Falcon 5208 GUI User Manual

Version 0.1 February 18th, 2022



Notes, Cautions, and Warning

i	Note	A NOTE indicates important information that helps you make better use of your product.
\triangle	Caution	A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.
\wedge	Warning	A WARNING indicates a potential for property damage, personal injury, or death.

Table of Contents

1.	Log-in	1
2.	Functions	1
	2.1 Overview	2
	2.1.1 Device	
	2.1.2 Notifications	
	2.1.3 Thermal(°C)	4
	2.1.4 PCIe Throughput (MB/s)	4
	2.2 Resource Management	5
	2.2.1 Host View	5
	2.2.2 Device View	7
	Appendix- Assign / Unassign Virtual Functions	
	Appendix- Attach / Detach Namespace	13
	2.3 VF Config	14
	2.4 Port Config	15
	2.4.1 Port Bifurcation	15
	2.5 Monitor	16
	2.6 System Health	17
	2.6.1 Chassis Temperature	17
	2.6.2 Device Temperature	17
	2.6.3 Power Consumption	
	2.6.4 Fan Speed	
	2.7 Chassis	19
	2.8 Maintenance	20
	2.8.1 Firmware Update	
	2.9 Event Log	21
	2.10 Settings	
	2.10.1 Time Setting	
	2.10.2 Network Setting	
	2.10.3 User Management	23

1. Log-in

Every time you access GUI, you will be asked to log in. Please enter your **username** and **password**.

Username		
Password		©
	Login	

2. Functions

The drop-down menu is at the top-left of the page. Users can select functions from the menu.

Please find details of each function in the relative section.



2.1 Overview

The Overview page sorts out the basic performance data of the FALCON 5208 GUI system in various charts and graphs.

Device A	All Available Full Erro	r Notifications	۰
		Error 0	5
Slot 2 - NVMe SSD Controller PM173X	Available: 1.14 TB Allocated: 2.06 TB	Warning 15	R
64.46%		Info 61	R
		Log-ins 24	R
Slot 4 - NVMe SSD Controller PM173X	Available: 199.63 GB Allocated: 3.00 TB	Thermal	8
93.76%		Drawer Board	28 °C
		Drawer Device Avg.	41 °C
Slot 7 - NVMe SSD Controller PM173X	Available: 1.23 TB Allocated: 1.97 TB	Drawer PCIe Switch	62 °C
61.52%		System Profile	55
		Model Falcon-5208	
		Serial Number 00000-10517180	
		MAC Address 02:3E:70:69:11:B4	
		Firmware 0.0.37-220211-H3	
		IP Address 10.0.24.87 (static)	
PCIe Throughput (MB/s)	Sum 🛩 12hours 🗙		
18			
1.4 A	when when when when when when when when	~	
12 10	- Marine Ma	An-	
0.8			
0.6			
0.4			
	70M 80M	9AM	
sor m an in m tanan inan ana ana ana ana ana ana ana an	izen oenn		

2.1.1 Device

The Device panel provides device list and capacity information. Users can check the capacity usage of each SSD here. The tabs on the top right of the panel helps to filter the devices by different criteria for quick search.

Device	All	Available	Full	Error
Slot 1 – NVMe SSD Controller PM173X		Availal	ble: 1.60 TB	
		Allocat	ted: 1.60 TB	
50.0 <mark>0%</mark>				
Slot 2 – NVMe SSD Controller PM173X		Availal	ble: 1.60 TB	
		Allocal	ted: 1.60 TB	
50.00%				
Slot 3 – NVMe SSD Controller PM173X		Availal	ble: 1.60 TB	
		Allocat	ted: 1.60 TB	
50.00%				
Slot 4 – NVMe SSD Controller PM173X		Availal	ble: 1.60 TB	
		Allocat	ted: 1.60 TB	
50.00%				
Slot 5 – NVMe SSD Controller PM173X		Availal	ble: 1.60 TB	
		Allocat	ted: 1.60 TB	

1.	Tabs:	Sort SSDs that meet different criteria.
2.	Device list:	List of all SSDs installed in the Falcon 5208 system.

2

All = list all devices Available = devices with allocated NVM capacity <95%
 Full = devices with allocated NVM capacity >95%
 Error = devices with error

2.1.	2 Notifi	cations		2	3		
			Notificatio	ons	,		
			Error	0		Notifications	٠
The N	otificatior	panel shows the system	Warning	0	R	Back 🕤	•
notifications categorized by severity $0 \rightarrow$			Info	33	ß	Deleted the Namespace 0x5 2022-01-17 17:21:23	
			Log-ins	67	R	Create the Namespace 1953125.0 2022-01-17 17:21:10	
						Create the Namespace 1953125.0 2022-01-17 17:18:23	
(i)	Error:	highest severity, events that may damage the	system.			Deleted the Namespace 0x2 2021-12-16 11:36:04	
-	Warning:	moderate severity, events that requires attention	on.			Create the Namespace 1953125.0	
	Info:	regular system events.				2021-12-16 11:13:10 Create the Namespace	
	Log-ins:	user account related activities.				15625000.0 2021-12-01 16:42:54	•

1. Categories:	Notification categories.
2. Log counts:	The number of logs under the category.
3. View button:	View detailed logs.

2.1.3 Thermal(°C)

The Thermal chart displays the average temperature of each component (in °C) in the chassis is displayed.

Thermal	8
Drawer Board	28 °C
Drawer Device Avg.	41 °C
Drawer PCIe Switch	62 °C

2.1.4 PCIe Throughput (MB/s)



1.	Throughput rate:	Throughput rate scale in MB/s, the scale will change as throughput changes.
2.	Time:	Times scale in hours.
3.	PCIe slots:	List all the device slots. Every slot has a unique color indicator.
4.	Throughput curve:	The curve of PCIe throughput of each slot, distinguished by the color.
5.	Instantaneous throughput:	Displays throughput of each device at a specific time point.
		Move the mouse over the curve to see this menu.
6.	Traffics:	Select traffic types to display on the throughput graph. (Ingress, Egress, or Sum)
7.	Display period:	Select display period. (Past 1, 12, 24, or 72 hours)

2.2 Resource Management

There are two tabs under the resource management page. The host tab is a view of hosts, and the device tab is a view of devices. Most actions could only be done in the device tab, such as virtual function management and namespace management.

2.2.1 Host View

Hest SSE		3	4	3
Host #↑	Assigned Functions	Total Capacity	Link Capability (Curr/Max)	NVMe List
H1.0	32	10.43 TB	G4x8/G4x8	লি
H2.0	32	7.52 TB	G4x8/G4x8	ଟ୍
H3.0	32		G4x8/G4x8	Εq
H4.0	32	16.33 TB	G4x8/G4x8	ାର୍

1.	Host #:	The ID given to each host port.
2.	Assigned functions:	Number of NVMe virtual functions assigned to the host.
З.	Total capacity:	Sum of the NVMe capacity assigned to the host port.
4.	Link capability:	Current link speed / max link speed of the host port.
5.	NVMe list:	Go to NVMe list page.

() Total capacity field will be blank when the NVM capacity provisioned to the host is 0.

NVMe List

Hos SSD H2.0						
↓ H2.0						Back 5
				Search		Add Capacity
_	Serial Number	NSID	NVMe Capacity	Slot	VF #	Host Bus:Dev:Func
	\$55HNG0R100149	0x1	700.00 GB	7	1	0:0.1
	S55HNG0R100149	0x6	1.00 GB	7	1	0:0.1
9	S55HNG0R100149	0x7	1.00 GB	7	1	0:0.1
	S55HNG0R100149	0x8	1.00 GB	7	1	0:0.1
•	S55HNG0R100149	0x9	1.00 GB	7	1	0:0.1
	S5LBNC0R800191	0x2	1.00 TB	4	1	0:0.1
۵ 🛢	S5LBNC0R800191	0x4	100.00 GB	4	1	0:0.1
9 0	S5LBNC0R800191	0x6	100.00 GB	4	1	0:0.1
9 0	S5LBNC0R800191	0x7	1.00 GB	4	1	0:0.1
. € 0	S5LBNC0R800191	0x8	100.00 GB	4	1	0:0.1

1.	Host #:	Host ID.
2.	Namespaces:	List of namespaces assigned to the host and basic namespace information.
3.	Search bar:	Search specific namespaces.
4.	Add capacity:	Add NVM capacity to the host.
5.	Back:	Return to the host list.
6.	Refresh:	Refresh the page.

() Newly added capacity is indicated with () sign.

Add Capacity

1. Select an SSD

Select an SSD to allocate NVM capacity from.

(i) It is recommended to select the SSDs with higher **unallocated capacity**.

2. Select a virtual function

Select the virtual function to attach namespace.

 If the virtual functions are associated to different virtual machines, make sure to select the right virtual function when adding capacity.

3. Select namespace(s) to attach

Select namespace(s) to attach.

(i)

Users can also create a new namespace to attach.

See **Create Namespace** section for creating new namespace.

Select SSD		Close
Slot 2 NVMe SSD Controller PM173X	Serial Number: 555HN00R100141 Namespaces created: 22 / 32 Unallocated Capacity: 1.14 TB / 3.20 TB	•
Slot 4 NVMe SSD Controller PM173X	Serial Number: SSLBNC0R800191 Namespaces created: 8 / 32 Unallocated Capacity: 199.63 GB / 3 20 TB	•
Slot 7 NVMe SSD Controller PM173X	Serial Number: SSSHNG0R100149 Namespaces created: 32 / 32 Unallocated Capacity: 1.23 TB / 3.20 TB	•

Γ	Select Function							
		VF #	Host Bus:Dev:Func	Namespace Qty.	Total Capacity			
Ł		1	0:0.1	5	704.00 GB	•		
	6+ 6+	2	0:0.2	0		•		
	6+ 6+	3	0:0.3	0		•		
Ł								

Attach I	Namespace			Back Close
	Select SSD: Slot 7 Select Function: VF #1			Create Namespace
	Model Name: NVMe SSD Serial Number: S55HNGI Namespaces Created: 33 Unallocated Capacity: 1.3	I Controller PM173X 3R100149 2 / 32 23 TB / 3.20 TB		
	NSID	VF #	Capacity	NMIC
	0x1	1	700.00 GB	Private
	0x2		100.00 GB	Shared
	0x3		150.00 GB	Private
	0x4		100.00 GB	Private
	0x5		750.00 GB	Private
	0x6	1	1.00 GB	Private
	0x7	1	1.00 GB	Private
	0×8	1	1.00 GB	Private
	0x9	1	1.00 GB	Private
	0xa		1.00 GB	Private
	0xb		1.00 GB	Private
	0xc		1.00 GB	Shared
	Oxd		1.00 GB	Private
	Oxe		1.00 GB	Private
	Oxf		1.00 GB	Private 👻
				No Yes

2.2.2 Device View

•	2	3	4	5	6	•	
l ost SS						Ļ	
Slot 🛧	Used VF	Namespace Q'ty	NVM Capacity (Used/Total)	Model Name	Link Capability (Curr/Max)	More	
1	5	1	100.00 GB / 3.20 TB	NVMe SSD Controller PM173X	G4x8/G4x8	12	
2	5	1	100.00 GB / 3.20 TB	NVMe SSD Controller PM173X	G4x8/G4x8	R	
3	4	1	100.00 GB / 3.20 TB	NVMe SSD Controller PM173X	G4x8/G4x8	12	
4	5	1	100.00 GB / 3.20 TB	NVMe SSD Controller PM173X	G4x8/G4x8	R	
5	7	1	100.00 GB / 3.20 TB	NVMe SSD Controller PM173X	G4x8/G4x8	12	
6	6	4	3.20 TB / 3.20 TB	NVMe SSD Controller PM173X	G4x8/G4x8	12	
7	6	0	900.98 GB / 3.20 TB	NVMe SSD Controller PM173X	G4x8/G4x8	R	
	6	2	900.98 GB / 3.20 TB	NVMe SSD Controller PM173X	G4x8/G4x8	π	

1.	Slot #:	ID given to each device slot.
2.	Used VF:	Number of VFs assigned to hosts. (Maximum 32 VFs)
3.	Namespace Qty.:	Number of namespaces created.
4.	NVM Capacilty:	NVM capacity allocated to namespaces / total NVM capacity of the SSD.
5.	Model name:	Model name of the device.
6.	Link capability:	Current link of the device / max link capability of the slot.
7.	More:	Go to the device management page. (See Device Management Page for details.)

Device Management Page

I										
Slot 1 Into	ormation				Detailed Informatio	n	ł			
Model		NVMe SSD C	ontroller PM173X		Firmware Version	-	EP	K9CJ5Q		
Serial Nurr	iber	S5LBNC0R80	0150		IEEE OIII Identifier	IV.	58	risung Electronics Co Lto		
Available /	Total NVM Capacity	3.10 TB / 3.2			Available Spare		90	e.v		
Used NVM	Capacity	100.00 GB (P	rivate – 100.00 GB/ Shared – 0 MB)		Available Spare Thresho	ld	10			
Llead VE	amespace	1/32 6			Composite Temperature		43			
Temp		42.10			Controller Busy Time		0			
Health		Good			Critical Warning		0			
VF Assign	ment Information	on	VF N	lanagement	Namespace Inform	ation		Format Namespace	Modify NMIC	Create Namespace
Host #↑	VF(s) Assigned	VF(s) with namespace	Assigned Capacity (Private/ Shared)	More	NSID	Status	VF#	Capacity	NMIC	Action
H1.0	1	0	0 MB / 0 MB	R	0x1	Attached	5	100.00 GB	Private	×
H1.1	0	0	0 MB / 0 MB	R						
H1.2	1	0	0 MB / 0 MB	R						
H1.3	1	0	0 MB / 0 MB	R						

1.	Slot information:	ID given to each device slot.
2.	Detailed information:	Number of VFs assigned to hosts. (Maximum 32 VFs)
3.	VF assignment information:	Number of namespaces created.
4.	Namespace information:	NVM capacity allocated to namespaces / total NVM capacity of the SSD.
5.	Refresh:	Model name of the device.

VF assignment information

∕ ssign	ment lı formati	on	VFM	anagement 4
ost # ↑	VF(s) Assigned	VF(s) with namespace	Assigned Capacity (Private/ Shared)	More
H1.0	1	0	0 MB / 0 MB	ଟ୍
H1.1	0	0	0 MB / 0 MB	R
H1.2	1	0	0 MB / 0 MB	R
H1.3	1	0	0 MB / 0 MB	R
H2.0	2	1	100.00 GB / 0 MB	6

1.	Host #:	List of hosts.
2.	VF assigned:	Number of virtual functions assigned to the host.
3.	VF with namespace:	Number virtual functions with namespace(s) attached.
4.	Assigned capacity:	NVM capacity assigned to the host. (Private and shared capacity)
5.	More:	List of virtual functions assigned to the host and information.
6.	VF management:	See Virtual Function Management section for details. (P. 9)

Virtual Function Management

	Host SSD						5 Back	5
•	Slot 1 Information						Assign Assign wrant function 6 to 111.2	
U	VF Assigned : 5		Free VF : 2	Total Hosts : 5		VFs assigned to 4 host(s)	w.	No Vec
l	Virtual Functions					H1.0		±]
	VF #	Assign to	Host Bus:Dev:Func	Namespace Attached	Action	Host Port : H1.0	Link speed :/G4x4	
9 →	1	H1.0	No connection	No	Unassign	Assigned VF	1	
	2			No	Unassign		_	
	3	H1.2	No connection	No	Unassign	H1.1		+ I V
	4	H1.3	No connection	No	Unassign	Host Port : H1.1	Link speed :/G4x4	
	5	H2.0	No connection	No	Unassign	Assigned VF	0	
	6	H2.0	No connection	Yes	3 Unassign		-	
l	7			No	Unassign	H1.2		+
			Unassign VF Image: Image of the second sec	ussigning the VF from the host. The host system that of derstand the risks.	toes not support			

1.	Slot information:	Basic usage information of the SSD on the slot.
2.	Virtual functions:	List of all virtual functions and information.
З.	Unassign:	Unassign the virtual function.
4.	Namespace information:	List of hosts and basic VF usage information.
5.	Back:	Go back to Device Management .

(

See Appendix-Assign / Unassign Virtual Functions for operations. (P. 10)

Appendix- Assign / Unassign Virtual Functions

All the NVMe virtual functions should have been preassigned to the hosts at the initial setting of Falcon 5208 system. Users could still re-assign the virtual functions. However, the virtual functions should be unassigned from its current host before it can be assigned to a different host. It is recommended to reboot the hosts when there is any virtual function added or removed.

Unassign Virtual Function

1:1 (005500)	1:1 (005500) Information								
VF Assigned : 14		Free VF : 18	Total Hosts : 2		VFs	s assigned to 2 host(s)			
Virtual Function	ons					1:H1.0	+		
VF #	Assign to	Host Bus:Dev:Func	Namespace Attached	Action		Host Port : 1:H1.0	Link speed : -/G4x16		
1	1:H1.0		No	Unassign	H	Assigned VF	3		
2	1.H1.0		No	Unassign					
3	1.H1.0		No	Unassign		1:H2.0	+		
4			No	Unassign		Host Port : 1:H2.0	Link speed :/G4x16		
5			Yes	Unassign		Assigned VF	0		
6			No	Unassign					
7			No	Unassign					
8			No	Unassign					

Click the "Unassign" button to unassign the virtual function from the host.

When unassigning VFs with namespace attached, the VF will be unassigned, and the namespaces will be detached automatically. The data stored on the namespace are not erased, users can still find the namespace under **Namespace Management** of the SSD.

Assign Virtual Function

HЭ	E Overview	🖨 Resource Management	目 VF Config 人 Port Config	🗘 Monitor 🛛 Ø System Healt	h O Chanala	A Maintenance	# Event Log	0 Set	ting		(Root) \varTheta
	Host 55	D								Back S	•
	1:1 (00550	00) Information									
	VF Assigned	:14	Free VF : 1		Tetal Hosts	2			/Fs assigned to 2 host(s)	List of hosts	s
	Virtual Fur	nctions							1:H1.0	E	
	17.0	Assign to	Heet Buit Dec/Func	Namespace /	tuched	A	tion	ĩ	Heat Port: 1.H1.0	Link speed : -/04x16	
	1	1.H1.0		No		0.	easign		Assigned VF	12	
	2	1.H2.0		N		0.	nation			_	
	3	1.81.0		No		Us	nglees		1:H2.0		
	4	1.H2.0		No		0.	ngian		Hest Port : 1.H2.0	Link speed : -/04x16	
	5	1.H1.0		Ye		- 04	nation		Assigned VF	2	- 1
	6	1.911.0		No		U.	ngiaas				_
	7	1.911.0		No		0.	nasign				
		1.911.0		No		0.	essign				
	9	1.HIL0		N		0.	essign				
	10	1.911.0		N		0.	a salgo				

's assigned to 2 host(s)	Assign \
1:H1.0	+
Host Port : 1:H1.0	Link speed :/G4x16
Assigned VF	12
1:H2.0	+
Host Port : 1:H2.0	Link speed :/G4x16
Assigned VF	2

Select the host that you would like to assign virtual function to.

Click the "+" button of the host, the system will assign a vacant virtual function to the host automatically.



(i)

The system will automatically assign the first available virtual function in VF number order. E.g., If VF 2 and 3 are both free, the system will prioritize VF2 when assigning.

A virtual function can only be assigned to one host at a time.

Namespace Management

Namespace Info	rmation	Format	7 Vamespace	8 Modify NMIC	9 Create Namespace
1 NSID	2 Status	3 VF #	4 Capacity	5 NMIC	6 Action
0x1	Not Attached		100.00 GB	Private	×
0x2	Attached	3	1.00 TB	Shared	×

1.	NSID:	Basic usage information of the SSD on the slot.
2.	Status:	Status of the namespace. See Appendix-Attach / Detach Namespace. (P. 13)
З.	VF #:	NVMe virtual function(s) that the namespace is attached to.
4.	Capacity:	NVM capacity allocated to the namespace.
5.	NMIC:	Sharing capability of the namespace. (Private or shared)
6.	Action	Delete the namespace.
7.	Format namespace:	See Format Namespace section for details. (P. 11)
8.	Modify NMIC:	See Modify NMIC section for details. (P. 12)
9.	Create namespace:	See Create Namespace section for details. (P. 12)

Format Namespace

Format	Regular formatting.
User data erase	Clear all user data then format.
Cryptographic erase	Sanitize the media encryption key for the target data.

To protect your data, Format is disabled for the namespaces attaching to virtual function.								
NSID	Capacity				Option			
0x1	700.00 GB	 Format 	O User data erase	0	Cryptographic erase	Do not Format		
0x2	100.00 GB	O Format	O User data erase	0	Cryptographic erase	 Do not Format 		
0x3	150.00 GB	○ Format	O User data erase	0	Cryptographic erase	 Do not Format 		
0x4	100.00 GB	○ Format	O User data erase	0	Cryptographic erase	 Do not Format 		
0x5	750.00 GB	○ Format	O User data erase	0	Cryptographic erase	 Do not Format 		
Ox6	1.00 GB	⊖ Format	O User data erase		Cryptographic erase	Do not Format		
0x7	1.00 GB	O Format	O User data erase		Cryptographic erase	Do not Format		

Cryptographic erase will make recovery of the decrypted target data is infeasible.

Modify NMIC (NVMe multi-path I/O and sharing capability)

Private	Private namespace can only be attached to one virtual function.
Shared	Shared namespace can be attached to multiple virtual functions simultaneously.

To protect your data, N than one virtual function	lultipath I/O and Sharing Capabilities (NN ns.	AIC) modification is disabled fo	r the namespaces attaching to mo	re
NSID	Capacity	NMIC	Option	
0x1	700.00 GB	Private	Private Shared	
0x2	100.00 GB	Shared	O Private 💽 Shared	
0x3	150.00 GB	Private	● Private ○ Shared	
0x4	100.00 GB	Private	● Private ○ Shared	
0x5	750.00 GB	Private	● Private ○ Shared	
Охб	1.00 GB	Private	Private Shared	
0x7	1.00 GB	Private	● Private ○ Shared	
			No	

To prevent data loss on the host side, NMIC modification is disabled for namespaces that have been attached to more than one virtual function.

Create Namespace

Create a new namespace with customized NVM capacity and NMIC property.

	Create Namespace			
1	Unallocated Capacity:	1.14 TB		
	Capacity:	1	TB -	
	Multipath I/O and Sharing Capabilities (NMIC):	Private 👻		
				No Yes



Maximum 32 namespaces can be created in one SSD.

Appendix- Attach / Detach Namespace

Users can also attach namespace from Host view-NVMe list page (see Add Capacity section P. 6). However, detaching namespace can only be done under Device Management page.

Attach Namespace

Namespace Inf	formation	Modi	fy NMIC C	reate Namespace	
NSID	Status	VF	Capacity	NMIC	Action
0x1	Not Attached		1.00 TB	Private	×
0x2	Not Attached		2.00 TB	Private	×

VF #	Host #	Attached Namespace	Total Capacity
1	H2.0		
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Click the **Status** of the namespace.

Select the virtual function(s) to attach to, then click "Yes".

- () Namespaces that have been attached to a virtual function would show "Attached". However, if the namespace is a shared namespace, users can still click the "attached" button and attach the namespace to more virtual functions.
- (i) When attaching namespaces, it is recommended to find the virtual functions that are assigned to the desired host machine(s).

Detach Namespace

amespace Info	rmation	Forma	at Namespace	Modify NMIC	Create Namesp	oace
NSID	Status	VF #	Capacity	NMIC	Action	
0x1	Attached	2	350.00 GB	Private	×	
0x2	Not Attached		1.00 GB	Private	×	
0x3	Not Attached		1.00 GB	Private	×	

VF# ①	Host #	Attached Namespace	Total Capacity	
1	H2.0			
2		0x1	350.00 GB	
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Click the Status of the attached namespace.

Uncheck the virtual function(s) to detach from, then click "Yes".



 (\mathbf{i})

Users can detach namespace from multiple virtual functions at a time by unchecking multiple virtual functions.

Please make sure that the host is not accessing the namespace when detaching. Accidentally detach a namespace may cause system error on the host side.

2.3 VF Config.

VF Config page allows users to perform system level virtual function assignment more efficiently.

5	Q	2	34		7
Equally Distribute					Undo Apply
	Slot	Free VF	H1.0 (G4x16)	H2.0 (G4x16)	Management
	1	32	— 0(+0) +	— 0(+0) +	∝ ← 6
	2	32	— O(+O) +	— 0(+0) +	R
	3	32	— O(+O) +	— 0(+0) +	B
	4	32	— 0(+0) +	— 0(+0) +	B
	5	32	— O(+O) +	— 0(+0) +	R
	6	32	— 0(+0) +	— 0(+0) +	R
	7	32	— 0(+0) +	— 0(+0) +	B
	8	32	— O(+O) +	— 0(+0) +	B

1.	Slot:	Device slot number.
2.	Free VF:	The number of virtual functions that have not been assigned to any host.
З.	Host port ID:	ID given to each host port.
4.	-/+:	Adjust quantity of the virtual function.
5.	Equally distribute:	Equally distribute all free virtual functions among all host ports.
6.	Management:	Go to the Virtual Function Management page of the SSD.
7.	Undo / Apply:	Undo or apply the virtual function assignment.

	6	3				4
	Equally Dis	stribute		2		Undo Apply
_		Siot	Free VF	H1.0 (G4x16)	H2.0 (G4x16)	Management
0→		1	32	— 0(+0) +	- 0(+0) +	12
		2	32	— 0(+0) +	- 0(+0) +	
		3	32	— 0(+0) +	- 0(+0) +	R
		4	32	— O(+O) +	- 0(+0) +	R
		5	32	— 0(+0) +	— O(+O) +	R
		6	32	— 0(+0) +	- 0(+0) +	8
		7	32	— 0(+0) +	- 0(+0) +	R
		8	32	— 0(+0) +	- 0(+0) +	

- 1. Select the SSDs to assign virtual functions from. (Unselected SSDs will not be included)
- 2. Adjust the number of virtual functions for each host port.
- 3. (Optional) Equally distribute all free virtual functions among all host ports.
- 4. Apply the virtual function assignment.
- (i) When equally distributing virtual functions, there may be remaining free virtual functions when the number of host and virtual functions are not divisible.

2.4 Port Config.

Falcon 5208 provides user defined PCIe port configurations to support different requirement for host quantity. The two host ports are default to 16 lanes (PCIe 4.0). The lanes can be configured into 2x8 lanes or 4x 4lanes depending on the custom requirements.

•	2	3	4		
Ļ	Ļ	Ļ	Ļ	Undo Apply	-5
Slot	Port Type	Lane Type	Config		
1	Device	PCIe 4.0 x8			
2	Device	PCIe 4.0 x8			
3	Device	PCIe 4.0 x8			
4	Device	PCIe 4.0 x8			
5	Device	PCIe 4.0 x8			
6	Device	PCIe 4.0 x8			
7	Device	PCie 4.0 x8			
8	Device	PCIe 4.0 x8			
H1	Host	PCIe 4.0 x16	Host 1x16 👻		
H2	Host	PCIe 4.0 x16	Host 1x16 👻		
					÷. /

1.	Slot:	The number given to each slot.
2.	Port type:	PCIe port type. (Device or host port)
З.	Lane type:	PCIe link of the port. (PCIe generation and lanes)
4.	Config:	Configuration of the PCIe ports. (See Port Bifurcation section for details)
5.	Undo / Apply:	Undo or apply port configurations.
6.	Refresh:	Refresh the page.

2.4.1 Port Bifurcation

Only the host ports are configurable: port H1 and H2

- 5. Click the drop-down arrow next to the configuration setting.
- 6. Select a desired configuration.
- 7. Click "Apply" at the top of the page.



After port bifurcation, the bifurcated host ports will be given a sub-ID.
 E.g., H1 is bifurcated into 2x8, there will be two new host ports with ID H1.0 and H1.1 respectively.

2.5 Monitor

0	2	3 ⊥	4	5
Slot	ModelName	Port Type	Ingress	Egress
1	NVMe SSD Controller PM173X	Device	469 KB	723 KB
2	NVMe SSD Controller PM173X	Device	470 KB	711 KB
3	NVMe SSD Controller PM173X	Device	486 KB	710 KB
4	NVMe SSD Controller PM173X	Device	475 KB	711 KB
5	NVMe SSD Controller PM173X	Device	483 KB	721 KB
6	NVMe SSD Controller PM173X	Device	465 KB	713 KB
7	NVMe SSD Controller PM173X	Device	484 KB	721 KB
8	NVMe SSD Controller PM173X	Device	481 KB	717 KB
H1.0		Host	n/a	n/a
H1.1		Host	n/a	n/a
H1.2		Host	n/a	n/a
H1.3		Host	n/a	n/a
H2.0		Host	n/a	n/a

1.	Slot:	The number given to each slot.
2.	Model name:	The model name of the SSD installed to the slot.
З.	Port type:	PCle Port type. (Device or host port)
4.	Ingress traffic:	PCIe switch to device traffics.
5.	Egress traffic:	Device to PCIe switch traffics.

(i) **"n/a"** will show when the there is no link or when the data cannot be obtained. Try refreshing the page when the data are not displayed properly.

2.6 System Health

The System Health page provides consolidated health information of the chassis in graphs. Including **Chassis Temperature**, **Device Temperature**, **Power Consumption**, and **Fan Speed**.

2.6.1 Chassis Temperature



1.	Temperature:	Temperature scale in degree Celsius.
2.	Time:	Time scale in hours.
З.	Components:	Chassis components, each component is given a color tag.
4.	Temperature curves:	Temperature curves of each component, distinguished by color.
5.	Instantaneous temperature:	Move the cursor over the curves to see the instantaneous temperature of the
		components.

2.6.2 Device Temperature



1.	Temperature:	Temperature scale in degree Celsius.
2.	Time:	Time scale in hours.
3.	Components:	Devices, each device is given a color tag.
4.	Temperature curves:	Temperature curves of each device, distinguished by color.
5.	Instantaneous temperature:	Move the cursor over the curves to see instantaneous temperature of devices.

2.6.3 Power Consumption



1.	Power consumption:	Power consumption scale in Watt.
2. Time: Time scale in hours.		Time scale in hours.
3.	Slot:	Device slots, each slot is given a color tag.
4. Consumption curves: Power consumption curves of each device, distinguished by color. (Gray=t		Power consumption curves of each device, distinguished by color. (Gray=total)
5.	Instantaneous consumption:	Move the cursor over the curves to see instantaneous power consumption.

2.6.4 Fan Speed



1.	Temperature:	Fan speed scale in RPM.
2. Time: Time scal		Time scale in hours.
З.	Components:	Fans, each fan is given a color tag.
4.	Temperature curves:	Fan speed curves of each device, distinguished by color.
5.	Instantaneous temperature:	Move the cursor over the curves to see instantaneous fan speed.

2.7 Chassis

In the Chassis page, users can control the power of chassis UID, and the power of the GPU drawers separately.



1.	UID power:	Control chassis UID.
2.	Drawer 1 power:	Control the power of drawer 1.
3.	Apply:	Apply power settings.

(i) The LCD will be flashing when the UID is turned on.

(i) When the drawer is turned off, other components in the chassis remains working.

2.8 Maintenance

View the current firmware version and update firmware from the Maintenance page.

- 1. System Manager firmware information
- 2. PCIe Switch firmware information
- 3. API framework information
- 4. See Firmware Update section for details



2.8.1 Firmware Update

Update Process

- 1. Click Update Install button.
- 2. Upload the firmware **.img** file.
- 3. Go through the confirmation process.

	🛨 Update Install
PCIe Switch Library	0.0.1-2021-10-25
	\$

() Users can download the latest firmware from H3 Platform official website, under Knowledge Base - Download.

The system will reboot automatically when update is finished.

Do not turn off Falcon 5208 system during firmware update, it may cause system error.

2.9 Event Log

In the Event Log page, users will find consolidated logs. The logs can be filtered by severity level or the by using search bar.

	0			2		
	Q Search		All	Error Warning	Info	
	#	Date	Time	Level	IP	Content
Γ	1	2022-01-13	16:36:27	0	10.0.20.13	login as admin suceesfully.
	2	2022-01-13	16:33:35	0	10.0.20.13	login as admin suceesfully.
	3	2022-01-13	14:36:55	0	10.0.21.57	login as admin suceesfully.
	4	2022-01-12	10:13:57	0	10.0.21.77	login as admin suceesfully.
	5	2022-01-10	15:07:36	0	10.0.21.77	login as admin suceesfully.
3→	6	2022-01-10	15:02:05	0	10.0.21.77	login as admin suceesfully.
	7	2022-01-10	14:44:51	0	10.0.21.57	login as admin suceesfully.
	8	2022-01-10	14:02:06	0	10.0.21.77	login as admin suceesfully.
	9	2021-12-27	18:29:21	0	10.0.21.77	login as admin suceesfully.
	10	2021-12-27	11:07:03	0	10.0.21.77	login as admin suceesfully.
	11	2021-12-27	11:00:33	0	10.0.21.77	login as admin suceesfully.

1.	Search bar:	Search for specific logs.
2.	Log categories:	Filter logs by categories.
3.	Logs:	Event logs order from newest to oldest.
4.	Download:	Download all event logs in .csv format.
5.	Refresh:	Refresh the logs.
6.	Pages:	Select pages of logs.

Logs in bold text are unread logs.

(i)

(

Error:	highest severity, events that may damage the system
Warning:	moderate severity, events that requires attention.
Info:	regular system events.
Log-ins:	user account related activities.

2.10 Settings

In Setting page, users can modify all the system settings, manage accounts and licenses. Functions including **time setting**, **network setting**, **user management**.

2.10.1 Time Setting

TIME SETTING				
NETWORK SETTING	20:	21-11-17 09:33:02	 time Zone * (GMT+08:00) Taiwan, Taipei 	-
USER MANAGEMENT				
	2→ ◎	Synchronize with NTP server		
	•	NTP Server * time.nist.gov	Last sync time (Read Only) 2021-11-16 10:16:43	
		Need to comply with UTC (NIST) specification	ns	
	_		fy s	ync Now
	3→ 0) Manual Setting		
		Date *	C Time *	
				Apply

1.	Time zone:	Set / modify system time zone.
2.	Sync. with NTP server:	Sync the system with a NTP server. (Requires NT server IP address)
3. Manual Setting:Set / modify date and time with call		Set / modify date and time with calendar tool.

() After modifying NTP server IP, please click "Sync Now", the NTP server IP will be updated immediately.

() Please click "Apply" after modifying time settings in order to keep the settings.

2.10.2 Network Setting

TIME SETTING	
NETWORK SETTING	TCP / IP Setting
U	Obtain IP address automatically (DHCP)
USER MANAGEMENT	 Use the following IP address (Static IP)
	IP Address* 10.0.24.87
	Subnet Mask* 255,255.0.0
	Default Gateway* 10.0.21.1
2→	DNS Setting
<u> </u>	Obtain DNS server address automatically
	Use the following DNS server address
	DNS Server* 8.8.8.7
	3

1.	TCP/IP Setting:	 Obtain IP address automatically. Use static IP address. (Requires IP address, subnet mask, and default gateway)
2.	DNS Setting:	 Obtain DNS server address automatically. Use custom DNS server. (Requires DNS server address)
3.	Undo / Apply:	Undo or apply the new settings.

2.10.3 User Management

	•			4
TIME SETTING				+
NETWORK SETTING	Q Search			<u>11</u>
USER MANAGEMENT				
	Username	Authorize	Action	
2	► admin	Administrator	∕ ←3	

1.	Search bar:	Search for specific user account.		
2.	User accounts:	Shows the username and authority of each account.		
З.	Action:	Edit user account. 💉 Change password. 🛛 😣 Delete user account.		
4.	Create account	Create new user account.		

(i) "admin" account cannot be deleted.

User Roles and Authorities

	Admin	User_Admin	User	Guest
Read PCIe Resource	0	0	0	0
Read Chassis Info	0	0	0	0
Read System Logs	0	0	0	X
Manage PCIe Resource	0	0	0	X
Change Password	0	0	0	X
Read System Settings	0	0	X	X
Read Maintenance Info	0	0	X	X
Read Security Logs	0	0	X	X
User Account Management	0	0	X	X
Modify System Setting	0	0	X	X
Maintenance Operation	0	0	X	X
Premium License Setting	0	X	X	X