ASPM Support drop-down list **set ASPMSupport**	Allows you to set the level of ASPM (Active Power State Management) support in the BIOS. This can be one of the following: • **Disabled**—ASPM support is disabled in the BIOS. • **Force L0s**—Force all links to L0 standby (L0s) state. • **Auto**—The CPU determines the power state
NVMe SSD Hot-Plug Support drop-down list **set PCIeSSDHotPlugSupport**	Allows you to replace an NVMe SSD without powering down the server. This can be one of the following: • **Disabled**—NVMe SSD hot-plug support is disabled. This is the default value. • **Enabled**—NVMe SSD hot-plug support is enabled.
VGA Priority drop-down list **set VgaPriority**	Allows you to set the priority for VGA graphics devices if multiple VGA devices are found in the system. This can be one of the following: • **Onboard**—Priority is given to the onboard VGA device. BIOS post screen and OS boot are driven through the onboard VGA port. • **Offboard**—Priority is given to the PCIE Graphics adapter. BIOS post screen and OS boot are driven through the external graphics adapter port. • **Onboard VGA Disabled**—Priority is given to the PCIE Graphics adapter, and the onboard VGA device is disabled.

Serial Configuration Parameters

Name	Description
Out-of-Band Mgmt Port **set comSpcrEnable**	Allows you to configure the COM port 0 that can be used for Windows Emergency Management services. ACPI SPCR table is reported based on this setup option. This can be one of the following: • **Disabled**—Configures the COM port 0 as a general purpose port for use with the Windows Operating System. • **Enabled**—Configures the COM port 0 as a remote management port for Windows Emergency Management services.

Name	Description
Console Redirection **set ConsoleRedir**	Allows a serial port to be used for console redirection during POST and BIOS booting. After the BIOS has booted and the operating system is responsible for the server, console redirection is irrelevant and has no effect. This can be one of the following: • **Disabled**—No console redirection occurs during POST. • **COM_0**—Enables console redirection on COM port 0 during POST. • **COM_1**—Enables console redirection on COM port 1 during POST.
Terminal Type **set TerminalType**	What type of character formatting is used for console redirection. This can be one of the following: • **PC-ANSI**—The PC-ANSI terminal font is used. • **VT100**—A supported vt100 video terminal and its character set are used. • **VT100+**—A supported vt100-plus video terminal and its character set are used. • **VT-UTF8**—A video terminal with the UTF-8 character set is used. **Note** This setting must match the setting on the remote terminal application.
Bits per second **set BaudRate**	What BAUD rate is used for the serial port transmission speed. If you disable Console Redirection, this option is not available. This can be one of the following: • **9600**—A 9,600 BAUD rate is used. • **19200**—A 19,200 BAUD rate is used. • **38400**—A 38,400 BAUD rate is used. • **57600**—A 57,600 BAUD rate is used. • **115200**—A 115,200 BAUD rate is used. **Note** This setting must match the setting on the remote terminal application.

Name	Description
Flow Control **set FlowCtrl**	Whether a handshake protocol is used for flow control. Request to Send / Clear to Send (RTS/CTS) helps to reduce frame collisions that can be introduced by a hidden terminal problem. This can be one of the following: • **None**—No flow control is used. • **Hardware_RTS/CTS**—RTS/CTS is used for flow control. **Note** This setting must match the setting on the remote terminal application.
Putty KeyPad **set PuttyFunctionKeyPad**	Allows you to change the action of the PuTTY function keys and the top row of the numeric keypad. This can be one of the following: • **VT100**—The function keys generate **`ESC OP`** through **`ESC O[.`** • **LINUX**—Mimics the Linux virtual console. Function keys F6 to F12 behave like the default mode, but F1 to F5 generate **`ESC [[A`** through **`ESC [[E`**. • **XTERMR6**—Function keys F5 to F12 behave like the default mode. Function keys F1 to F4 generate **ESC OP** through ESC OS, which are the sequences produced by the top row of the keypad on Digital terminals. • **SCO**—The function keys F1 to F12 generate **`ESC [M`** through **`ESC [X`**. The function and shift keys generate **`ESC [Y`** through **`ESC [j`**. The control and function keys generate **`ESC [k`** through **`ESC [v`**. The shift, control and function keys generate **`ESC [w`** through **`ESC [{`**. • **ESCN**—The default mode. The function keys match the general behavior of Digital terminals. The function keys generate sequences such as **`ESC [11~`** and **`ESC [12~`**. • **VT400**—The function keys behave like the default mode. The top row of the numeric keypad generates **`ESC OP`** through **`ESC OS`**.
Redirection After BIOS POST **set RedirectionAfterPOST**	Whether BIOS console redirection should be active after BIOS POST is complete and control given to the OS bootloader. This can be one of the following: • **Always_Enable**—BIOS Legacy console redirection is active during the OS boot and run time. • **Bootloader**—BIOS Legacy console redirection is disabled before giving control to the OS boot loader.

LOM and PCIe Slots Configuration Parameters

Name	Description
CDN Support for VIC **set CdnEnable**	Whether the Ethernet Network naming convention is according to Consistent Device Naming (CDN) or the traditional way of naming conventions. This can be one of the following: • **Disabled**— CDN support for VIC cards is disabled. • **Enabled**— CDN support is enabled for VIC cards. **Note** CDN support for VIC cards work with Windows 2012 or the latest OS only.
PCI ROM CLP **set PciRomClp**	PCI ROM Command Line Protocol (CLP) controls the execution of different Option ROMs such as PxE and iSCSI that are present in the card. By default, it is disabled. • **Enabled**— Enables you to configure execution of different option ROMs such as PxE and iSCSI for an individual ports separately. • **Disabled**—The default option. You cannot choose different option ROMs. A default option ROM is executed during PCI enumeration.
PCH SATA Mode **set SataModeSelect**	This options allows you to select the PCH SATA mode. This can be one of the following: • **AHCI**—Sets both SATA and sSATA controllers to AHCI mode. • **Disabled**—Disables both SATA and sSATA controllers. • **LSI SW Raid**— Sets both SATA and sSATA controllers to raid mode for LSI SW Raid
All Onboard LOM Ports **set AllLomPortControl**	Whether all LOM ports are enabled or disabled. This can be one of the following: • **Disabled**—All LOM ports are disabled. • **Enabled**—All LOM ports are enabled.
LOM Port *n* OptionROM **set LomOpromControlPort*n***	Whether Option ROM is available on the LOM port designated by ***n***. This can be one of the following: • **Disabled**—The Option ROM for slot ***n*** is not available. • **Enabled**—The Option ROM for slot ***n*** is available. • **UEFI_Only**—The Option ROM for slot ***n*** is available for UEFI only. • **Legacy_Only**—The Option ROM for slot ***n*** is available for legacy only.

Name	Description
All PCIe Slots OptionROM **set PcieOptionROMs**	Whether the server can use Option ROM present in the PCIe Cards. This can be one of the following: • **Disabled**—The Option ROM for slot ***n*** is not available. • **Enabled**—The Option ROM for slot ***n*** is available. • **UEFI_Only**—The Option ROM for slot ***n*** is available for UEFI only. • **Legacy_Only**—The Option ROM for slot ***n*** is available for legacy only.
PCIe Slot:*n* OptionROM **set PcieSlot*n*OptionROM**	Whether the server can use the Option ROMs present in the PCIe Cards. This can be one of the following: • **Disabled**—The Option ROM for slot ***n*** is not available. • **Enabled**—The Option ROM for slot ***n*** is available. • **UEFI_Only**—The Option ROM for slot ***n*** is available for UEFI only. • **Legacy_Only**—The Option ROM for slot ***n*** is available for legacy only.
PCIe Slot:MLOM OptionROM **set PcieSlotMLOMOptionROM**	This options allows you to control the Option ROM execution of the PCIe adapter connected to the MLOM slot. This can be one of the following: • **Enabled**—Executes both legacy and UEFI Option ROM. • **Disabled**—Both legacy and UEFI Option ROM will not be executed. • **UEFI Only**—Executes only UEFI Option ROM. • **Legacy Only**—Executes only Legacy Option ROM.
PCIe Slot:HBA OptionROM **set PcieSlotHBAOptionROM**	This options allows you to control the Option ROM execution of the PCIe adapter connected to the HBA slot. This can be one of the following: • **Enabled**—Executes both legacy and UEFI Option ROM. • **Disabled**—Both legacy and UEFI Option ROM will not be executed. • **UEFI Only**—Executes only UEFI Option ROM. • **Legacy Only**—Executes only Legacy Option ROM.

Name	Description
PCIe Slot:N1 OptionROM **set PcieSlotN1OptionROM**	This options allows you to control the Option ROM execution of the PCIe adapter connected to the SSD:NVMe1 slot. This can be one of the following: • **Enabled**—Executes both legacy and UEFI Option ROM. • **Disabled**—Both legacy and UEFI Option ROM will not be executed. • **UEFI Only**—Executes only UEFI Option ROM. • **Legacy Only**—Executes only Legacy Option ROM.
PCIe Slot:N2 OptionROM **set PcieSlotN2OptionROM**	This options allows you to control the Option ROM execution of the PCIe adapter connected to the SSD:NVMe2 slot. This can be one of the following: • **Enabled**—Executes both legacy and UEFI Option ROM. • **Disabled**—Both legacy and UEFI Option ROM will not be executed. • **UEFI Only**—Executes only UEFI Option ROM. • **Legacy Only**—Executes only Legacy Option ROM.
PCIe Slot:HBA Link Speed **PCIe SlotHBALinkSpeed**	This option allows you to restrict the maximum speed of an adapter card installed in PCIe HBA slot. This can be one of the following: • **Auto**— System selects the maximum speed allowed. • **GEN1**—2.5GT/s (gigatransfers per second) is the maximum speed allowed. • **GEN2**—5GT/s is the maximum speed allowed. • **GEN3**—8GT/s is the maximum speed allowed. • **Disabled**—The maximum speed is not restricted.

BIOS Configuration Dialog Box Button Bar

Important The buttons in this dialog box affect all BIOS parameters on all available tabs, not just the parameters on the tab that you are viewing.

Name	Description
Save Changes button	Saves the settings for the BIOS parameters on all three tabs and closes the dialog box. If the **Reboot Host Immediately** check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
Reset Values button	Restores the values for the BIOS parameters on all three tabs to the settings that were in effect when this dialog box was first opened.
Restore Defaults button	Sets the BIOS parameters on all three tabs to their default settings.
Cancel button	Closes the dialog box without making any changes.

Server Management Tab for C220M4 and C240M4 Servers

Reboot Server Option

If you want your changes applied automatically after you click **Save Changes**, check the **Reboot Host Immediately** check box. Cisco IMC immediately reboots the server and applies your changes.

If you want to apply your changes at a later time, clear the **Reboot Host Immediately** check box. Cisco IMC stores the changes and applies them the next time the server reboots.

Note If there are existing BIOS parameter changes pending, Cisco IMC automatically overwrites the stored values with the current settings when you click **Save Changes**.

Server Management BIOS Parameters

Name	Description
FRB-2 Timer **set FRB-2**	Whether the FRB2 timer is used by Cisco IMC to recover the system if it hangs during POST. This can be one of the following: • **Disabled**—The FRB2 timer is not used. • **Enabled**—The FRB2 timer is started during POST and used to recover the system if necessary.

Name	Description
OS Watchdog Timer **set OSBootWatchdogTimer**	Whether the BIOS programs the watchdog timer with a specified timeout value. This can be one of the following: • **Disabled**—The watchdog timer is not used to track how long the server takes to boot. • **Enabled**—The watchdog timer tracks how long the server takes to boot. If the server does not boot within the length of time specified by the **set OSBootWatchdogTimerTimeout** command, the Cisco IMC logs an error and takes the action specified by the **set OSBootWatchdogTimerPolicy** command.
OS Watchdog Timer Timeout **set OSBootWatchdogTimerTimeOut**	If OS does not boot within the specified time, OS watchdog timer expires and system takes action according to timer policy. This can be one of the following: • **5_Minutes**—The OS watchdog timer expires 5 minutes after it begins to boot. • **10_Minutes**—The OS watchdog timer expires 10 minutes after it begins to boot. • **15_Minutes**—The OS watchdog timer expires 15 minutes after it begins to boot. • **20_Minutes**—The OS watchdog timer expires 20 minutes after it begins to boot. **Note** This option is only applicable if you enable the OS Boot Watchdog Timer.
OS Watchdog Timer Policy **set OSBootWatchdogTimerPolicy**	What action the system takes if the watchdog timer expires. This can be one of the following: • **Do_Nothing**—The server takes no action if the watchdog timer expires during OS boot. • **Power_Down**—The server is powered off if the watchdog timer expires during OS boot. • **Reset**—The server is reset if the watchdog timer expires during OS boot. **Note** This option is only applicable if you enable the OS Boot Watchdog Timer.

BIOS Configuration Dialog Box Button Bar

Important The buttons in this dialog box affect all BIOS parameters on all available tabs, not just the parameters on the tab that you are viewing.

Name	Description
Save Changes button	Saves the settings for the BIOS parameters on all three tabs and closes the dialog box. If the **Reboot Host Immediately** check box is checked, the server is rebooted immediately and the new BIOS settings go into effect. Otherwise the changes are saved until the server is manually rebooted.
Reset Values button	Restores the values for the BIOS parameters on all three tabs to the settings that were in effect when this dialog box was first opened.
Restore Defaults button	Sets the BIOS parameters on all three tabs to their default settings.
Cancel button	Closes the dialog box without making any changes.

BIOS Parameters by Server Model