# 在UCS B200 M5上安裝帶有M.2 SSD的作業系統 (VMware、Windows)

### 目錄

<u>簡介</u> <u>必要條件</u> <u>需求</u> <u>採用元件</u> <u>背景資訊</u>

<u>設定</u> AHCI模式 SWRAID模式 清理 驗證 疑難排解

### 簡介

本文檔介紹如何在UCS B200 M5上安裝帶有M.2 SSD的作業系統(VMware、Windows)

Cisco UCS B200 M5刀鋒伺服器有一個微型儲存模組選項,可插入主機板插槽以提供額外的內部儲存。迷你儲存模組可以是以下型別之一:

•一個SD卡模組,最多支援兩個SD卡。(使用UCS-MSTOR-SD catridge)

•一個M.2 SSD模組,最多支援兩個SATA M.2 SSD。(使用UCS-MSTOR-M2網橋)

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#### 必要條件

#### 需求

•瞭解UCS、策略和配置檔案

#### 採用元件

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除(預設))的組態來啟動。如果您的網路正在作用,請確保您已瞭解任何指令可能造成的影響。

UCSM 3.2.2b或更高版本

UCS B200 M5(伺服器韌體3.2.2b或更高版本)

功能目錄3.2.3i或更高版本

# 背景資訊

M.2磁帶盒由裝有UCS-M2-XXXGB SATA驅動器的UCS-MSTOR-M2托架組成

您可以在運營商中使用一個或兩個M.2 SSD。

M.2插槽1位於托架頂端;M.2插槽2位於托架的下側(與托架與伺服器主機板插槽的聯結器位於同一 側)

如圖所示(兩個插槽均安裝了M.2 SSD驅動器)







2)

M.2 UCS-MSTOR-M2庫存在UCSM中

#### Equipment / Chassis / Chassis 1 / Servers / Server 7

\_

	General	Inventory	Virtual	Machines	Installed F	irmware	CIMC Sessi	ons	SEL Logs	VIF Paths	Health
ľ	Motherboard	CIMC	CPUs	GPUs	Memory	Adapters	HBAs	NICs	iSCSI vNIC	s Security	y S

mini-storage	e-M2-1
ID	: 1
Model	UCS-MSTOR-M2
Туре	: M2
Vendor	: Cisco Systems Inc
Revision	: 0
Serial	
VID	: V01
Part Numbe	er: 73-17926-05
Product Na	me : Cisco UCS Mini-Storage Carrier for M.2
Caption	: Cisco UCS Mini-Storage Carrier for M.2 (holds up to 2)
Description	Dual M.2 Mini-Storage Carrier (holds up to 2 M.2 modules)

只有在重新確認伺服器後,新增或刪除磁碟才會更新到UCSM清單,因為PCH控制器和M.2 Sata驅動器沒有CIMC感測器。

UCSM將警告您有關小型儲存的任何硬體更改,並且還會請求您重新確認伺服器。

Properties									
Affected object	Affected object : sys/chassis-1/blade-7/board/mini-storage-M2-1/inv-status								
Description	Mini storage inventory mismatch								
ID	13155391 Type : equipment								
Cause	hardware-mismatch Created at : 2018-09-26T17:1	3:58Z							
Code	F1901 Number of Occurrences : 1								
Original severity	Critical								
Previous severity	Critical Highest severity : Critical								

Properties					
Affected object	: sys/c	chassis-1/blade-7			
Description	Serv	ver 1/7 hardware inventory mismatc	h. Acknowledge the serv	er	r to clear the fault
ID	: 1315	55390	Туре	:	equipment
Cause	hard	lware-inventory-mismatch	Created at	:	2018-09-26T17:13:58Z
Code	F191	13	Number of Occurrences	:	1
Original severity	Critic	cal			
Previous severity	Critic	cal	Highest severity	:	Critical

### 重新確認伺服器後,應更新儲存清單(在本例中,插槽2中新增了M.2 ssd)。

uipment / Chassis / Chassis 1 / Servers / Server 7								
General Inventory Virtual Mac	hines Installed Firmware	CIMC Sessions SE	L Logs VIF Paths H	lealth Diagnostics F	aults Events FSM	Statistics Temperatu	res Power	
Motherboard CIMC CPUs	GPUs Memory Ad	apters HBAs NICs	iSCSI vNICs Securit	y Storage				
Controller LUNs Disks	Controller LUNs Disks							
+ - Ty Advanced Filter 🔶 Export	🖶 Print							
Name	Size (MB)	Serial	Operability	Drive State	Presence	Technology	Bootable	
▼ Storage Controller PCH 1								
Disk 1	227927	17191708379C	Operable	Online	Equipped	SSD	Unknown	
Disk 2	227927	173819147CCD	Operable	Online	Equipped	SSD	Unknown	
Storage Controller SAS 1								

# 設定

板載Lewisburg sSATA控制器用於管理這兩種型別的M.2墨盒,但不管理任何前面板驅動器。

PCH控制器在AHCI模式或SWRAID模式下運行。

AHCI模式: 磁碟顯示為JBOD磁碟。

SWRAID模式:根據策略中的使用者配置,磁碟可以位於RAID0或RAID1中。

所需的Raid	BIOS P- SATA設定	儲存配置檔案控制器定義設定	2備註				
RAIDO、RAID	1 SWRAID	RAID0或RAID 1	僅支援UEFI引導。	作業系統需要megasr驅動			
JBOD	已禁用	諾萊德	舊版或UEFI引導				

SW RAID模式下的嵌入式SATA MegaRAID控制器不支援VMware ESX/ESXi作業系統,因為 VMWare沒有軟體raid驅動程式。您可以在AHCI模式下使用VMWare。

支援Microsoft Windows Server 2016 Hyper-V虛擬機器監控程式與嵌入式MegaRAID控制器在SW RAID模式下一起使用,但不支援所有其他虛擬機器監控程式。

AHCI模式支援所有虛擬機器監控程式。

#### AHCI模式

建立RAID級別設定為「無RAID」的儲存配置檔案。

🕶 root 👽	Fault Summary		Properties
Create Storage Profile			? ×
Name : NO_RAID Description : LUNs			
Local LUNs Controller Definitions	Security Policy		
Create Controller Def	finition	? ×	\$
Name : NO_RAID Controller Mode Configuration Protect Configuration : 🗹			
RAID Level : No RAID			
		OK Cancel	
		ОК	Cancel

建立P-SATA模式設定為AHCI的BIOS策略

# **BIOS Policy**

Main Advanced Boot Options Server Management	Events	
Te Advanced Filter 🔶 Export 📑 Print		₽
BIOS Setting	Value	
Cool Down Time (sec)	Platform Default	
Number of Retries	Platform Default	
Boot option retry	Platform Default	
SAS RAID module	Platform Default	2
SAS RAID	Platform Default	
Onboard SCU Storage Support	Platform Default	
P-SATA mode	AHCI	
Power On Password	Platform Default	2
IPV6 PXE Support	Platform Default	

### 建立引導策略

### 將引導模式設定為UEFI

### 選擇「新增CD/DVD」

### 選擇「新增嵌入式本地磁碟」

### Create Boot Policy

Name	: AHCI_	Boot									
Description	:										
Reboot on Boot Order Change											
Enforce vNIC/vHBA/iSCSI Nam	ne: 🗹										
Boot Mode	: OLea	acy () Uefi									
Poot Coquity		, 0									
Boot Security	: 0										
If Enforce vNIC/vHBA/iSCSI Na If it is not selected, the vNICs/vH	I <b>me</b> is select HBAs are sel	ted and the vNIC/vHBA/iSCSI lected if they exist, otherwise	does not exist, a the vNIC/vHBA wi	config erro	r will be re est PCIe b	eported. us scan or	der is use	d.			
O Loodi Devideo		Boot Order		_							.4.
Add Local Disk		+ - Ye Advanced Fi	ter 🕈 Export	n Print							\$
Add Local LUN		Name	Or 🔺	vNIC/	Type	LUN	WWN	Slot N	Boot	Boot	Descri
Add Local JBOD		CD/DVD	1								
Add SD Card		The Embedded Disk	2								
Add Internal USB		Embedded Disk	mage		Primary			1			
Add External USB											
Add Embedded Local LUN											
Add Embedded Local Disk											
				Move L	n 📕 Mor		iii Delete				
Add Local CD/DVD		Contract Design			· • 10101		E Dalete				
Add Remote CD/DVD		Set Uefi Boot Param	eters								

### 從「新增嵌入式本地磁碟」部分選擇適當的選項

如果選擇「Any」,則預設順序為Disk1、Disk2

# Add Embedded Local Disk

Туре	:	Primary      Secondary      Any
Disk Slot Number	:	1



?

Set Uefi Boot Parameters					
Uefi Boot Parameters					
Boot Loader Name :	BOOTx64.EFI				
Boot Loader Path :	\EFI\BOOT				
Boot Loader Description :	VMware ESXi				
		OK Cancel			

### 將之前建立的BIOS策略分配給服務配置檔案

Servers / Service Profiles / root / Service Profile M.2\_AHCI

General Storage Network iSCSI vNICs	vMedia Policy Boot Order Virtual Machines FC Zo	Policies Server Details CIMC Sessions FSM V					
Actions	Policies						
Change Serial over LAN Policy	BIOS Policy						
Change Power Sync Policy	BIOS Policy: AHCI	Create BIOS Policy					
	BIOS Policy Instance : org-root/bios-prof-AHCI						

將之前建立的儲存配置檔案分配到服務配置檔案

General Storag	ge Network	iSCSI vNICs	vMedia Polic	y Boot Orde	er Virtual Machines
Storage Profiles	Local Disk Confi	guration Policy	vHBAs v	HBA Initiator Gro	oups
Actions			Storage P	rofile Policy	
Modify Storage Pro	ofile		Name	:	AHCI_SP
			Descriptio	n :	
			Storage P	rofile Instance :	org-root/profile-AHCI_
Local LUNs Co	ontroller Definitions	Security Polic	cy Faults		
Advanced Filter	🕈 Export 🛛 🖶 Pr	int			
Namo					

### AHCI模式下嵌入式PCH控制器的UCSM檢視

Gener	al In	ventory	Virtual Ma	chines	Installed Firm	ware	CIMC Sessions	SEL Lo	ogs VIF Pa	ths Healt	h Diagnostics	Faults	Events	FSM	Statistics	Temperatures
Mothe	rboard	CIMC	CPUs	GPUs	Memory	Adapters	HBAs	NICs	iSCSI vNICs	Security	Storage					
Contro	oller	LUNs	Disks													
+ - Ty Advanced Filter + Export - Print																
Name					ID					Type				Sub	type	
Ste	orage Cor	ntroller PC	H 1		1					PCH				NA		

General FSM Faults Events Statist	ics			
Actions	ID	: 1	Name	: Lewisburg SSATA Controller [AHCI mode]
	Description	: Lewisburg SSATA Controller [AHCI mode]		
	Model	: Lewisburg SSATA Controller [AHCI mode]	PID	: N/A
	Revision	: N/A	Serial	: LSIROMB-0
Cancel Storage Operations	Subtype	: NA		
	RAID Support	: RAID0, RAID1	Vendor	: Intel Corp.
Unlock Disk	OOB Interface Supports	ed: No		
Unlock For Remote	PCIe Address	: 00:17.5	PCI Slot	:
Modify Remote Key	Number of Local Disks	: 2	Rebuild Rate	N/A
	Pinned Cache Status :	Unknown		

### 這是F2 BIOS選單中的檢視

### 注意pSATA設定為AHCI

LOM and PCIe Slots Conf	iguration
Current Boot Mode SecureBoot Support	UEFI Disabled
SWRAID Configuration pSATA SATA OpROM M.2 SATA OpROM	[AHCI] [AHCI]
LOM and PCIe Slots Configurati	on
<ul> <li>PCIe Slots Inventory Details</li> <li>PCIE Link Speed Configuration</li> <li>PCI OpROM Configuration</li> </ul>	

請注意,UEFI策略名為VMware ESXi(在之前的引導策略中指定)

Main Advanced Server Mgmt	Boot Options Save & Exit			
Boot Configuration Setup Prompt Timeout Bootup NumLock State	<mark>3</mark> [0n]			
SecureBoot Support	Disabled			
Boot Mode	[UEFI Mode]			
CDN Control	[Disabled]			
Boot Option Priorities	[VMware ESXi]			
Boot Option #1	[UEFI: Built–in EFI			
Boot Option #2	Shell]			
Boot Option #3	[Disabled]			

### SWRAID模式

以下是在SWRAID模式下使用PCH控制器安裝Microsoft Windows Server 2016的示例

### 建立RAID級別設定為RAID1的儲存配置檔案以實現冗餘。

뮮	<ul> <li>root <ul> <li>●</li> </ul> </li> </ul>	Fault Summary		Properties
Ē	Create Storage Profile			? ×
Q	Name : RAID1			
≡	LUNs			
<b>■</b>	Local I       Create Controller         Ye Adva       Name : RAID1         Name       Controller Mode Configuration         RAID       Protect Configuration : RAID Level : RAID	Definition	• ×	*
			OK Cancel	Cancel

### 建立P-SATA模式設定為SWRAID的BIOS策略

BIOS Policy		×
Main Advanced Boot Options Server Management	Events	
🏹 Advanced Filter 🔶 Export 🚔 Print		≎
BIOS Setting	Value	
Cool Down Time (sec)	Platform Default	
Number of Retries	Platform Default	]
Boot option retry	Platform Default	]
SAS RAID module	Platform Default	
SAS RAID	Platform Default	
Onboard SCU Storage Support	Platform Default	
P-SATA mode	LSI SW RAID	]
Power On Password	Platform Default	
IPV6 PXE Support	Platform Default	]
	OK Apply Cancel	Help
建立引導策略		

### 將引導模式設定為UEFI

選擇「新增CD/DVD」

選擇「新增嵌入式本地LUN」

#### Create Boot Policy

Name	:	embeddedlun
Description	:	
Reboot on Boot Order Change	:	
Enforce vNIC/vHBA/iSCSI Name	:	
Boot Mode	:	C Legacy   Uefi
Boot Security		

#### WARNINGS:

The type (primary/secondary) does not indicate a boot order presence. The effective order of boot devices within the same device class (LAN/Storage/ISCSI) is determined by PCIe bus scan order. If Enforce vNIC/vHBA/iSCSI Name is selected and the vNIC/vHBA/iSCSI does not exist, a config error will be reported. If it is not selected, the vNICs/vHBAs are selected if they exist, otherwise the vNIC/vHBA with the lowest PCIe bus scan order is used.

⊖ Local Devices	Boot Order	
Add Local Disk	+ - Ty Advanced Filter 🛧 Export 🖶 Print	۵
Add Local LUN	Name Order A vNIC/vH Type LUN Na WWN Slot Nu Boot Na Boot Path	Descript
Add Local JBOD	<b>CD/</b> 1	
Add SD Card	Emb 2	
Add Internal USB		
Add External USB		
Add Embedded Local LUN		
Add Embedded Local Disk		
Add CD/DVD	🕇 Move Up 🦂 Move Down 💼 Delete	
Add Local CD/DVD	Set Uefi Boot Parameters	
Add Remote CD/DVD		

### 指定UEFI引導引數

Name	: embed	ddedlun	
Boot Policy Instance Description	: org-roo	Modify Uefi Boot Parameters	? ×
Reboot on Boot Order Cha Enforce vNIC/vHBA/iSCSI Boot Mode Boot Security WARNINGS: The type (primary/secondar The effective order of boot f Enforce vNIC/vHBA/iSCS f it is not selected, the vNIC Boot Order	ange : No Name : Yes : Uefi : No ny) does not indi devices within ti SI Name is selec Ds/vHBAs are se	Uefi Boot Parameters         Boot Loader Name       :         Boot Loader Path       :         Verified       :         Boot Loader Description       :         Windows       :	
+ - Ty Advanced Filte Name CD/DVD	r 🕈 Export Order 1	ок	Cancel
➡ Embedded LUN uefi-boot-param	2		
	Set ISCSI	Root Parameters Modify Uefi Boot Parameters	
序之前建立的BIOS	策略分配給	合服務配置檔案	
之前建立的BIOS iSCSI vNICs vMe	策略分配給 dia Policy	合服務配置檔案 Boot Order Virtual Machines FC Zones Policies	Server Detai

BIOS Policy							
BIOS Policy: embeddedlun_Bios 🔻	Create BIOS Policy						

將之前建立的儲存配置檔案分配到服務配置檔案

Pr	opertie	s fo	or: Se	ervice P	rofile er	nbedd	edlun	
<	General	Sto	orage	Network	iSCSI vNIC	s vMe	dia Policy	
S	torage Profile	es	Local	Disk Configur	ation Policy	vHBAs	vHBA Init	
A	ctions			Sto	orage Profile	e Policy		
N	Modify Storage Profile					Name Description Storage Profile Instan		
L	ocal LUNs	C	ontroller	Definitions	Security Po	licy Fa	ults	
7	Advanced F	ilter	♠ Expo	ort 🖷 Print				
Ν	lame							
	RAID1							

嵌入式的UCSM檢視 SWRAID模式下的PCH控制器

General Inventory Virtual Machines Installed	Firmware CIMC Sessi	ons SEL Logs VIF Pat	ths Health Diagnost	tics Faults E	vents FSM	Statistics Temperatures Po	wer
Motherboard CIMC CPUs GPUs Memor	y Adapters HBAs	NICs ISCSI vNICs	Security Storage				
Controller LUNs Disks							
+ - Ty Advanced Filter + Export - Print							
Name	ID		Туре		Subty	ype	
Storage Controller PCH 1	1		PCH		NA		
Storage Controller SAS 1	1 SAS				NA		
General FSM Faults Events Statistics							
Actions	ID	: 1		Name	: Lewisburg SS	ATA Controller [SWRAID mode]	
	Description	: Lewisburg SSATA Control	ller [SWRAID mode]				
	Model	: Lewisburg SSATA Control	ller [SWRAID mode]	PID	: N/A		
	Revision	: NA		Serial	: LSIROMB-0		
Cancel Storage Operations	Subtype	: NA					
	RAID Support	RAID0, RAID1		Vendor	: Intel Corp.		
Unlock Disk	OOB Interface Supported	: No					
Unlock For Remote	PCIe Address	00:17.5		PCI Slot	:		
Modify Remote Key	Number of Local Disks	: 2		Pobuild Pate	· N/A		
				Rebuild Pale	. N/A		
	Pinned Cache Status : L	Inknown					

### 這是F2 BIOS選單中的檢視

### 注意pSATA設定為AHCI

LOM and PCIe Slots Config	guration
Current Boot Mode SecureBoot Support	UEFI Disabled
SWRAID Configuration pSATA SATA OpROM M.2 SATA OpROM	[LSI SW RAID] [LSI SW RAID]
LOM and PCIe Slots Configuration	n
<ul> <li>PCIe Slots Inventory Details</li> <li>PCIE Link Speed Configuration</li> <li>PCI OpROM Configuration</li> </ul>	

注意LSI Software RAID Configuration Utility(sSATA)顯示



#### 我們可以確認在BIOS中將虛擬驅動器設定為RAID1

	Aptio Setup Utility	) – Copyright (C) 2017 America	an M
	Virtual Drive Management >	Manage Virtual Drive Propert	ties
ľ	▶ Apply Changes		s
l	Select Virtual Drive	[Virtual Drive O:	t
l		MegaSRVDO, RAID1,	
l		222.58GB, Optimal]	
l	Virtual Drive Properties:		
l	Virtual Drive Name	MegaSRVD0	
l	Target ID	0	
l	RAID Level	[RAID1]	
l	Virtual Drive Status	[Optimal]	
l	Virtual Drive Capacity (MB)	227928	
	Segment Size	[64 KB]	

對映Windows作業系統後,當您到達安裝驅動程式的部分時,瀏覽驅動程式資料夾的內容到嵌入式 MegaRAID驅動程序的位置:儲存/Intel/C600-M5/<OS>/

0	🔏 Windows Setup	<u> </u>
	Select the driver to install	
	LSI Embedded MegaRAID (D:\Storage\Intel\C600-M5\W2K16\x64\MegaSR1.inf)	
	RAID Virtual Device (D:\Storage\Intel\C600-M5\W2K16\x64\nodev.inf)	
		N.
		3

### 我們應該能夠檢測我們建立的虛擬驅動器

按一下「新建」

		uows:	
Name		Total size	Free space Type
Drive 2 Una	llocated Space	222.6 GB	222.6 GB
A Refresh	Delete	Eormat	* New
- <u>T</u> errestr			

磁碟應像這樣進行分割槽,並允許在主分割槽上安裝Windows。

	Name		Total size	Free space	Туре
Ì	Drive 2 Part	ition 1: Recovery	450.0 MB	433.0 MB	Recovery
ø,	Drive 2 Part	ition 2	100.0 MB	95.0 MB	System
I all	Drive 2 Part	ition 3	16.0 MB	16.0 MB	MSR (Reserved)
	Drive 2 Part	ition 4	222.0 GB	222.0 GB	Primary
~					-

安裝作業系統後,您可以按實際引導順序驗證對映

General	Inventory	Virtual Machines	Installed Firmware	CIMC Sessions	SEL Logs	VIF Paths	Health	Diagnostics	Faults
				Adapters	:	1			
				NICs	:	1			HBA
				Original UUID	:	2622df36-0b	af-42ba-a1	107-b04a8fd026	58
				+ Part De	etails				
					Connection	Details			
				(+) Power	Budget				
				⊖ Boot O	rder Details	5			
				Configured	Boot Order	Actual Boot	Order		
				There may b	e a delay of a	few minutes be	fore the act	tual boot order is u	updated.
				+ - + 6	Export 🛛 🖶 Pri	nt			
				Name					
				▼ OnboardH	DDAny				
				(1) Win	ndows Boot Ma	anager			
				▼ OnboardH	DDAny				
				(0) 145					

請注意,實際引導順序中的引數與BIOS中的引導選項中的引數相同

Main Advanced Server Mgmt Boot Options Save & Exit

Boot Configuration Setup Prompt Timeout Bootup NumLock State

SecureBoot Support Boot Mode CDN Support for VIC

Boot Option Priorities Boot Option #1 Boot Option #2 Boot Option #3 3 [On]

Disabled [UEFI Mode] [Disabled]

[Windows Boot Manager] [Windows] [UEFI: Built-in EFI Shell]

#### 清理

如果要安裝其他作業系統或將控制器切換到AHCI模式,則需要清理磁碟。

為此,請在磁碟清理設定為「是」的情況下,將清理策略應用到服務配置檔案,然後解除服務配置 檔案的關聯,以使清理生效。

Actions	Properties				
Delete	Name	: diskscrub			
Show Policy Usage	Description	:			
Use Global	Owner	: Local			
	Disk Scrub	: ONO Yes			
	BIOS Settings Scrub	: • No · Yes			
	FlexFlash Scrub	: • No () Yes			

服務配置檔案取消關聯後,驅動器狀態應變為「未配置良好」。

Equipment / Chassis / Chassis 1 / Servers / Server 7	
--	--

General	Inventory	Virtual Machines	Installed Firmwa	are CIMC Se	essions SE	EL Logs VIF Pa	aths Health	Diagnostics	Fal> 》
Motherboard	CIMC	CPUs GPUs	Memory Ada	apters HBAs	s NICs	iSCSI vNICs	Security Store	ige	
Controller	LUNs D	isks							
+ - 7/	Advanced Filter	🕈 Export 🛛 🖶 Prin	t						≎
Name	Size (ME	3) Serial	Operability	Drive St	tate	Presence	Technology	Bootable	
▼ Storage C	0								
Disk 1	228936	17191708	379C Operable	Unconfi	gured Good	Equipped	SSD	Unknown	
Disk 2	228936	17381914	7CCD Operable	Unconfi	gured Good	Equipped	SSD	Unknown	

M.2 SSD只能在SWRAID模式下擦除,而不能在AHCI模式下擦除。

## 驗證

目前沒有適用於此組態的驗證程序。

# 疑難排解

目前尚無適用於此組態的具體疑難排解資訊