

Hitachi Compute Blade Emulex Adapter User's Guide for Hardware

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Preface

Thank you very much for purchasing the Hitachi Compute blade. This document describes how to use Emulex adapters :

This preface includes the following information:

- ☐ [Document Conventions](#)
- ☐ [Getting Help](#)
- ☐ [Comments](#)

Document Conventions





The term “Compute Blade” refers to all the models of the Compute Blade, unless otherwise noted.

The Hitachi Virtualization Manager (HVM) name has been changed to Hitachi logical partitioning manager (LPAR manager, or LP). If you are using HVM based logical partitioning feature, substitute references to Hitachi logical partitioning manager (LPAR manager, or LP) with HVM.

This document uses the following typographic conventions:

Convention	Description
Bold	Indicates text on a window, other than the window title, including menus, menu options, fields, and labels. Example: Click OK .
<i>Italic</i>	Indicates a variable, which is a placeholder for actual text provided by the user or system. Example: <i>copy source-file target-file</i> Note: Angled brackets (< >) are also used to indicate variables.
screen/code	Indicates text that is displayed on screen or entered by the user. Example: # <code>pairdisplay -g oradb</code>
< > angled brackets	Indicates a variable, which is a placeholder for actual text provided by the user or system. Example: # <code>pairdisplay -g <group></code> Note: Italic font is also used to indicate variables.
[] square brackets	Indicates optional values. Example: [a b] indicates that you can choose a, b, or nothing.
{ } braces	Indicates required or expected values. Example: { a b } indicates that you must choose either a or b.
vertical bar	Indicates that you have a choice between two or more options or arguments. Examples: [a b] indicates that you can choose a, b, or nothing. { a b } indicates that you must choose either a or b.
<u>underline</u>	Indicates the default value. Example: [<u>a</u> b]

This document uses the following icons to draw attention to information:

Icon	Meaning	Description
	WARNING	This indicates the presence of a potential risk that might cause death or severe injury.
	CAUTION	This indicates the presence of a potential risk that might cause relatively mild or moderate injury.
NOTICE	NOTICE	This indicates the presence of a potential risk that might cause severe damage to the equipment and/or damage to surrounding properties.
	Note	This indicates notes not directly related to injury or severe damage to equipment.
	Tip	This indicates advice on how to make the best use of the equipment.

Abbreviated Notations of Operating Systems (OS)

See the manual "Hitachi Compute Blade Emulex Adapter User's Guide (Support Matrix Edition)".

Abbreviations for 10Gb Converged Network Expansion Cards

Abbreviations for the following card model names are written in this manual.

- Abbreviation "onboard CNA" :
CB500 series server blade onboard CNA
CB2500 series server blade onboard CNA
- Abbreviation "CNA expansion card" :
CB500 4-port converged network expansion card
CB2000 2/4-port converged network expansion card
- Abbreviation "LAN expansion card" :
CB500 10Gb 4-port LAN expansion card
CB2000 10Gb 2/4-port LAN expansion card
- Abbreviation "CNA board" :
CB2000 CNA board (PCI express adapter type)
CB2500 CNA board (PCI express adapter type)

Abbreviation for Fibre Channel (FC) Card

Abbreviation for the following FC card model name is written in this manual.

- Abbreviation "8Gb FC expansion card"
CB500 8Gb 2-port Fibre Channel expansion card
CB2000 8Gb 2-port Fibre Channel expansion card
- Abbreviation "8Gb FC board"
CB2000 8Gb 2-port Fibre Channel board (PCI express adapter type)
CB2500 8Gb 2-port Fibre Channel board (PCI express adapter type)
- Abbreviation "16Gb FC expansion card"
CB500 16Gb 2-port Fibre Channel expansion card
- Abbreviation "16Gb FC board"
CB2000 16Gb 2-port Fibre Channel board (PCI express adapter type)
CB2500 16Gb 2-port Fibre Channel board (PCI express adapter type)
- Abbreviation "FC expansion card"
8Gb FC expansion card
16Gb FC expansion card
- Abbreviation "FC board"
8Gb FC board
16Gb FC board

Getting Help

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Comments

Please send us your comments on this document: doc.comments@hds.com. Include the document title and number including the revision level (for example, -07), and refer to specific sections and paragraphs whenever possible. All comments become the property of Hitachi Data Systems Corporation. **Thank you!**

Before Use

This chapter describes about the specification of the Emulex Adapters for Hitachi Compute Blade.

- [1.1 Hitachi Compute Blade Emulex Adapter User's Guide](#)
- [1.2 The Specification of 10Gb 2-port converged network controller \(CB520H B1, CB520H B2, CB540A B1 series onboard CNA\)](#)
- [1.3 The Specification of 10Gb 4-port converged network controller \(onboard CNA of CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4\)](#)
- [1.4 The Specification of 10Gb 4-port converged network expansion card \(CB500 series\)](#)
- [1.5 The Specification of 10Gb 4-port LAN expansion card \(CB500 series\)](#)
- [1.6 The Specification of 8Gb 2-port Fibre Channel expansion card \(CB500 series\)](#)
- [1.7 The Specification of 16Gb 2-port Fibre Channel expansion card \(CB500 series\)](#)
- [1.8 The Specification of 10Gb 2/4-port converged network expansion card \(CB2000 series\)](#)
- [1.9 The Specification of 10Gb 2/4-port LAN expansion card \(CB2000 series\)](#)
- [1.10 The Specification of 8Gb 2-port Fibre Channel expansion card \(CB2000 series\)](#)
- [1.11 The Specification of 10Gb 2-port converged network board \(CB2000 series, CB2500 series\)](#)
- [1.12 The Specification of 8Gb 2-port Fibre Channel board \(CB2000 series, CB2500 series\)](#)
- [1.13 The Specification of 16Gb 2-port Fibre Channel board \(CB2000 series, CB2500 series\)](#)

1.1 Hitachi Compute Blade Emulex Adapter User's Guide

This manual is for Emulex adapters, see the manual "Hitachi Compute Blade Emulex Adapter User's Guide (Support Matrix Edition)" for details of products.

Hitachi Compute Blade Emulex Adapter User's Guide consists of four documents : for Driver, for Hardware, for Utility and Support Matrix Edition.

See the document "Hitachi Compute Blade LAN Advanced Function Manual for Emulex (MK-99COM082)" for how to setup the NIC teaming and how to setup the VLAN.

Table 1-1:

#	Document Name	Contents
1	Hitachi Compute Blade Emulex Adapter User's Guide for Driver (MK-99COM103)	How to install the drivers of the adapters How to setup the drivers
2	Hitachi Compute Blade Emulex Adapter User's Guide for Hardware (MK-99COM104)	This document. Outline of Emulex adapters BIOS parameter list and the way to configure the parameters
3	Hitachi Compute Blade Emulex Adapter User's Guide for Utility (MK-99COM105)	How to install and to operate the utility that manages the Emulex adapters How to configure the parameters with the utility
4	Hitachi Compute Blade LAN Advanced Function Manual for Emulex (MK-99COM082)	How to setup the NIC teaming How to setup the VLAN
5	Hitachi Compute Blade Emulex Adapter User's Guide (Support Matrix Edition) (MK-99COM196)	Description of the driver version and firmware version that Hitachi supports. Description of the OneCommand Manager version that Hitachi supports. Description of the OneCapture version that Hitachi supports.

1.2 The Specification of 10Gb 2-port converged network controller (CB520H B1, CB520H B2 and CB540A B1 series onboard CNA)

1.2.1 Features

- The controller has 2 Ethernet ports that have a maximum of 10Gbps transfer rate.
- PXE Boot function
- Wake On LAN function
- NIC teaming
- VLAN function
- Personality mode variation : NIC personality or Storage personality(iSCSI or FCoE)
- A physical port can be partitioned into up to four PCIe functions (logical ports or channels)
- 10Gbps iSCSI connection with hardware initiator

1.2.2 Equipment to be installed

10Gb 2-port converged network controller (BE3) is installed in the following equipment as onboard CNA.

- CB520H B1 / CB540A B1 model
- CB520H B2 model

1.2.3 The specifications of the hardware and the function

Table 1-2:

Item	Specification	Remarks
Controller	Emulex Blade Engine 3 (1 controller per card)	
	Vendor ID	19A2h
	Device ID	0710h (NIC)
		0712h (iSCSI)
		0714h (FCoE)
	Subsystem Vendor ID	1054h
	Subsystem ID	304Eh
Interrupt levels	MSI, MSI-X	
Host Interface	Standards	PCI-Express 2.0
	Transfer rate	5.0 GT/s (per lane)
	lanes	8
Switch Module I/F	Network Standards	<ul style="list-style-type: none"> • IEEE 802.3ap 10GBASE-KR, 1000GBASE-KX auto negotiation • IEEE 802.1Q virtual LANs (VLAN) with 128 VLAN IDs and QinQ tagging • IEEE 802.1Qau Ethernet congestion management • IEEE 802.3x Flow control with pause frames • IEEE 802.1p QoS tagging • IEEE 802.1Qbb Priority Flow Control (PFC)
	Transfer rate	10Gbps (per port)
	Ports	2 ports per controller
Network Function	PXE boot	Supported
	Wake On LAN	<ul style="list-style-type: none"> • D3 cold support • Support for 6 Magic Packets
	Redundancy	Supported
	VLAN	<ul style="list-style-type: none"> • IEEE 802.1q virtual LANs (VLAN) with 128 VLAN IDs • Support for nested VLANs (Q-in-Q)
	Offload	<ul style="list-style-type: none"> • IPv4/IPv6 TCP, UDP checksum offload • IPv4/IPv6 Receive Side Scaling (RSS) • IPv4/IPv6 Large Receive Offload (LRO) • IPv4/IPv6 Large Send Offload (LSO)
	Others	<ul style="list-style-type: none"> • NDIS 5.2, 6.0 and 6.2 • Microsoft TCP chimney • Jumbo frame support up to 9000 Bytes • 128 unicast MAC addresses per port
Personality function	NIC,iSCSI/FCoE	
I/O Virtualization	Multichannel	4 channels at the maximum per port The bandwidth can be set in the range of 10Mbps~10Gbps by 100Mbps.
	Others	On-chip VM-VM switching
Hardware Initiator Function	iSCSI Offload	<ul style="list-style-type: none"> • Full iSCSI protocol offload • Header, data digest (CRC) and PDU handling in hardware • Direct data placement of SCSI data • Up to 4096 outstanding commands • Up to 1024 offloaded iSCSI connections

1.2.4 Quality Standard

Table 1-3:

	Item	Specification	Remarks
General	Physical Dimensions	-	-
	Weight	-	-
Usage environment	Power supply	3.3V 12V	Provided from the system
	Power Requirements	6W	
	Temperature	5 to 40C	ambient temperature
	Humidity	20~80%Rh	no dew condensation
	Dust	Same level as business offices in general	

1.2.5 The network function

(1) PXE boot

PXE (Preboot eXecution Environment) boot is the function by which the system boots up with OS or installer image loaded via network.

- PXE boot setting up : It is necessary to set up both a controller and server.
- The port that can be used for PXE boot : channel 0 (PF (Physical Function)0 or PF1). See " Multichannel Function (I/O Virtualization Function) - (1) Multichannel function" for the PF (Physical Function).
- The number of the port to be set up for PXE boot : 1 port. (Restriction of the system)

(2) Wake On LAN

Wake On LAN is the function to turn on a server blade via a network.

- The settings for the controller in the adapter : None
- The port to which the Wake On LAN function can be set up are channel 0's (PF0 and PF1). See "1.2.7 Multichannel Function (I/O Virtualization Function) - (1) Multichannel function" for the PF (Physical Function).

(3) Redundancy setting

See "Hitachi Compute Blade LAN Advanced Function Manual for Emulex" for the NIC redundancy (NIC teaming).

(4) The VLAN function

See " Hitachi Compute Blade LAN Advanced Function Manual for Emulex" for the VLAN settings of NIC.

1.2.6 The personality function

The personality of the controller supports NIC mode and Storage (iSCSI or FCoE) mode.

- NIC mode : A physical port is used with only NIC function.
- Storage mode : A physical port is partitioned to two channels of NIC and storage(i.e. iSCSI or FCoE). See the section "I/O virtualization function -(1) Multichannel(port partitioning) function" for PF(Physical Function). See the section "Setting Personality" for how to set the personality.

1.2.7 Multichannel Function (I/O Virtualization Function)

(1) Multichannel Function

The multichannel function creates four channels per physical port.

- The number of channels that are enabled with the multichannel function: 4 channels per physical port.
 - The channel type that is increased by the multichannel function is NIC type.
 - A unit to be set the multichannel function is a controller.
 - Bandwidths for each channel can be specified as a percentage of the full 10Gbps. (The sum of each channel percentage must be 100 percent. 1 percent is equivalent to 100Mbps on 10Gbps connection.)
 - Unused channel can be set to be disabled.
- See the section "Setting Multichannel" to set multichannel.

Channels and PFs (Physical Function) (Personality : NIC)

A controller (Emulex BE3) has 2 physical ports.

A "channel" means a partitioned port of a physical port.

When the multichannel function is disabled, the channel number to the physical port 0 is channel 0, and the physical port 1 is also channel 0.

When multichannel mode is enabled, each physical port is partitioned into 4 channels, channel 0 - channel 3.

A "Physical Function (PF)" means a partitioned port in a controller.

When the multichannel function is disabled, the PF number to the physical port 0 is PF0, and the PF number to the physical port 1 is PF1.

When multichannel mode is enabled, 2 PFs of a controller are partitioned into 8 PFs (PF0 - PF7).

A MAC address (Original MAC) is assigned to each physical port. The lowest byte of the MAC address of physical port0 is 10h, and the lowest byte of the MAC address of the physical port1 is 14h.

There is another MAC address so called Additional MAC. For additional MAC, see Appendix "A.2 Notes for MAC Address indication".

Table 1-4 shows the relation among physical port, channels and PFs, in case multichannel function is disabled and personality is NIC.

Table 1-4: Physical port, Channels and PFs (Physical Function)
(Multichannel function : Disabled, Personality : NIC)

Controller	Personality	Multichannel Setting	Physical Port	Channel No.	Channel Type	MAC Address (Original MAC)	PF (Physical Function)	WOL Enables
0	NIC	Disabled	0	0	NIC	xx:xx:xx:xx:xx:10	0	OK
			1	0	NIC	xx:xx:xx:xx:xx:14	1	OK

Table 1-5 shows the relation among physical port, channels and PFs, in case multichannel function is enabled and personality is NIC.

A MAC address (Original MAC) is assigned to each channel automatically.

Table 1-5: Physical port, Channels and PFs (Physical Function)
(Multichannel function : Enabled, Personality : NIC)

Controller	Personality	Multichannel setting	Physical Port	Channel No.	Channel Type	MAC Address (Original MAC)	PF (Physical Function)	WOL Enables
0	NIC	Enabled	0	0	NIC	xx:xx:xx:xx:xx:10	0	OK
				1	NIC	xx:xx:xx:xx:xx:11	2	-
				2	NIC	xx:xx:xx:xx:xx:12	4	-
				3	NIC	xx:xx:xx:xx:xx:13	6	-
			1	0	NIC	xx:xx:xx:xx:xx:14	1	OK
				1	NIC	xx:xx:xx:xx:xx:15	3	-
				2	NIC	xx:xx:xx:xx:xx:16	5	-
				3	NIC	xx:xx:xx:xx:xx:17	7	-

Channels and PFs (Physical Function) (Personality is Storage)

A controller (Emulex Blade Engine 3) has 2 physical ports.

A "channel" means a partitioned port in a physical port.

When the multichannel function is disabled, the channel number to the physical port 0 is channel 0, and the physical port 1 is also channel 0.

When multichannel mode is enabled, each physical port is partitioned into 4 channels, channel 0 - channel 3.

A "Physical Function (PF)" means a partitioned port in a controller.

When the multichannel function is disabled, the PF number to the physical port 0 is PF0, and the PF number to the physical port 1 is PF1.

When multichannel mode is enabled, 2 PFs of a controller are partitioned into 8 PFs (PF0 - PF7).

A MAC address (Original MAC) is assigned to each physical port. The lowest byte of the MAC address of physical port0 is 10h, and the lowest byte of the MAC address of the physical port1 is 14h.

There is another MAC address so called Additional MAC. For additional MAC, see Appendix "A.2 Notes for MAC Address indication".

When the multichannel function is disabled and the personality is "storage (i.e. iSCSI, FCoE)", the physical port is partitioned to channel No.0 and No.1 even though the multichannel function is disabled.

The storage personality can be assigned only to channel No.1.

Table 1-6 shows the relation among physical port, channels and PFs, in case multichannel function is disabled and personality is Storage (i.e. iSCSI, FCoE).

Table 1-6: Physical port, Channels and PFs (Physical Function)
(Multichannel function : Disabled,
Personality : Storage(i.e. iSCSI or FCoE))

Controller	Personality	Multichannel Setting	Physical Port	Channel No.	Channel Type	MAC Address (Original MAC)	PF (Physical Function)	WOL Enables
0	Storage	Disabled	0	0	NIC	xx:xx:xx:xx:xx:10	0	OK
				1	Storage	xx:xx:xx:xx:xx:11	2	-
			1	0	NIC	xx:xx:xx:xx:xx:14	1	OK
				1	Storage	xx:xx:xx:xx:xx:15	3	

Table 1-7 shows the relation among physical port, channels and PFs, in case multichannel function is enabled and personality is Storage (i.e. iSCSI, FCoE).

Table 1-7: Physical port, Channels and PFs (Physical Function)
(Multichannel function : Enabled,
Personality : Storage(iSCSI or FCoE))

Controller	Personality	Multichannel setting	Physical Port	Channel No.	Channel Type	MAC Address (Original MAC)	PF (Physical Function)	WOL Enables
0	Storage	Enabled	0	0	NIC	xx:xx:xx:xx:xx:10	0	OK
				1	Storage	xx:xx:xx:xx:xx:11	2	-
				2	NIC	xx:xx:xx:xx:xx:12	4	-
				3	NIC	xx:xx:xx:xx:xx:13	6	-
			1	0	NIC	xx:xx:xx:xx:xx:14	1	OK
				1	Storage	xx:xx:xx:xx:xx:15	3	-
				2	NIC	xx:xx:xx:xx:xx:16	5	-
				3	NIC	xx:xx:xx:xx:xx:17	7	-



If the Ethernet/CNA expansion cards are installed in CB540A A1/B1 model, the number of the physical ports that can be partitioned is limited as follows.

A1 model (no On-board NIC model) :

- 1 Ethernet/CNA expansion card installed : up to 4 ports
- 2 Ethernet/CNA expansion cards installed : up to 8 ports
- More than 3 Ethernet/CNA expansion cards installed : up to 6 ports

B1 model (with On-board NIC model)

- no Ethernet/CNA expansion cards installed : up to 4 ports
- 1 Ethernet/CNA expansion card installed : up to 8 ports
- 2 Ethernet/CNA expansion cards installed : up to 6 ports

If "Hitachi 1Gb LAN Switch module" or "1Gb LAN passthrough module" is configured, the multichannel function is not supported.

. Bandwidth Setting

When the multichannel function is enabled, specify the bandwidth rate to each PF. Set the proper bandwidth rate to the configured network. The unit of the bandwidth setting is percentage. Set the value of 1 ~ 100%. The sum of each PF percentage must be 100 percent. The bandwidth is set by "Emulex PXESelect Utility". See the section "Setting Multichannel" to set multichannel. The items to be set are described in the section "Emulex PXESelect Utility - Emulex PXESelect Utility menu window - Multichannel configuration".

Example of the bandwidth setting (multifunction is enabled, the personality is NIC)

Table 1-8: Example of the bandwidth setting
(multifunction is enabled, the personality is NIC)

Controller	Personality	Multichannel setting	Physical Port	Channel No.	Channel Type	Bandwidth	PF (Physical Function)	WOL Enables
0	NIC	Enabled	0	0	NIC	10	0	OK
				1	NIC	20	2	-
				2	NIC	30	4	-
				3	NIC	40	6	-
			1	0	NIC	25	1	OK
				1	NIC	25	3	-
				2	NIC	25	5	-
				3	NIC	25	7	-

1.2.8 Hardware Initiator Function

(1) iSCSI Offload

iSCSI Offload function enables the 10Gb iSCSI connection with the hardware initiator function.

- iSCSI Offload setting : Set the personality of the controller or adapter to "iSCSI" mode. (See the section "4.1.4 iSCSI Settings" to set the iSCSI.)
- The PF that can be used as iSCSI mode : PF2 or PF3. (See the section "1.2.7 Multichannel Function (I/O Virtualization Function) - (1) Multichannel Function".)

1.3 The Specification of 10Gb 4-port converged network controller (onboard CNA of CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4)

1.3.1 Features

- The controller has 4 Ethernet ports that have a maximum of 10Gbps transfer rate.
- PXE Boot function
- Wake On LAN function
- NIC teaming
- VLAN function
- Personality mode variation : NIC personality, Storage personality(iSCSI or FCoE), NIC+RoCE personality

1.3.2 Equipment to be installed

10Gb 4-port converged network controller (XE104) is installed in the following equipment as onboard CNA.

- CB520X B1 (CB500 series and CB2500 series)
- CB520X B2 (CB500 series and CB2500 series)
- CB520X B3 (CB500 series and CB2500 series)
- CB520H B3 (CB500 series and CB2500 series)
- CB520H B4 (CB500 series and CB2500 series)

1.3.3 The specifications of the hardware and the function

Table 1-9:

Item		Specification	
Controller	Emulex XE104		
	Vendor ID	10DFh	
	Device ID	0720h (NIC) 0722h (iSCSI) 0724h (FCoE)	
	Subsystem Vendor ID	1054h	
	Subsystem ID	306Ah(CB520X B1) 308Ch(CB520X B2 and CB520X B3) 3082h(CB520H B3 and CB520H B4)	
Interrupt levels		MSI-X	
Host Interface	Standards	PCI-Express 3.0	
	Transfer rate	8.0 GT/s (per lane)	
	lanes	8	
Switch Module Interface	Switch Module		
	CB500 chassis	· Hitachi 1Gb LAN Switch Module · Hitachi 1/10Gb LAN Switch Module · Brocade 10Gb DCB Switch Module · 1Gb LAN pass through Module · 10Gb LAN pass through Module	
		CB2500 chassis	· Brocade 10Gb DCB Switch Module · 1/10Gb LAN Switch Module
	Network Standards	· IEEE 802.3ap 10GBASE-KR, 1000BASE-KX auto negotiation · IEEE 802.1Q virtual LANs (VLAN) with support for Q-in-Q tagging (VLAN stacking) · IEEE 802.3x Flow control with pause frames · IEEE 802.3x Flow controlConestion Notification (QCN) · IEEE 802.1Qaz Enhanced Transmission Selection (ETS) · IEEE 802.1Qbb Priority Flow Control (PFC)	
	Transfer rate	10Gb/s	
	Ports	4 (2 per switch module)	
	Network Function		
	MTU at Maximum	9000 Byte	
VLAN	· IEEE 802.1q virtual LANs (VLAN) · Support for nested VLANs (Q-in-Q)		
Redundancy	Supported		
Offload	· IPv4/IPv6 TCP, UDP checksum offload · IPv4/IPv6 Receive Side Scaling (RSS) · IPv4/IPv6 Large Receive Offload (LRO) · IPv4/IPv6 Large Send Offload (LSO)		
Wake-On LAN (WOL)	· D3 cold support · Support for 8 Magic Packets		
Others	· NDIS 5.2, 6.0 and 6.2 · Microsoft TCP chimney · Jumbo frame support up to 9000 Bytes · 128 unicast MAC addresses per port · RoCE (for CB520X B1, CB520X B2 and CB520H B3) · RoCE v2 (for CB520X B3 and CB520H B4)		
I/O Virtualization	SR-IOV	PCIe single root I/O virtualization (SR-IOV)	
		PF	4 PFs (PF0 - PF3)
		VF	63 (4 for LPAR manager)
	Multichannel	4 channels at the maximum per port The bandwidth can be set in the range of 10Mbps~10Gbps by 10Mbps	
iSCSI Offload		· Full iSCSI protocol offload · Header, data digest (CRC) and PDU · Direct data placement of SCSI data · Up to 4096 outstanding commands · Up to 2048 offloaded iSCSI connections	

FCoE Offload	<ul style="list-style-type: none"> · Support FIP and FCoE Ether Type · Ether Type Typed ded g : up to 8K per ASIC · Ether Type Typed de : up to 8K per ASIC
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RoCE and RoCE v2 functions are not supported

1.3.4 The network function

(1) PXE boot

PXE (Preboot eXecution Environment) boot function is supported by the onboard CNA of CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4.

The PF(Physical Function) for PXE boot is PF0 of port0, PF1 of port1, PF2 of port2, or PF3 of port3.

PXE boot can be set to only one port. (System equipment specification)

See "4.2.1 PXE Configuration" for details.

(2) Wake On LAN

Wake On LAN function is supported by the onboard CNA of CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4.

(3) iSCSI boot

iSCSI function is supported by the onboard CNA of CB520X B1, CB520X B2 , CB520X B3, CB520H B3 and CB520H B4.

See " 4.2.4 iSCSI configuration" for details.

(4) FCoE boot

FCoE (Fibre Channel over Ethernet) function is supported by the onboard CNA of CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4.

See " 4.2.5 FCoE configuration" for details.



Disable the unused CNA ports by the following way when the system is running:

- RHEL : Execute "ifdown eth*" (* : number).
- Windows : Right-Click on the device name which means the CNA device port under [Device Manager] . [Network Adapter], and select "Disable".
- VMware : Execute "esxcli network nic down -n vmnic*" (* : number).

The auto failback function in NIC teaming configuration of CNA ports is not supported.

1.3.5 Multichannel Function (I/O Virtualization Function)

(1) Multichannel Function

The onboard CNA of CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4 have 4 physical ports per controller. The multichannel function creates 2 channels (channel No.0, 1) or 4 channels (channel No.0, 1, 2, 3) per physical port.

- For RHEL6.5, RHEL6.6 or higher, 2 or 4 channels per physical port are available.
For Windows Server 2008 R2, 2012, 2012 R2 or VMware, 2 channels per physical port are available.
- The channel type that is created by the multichannel function is NIC type.
- Multichannel function is set to all ports of a controller.
- Bandwidth for each channel is specified as a percentage of the full 10Gbps.
- Unused channels can be disabled.

Channels and PFs (Physical Function) (Personality is NIC)

A controller (Emulex XE104) has 4 physical ports

A "channel" means a partitioned port in a physical port.

When the multichannel function is disabled, the channel numbers to the physical port 0 - port3 are all channel 0.

When multichannel mode is enabled, each physical port is partitioned to 2 channels (channel 0, channel 1) or 4 channels (channel 0 - channel 3).

A "Physical Function (PF)" means a partitioned port in a controller.

When the multichannel function is disabled, the PF number to the physical port 0 is PF0, physical port 1 is PF1, physical port 2 is PF2, and physical port 3 is PF3.

When multichannel mode is enabled, 4 PFs of a controller (PF0 - PF3) are partitioned to 8 PFs (PF0 - PF7) or 16PFs (PF0 - PF15).

A MAC address (Original MAC) is assigned to each physical port. The lowest byte of the MAC address of physical port0 is 10h, port1 is 14h, port2 is 18h and port3 is 1Ch.

There is another MAC address so called Additional MAC. For additional MAC, see Appendix "A.2 Notes for MAC Address indication".

Table 1-10 shows the relation among physical port, channels and PFs, in case multichannel function is disabled and personality is NIC.

Table 1-10: Physical port, Channel and PF (Physical Function)
(Multichannel function: Disabled, Personality: NIC)

Controller	Personality	Multichannel Setting	Physical Port	Channel No.	Channel Type	MAC Address (Original MAC)	PF (Physical Function)	WOL Enables
0	NIC	Disabled	0	0	NIC	xx:xx:xx:xx:xx:10	0	OK
			1	0	NIC	xx:xx:xx:xx:xx:14	1	-
			2	0	NIC	xx:xx:xx:xx:xx:18	2	-
			3	0	NIC	xx:xx:xx:xx:xx:1C	3	-

Table 1-11 shows the relation among physical port, channels and PFs, in case multichannel function is enabled and personality is NIC.

A MAC address (Original MAC) is assigned to each channel automatically.

Table 1-11: Physical port, Channel and PF (Physical Function)
(Multichannel function: Enabled, Personality: NIC)

Controller	Personality	Multichannel Setting	Physical Port	Channel No.	Channel Type	MAC Address (Original MAC)	PF (Physical Function)	WOL Enables
0	NIC	Enabled	0	0	NIC	xx:xx:xx:xx:xx:10	0	OK
				1	NIC	xx:xx:xx:xx:xx:11	4	-
			1	0	NIC	xx:xx:xx:xx:xx:14	1	-
				1	NIC	xx:xx:xx:xx:xx:15	5	-
			2	0	NIC	xx:xx:xx:xx:xx:18	2	-
				1	NIC	xx:xx:xx:xx:xx:19	6	-
			3	0	NIC	xx:xx:xx:xx:xx:1C	3	-
				1	NIC	xx:xx:xx:xx:xx:1D	7	-

When the Multichannel function is enabled with "Custom" personality, each physical port is partitioned into 4 isolated channels.

Table 1-12 shows the relation among physical port, channels and PFs, in case multichannel function is enabled and personality is NIC.

A MAC address (Original MAC) is assigned to each channel automatically.

Table 1-12: Physical port and PF (Physical Function)
(Multichannel function: Enabled, Personality: Custom with NIC)

Controller	Personality	Multichannel setting	Physical Port	Channel No.	Channel Type	MAC Address (Original MAC)	PF (Physical Function)	WOL Enables
0	NIC	Enabled	0	0	NIC	xx:xx:xx:xx:xx:10	0	OK
				1	NIC	xx:xx:xx:xx:xx:11	4	-
				2	NIC	xx:xx:xx:xx:xx:12	8	-
				3	NIC	xx:xx:xx:xx:xx:13	12	-
			1	0	NIC	xx:xx:xx:xx:xx:14	1	-
				1	NIC	xx:xx:xx:xx:xx:15	5	-
				2	NIC	xx:xx:xx:xx:xx:16	9	-
				3	NIC	xx:xx:xx:xx:xx:17	13	-
			2	0	NIC	xx:xx:xx:xx:xx:18	2	-
				1	NIC	xx:xx:xx:xx:xx:19	6	-
				2	NIC	xx:xx:xx:xx:xx:1A	10	-
				3	NIC	xx:xx:xx:xx:xx:1B	14	-
			3	0	NIC	xx:xx:xx:xx:xx:1C	3	-
				1	NIC	xx:xx:xx:xx:xx:1D	7	-
				2	NIC	xx:xx:xx:xx:xx:1E	11	-
				3	NIC	xx:xx:xx:xx:xx:1F	15	-

Channels and PFs (Physical Function) (Personality is Storage (i.e. iSCSI or FCoE))

A controller (Emulex XE104) has 4 physical ports

A "channel" means a partitioned port in a physical port.

When the multichannel function is disabled, the channel numbers to the physical port 0 - port3 are all channel 0.

When multichannel mode is enabled, each physical port is partitioned to 2 channels (channel 0, channel 1) or 4 channels (channel 0 - channel 3).

A "Physical Function (PF)" means a partitioned port in a controller.

When the multichannel function is disabled, the PF number to the physical port 0 is PF0, physical port 1 is PF1, physical port 2 is PF2, and physical port 3 is PF3.

When multichannel mode is enabled, 4 PFs of a controller (PF0 - PF3) are partitioned to 8 PFs (PF0 - PF7) or 16PFs (PF0 - PF15).

A MAC address (Original MAC) is assigned to each physical port. The lowest byte of the MAC address of physical port0 is 10h, port1 is 14h, port2 is 18h and port3 is 1Ch.

There is another MAC address so called Additional MAC. For additional MAC, see Appendix "A.2 Notes for MAC Address indication".

When the multichannel function is disabled and the personality is "storage (i.e. iSCSI, FCoE)", the physical port is partitioned to channel No.0 and No.1 even though the multichannel function is disabled.

The storage personality can be assigned only to channel No.1.

Table 1-13 shows the relation among physical port, channels and PFs, in case multichannel function is disabled and personality is Storage (i.e. iSCSI or FCoE).

Table 1-13: Physical port, Channel and PF (Physical Function)
(Multichannel function: Disabled, Personality: Storage (i.e. iSCSI, FCoE))

Controller	Personality	Multichannel Setting	Physical Port	Channel No.	Channel Type	MAC Address (Original MAC)	PF (Physical Function)	WOL Enables
0	Storage	Disabled	0	0	NIC	xx:xx:xx:xx:xx:10	0	OK
				1	Storage	xx:xx:xx:xx:xx:11	4	-
			1	0	NIC	xx:xx:xx:xx:xx:14	1	-
				1	Storage	xx:xx:xx:xx:xx:15	5	
			2	0	NIC	xx:xx:xx:xx:xx:18	2	-
				1	Storage	xx:xx:xx:xx:xx:19	6	
			3	0	NIC	xx:xx:xx:xx:xx:1C	3	-
				1	Storage	xx:xx:xx:xx:xx:1D	7	

Table 1-14 shows the relation among physical port, channels and PFs, in case multichannel function is enabled and personality is Storage (i.e. iSCSI, FCoE).

- This configuration is not supported.

Table 1-14: Physical port, Channel and PF (Physical Function)
(Multichannel function: Enabled, Personality: Storage, Not supported.)

Controller	Personality	Multichannel Setting	Physical Port	Channel No.	Channel Type	MAC Address (Original MAC)	PF (Physical Function)	WOL Enables
0	Storage	Enabled	0	0	NIC	xx:xx:xx:xx:xx:10	0	OK
				1	Storage	xx:xx:xx:xx:xx:11	4	-
			1	0	NIC	xx:xx:xx:xx:xx:14	1	-
				1	Storage	xx:xx:xx:xx:xx:15	5	-
			2	0	NIC	xx:xx:xx:xx:xx:18	2	-
				1	Storage	xx:xx:xx:xx:xx:19	6	-
			3	0	NIC	xx:xx:xx:xx:xx:1C	3	-
				1	Storage	xx:xx:xx:xx:xx:1D	7	-

- When "Custom" is selected and then Storage personality (i.e. iSCSI or FCoE) is set to channel 1, the relation among the physical ports, channel No., channel type and PFs is shown in Table 1-15. The channel 1 of all 4 ports has to be unique, i.e. mixture of iSCSI and FCoE in the channel 1 is prohibited.

Table 1-15: Physical port and PF (Physical Function)
(Multichannel function: Enabled, Personality: Custom with Storage)

Controller	Personality	Multichannel setting	Physical Port	Channel No.	Channel Type	MAC Address (Original MAC)	PF (Physical Function)	WOL Enables
0	Storage	Enabled	0	0	NIC	xx:xx:xx:xx:xx:10	0	OK
				1	Storage	xx:xx:xx:xx:xx:11	4	-
				2	NIC	xx:xx:xx:xx:xx:12	8	-
				3	NIC	xx:xx:xx:xx:xx:13	12	-
			1	0	NIC	xx:xx:xx:xx:xx:14	1	-
				1	Storage	xx:xx:xx:xx:xx:15	5	-
				2	NIC	xx:xx:xx:xx:xx:16	9	-
				3	NIC	xx:xx:xx:xx:xx:17	13	-
			2	0	NIC	xx:xx:xx:xx:xx:18	2	-
				1	Storage	xx:xx:xx:xx:xx:19	6	-
				2	NIC	xx:xx:xx:xx:xx:1A	10	-
				3	NIC	xx:xx:xx:xx:xx:1B	14	-
			3	0	NIC	xx:xx:xx:xx:xx:1C	3	-
				1	Storage	xx:xx:xx:xx:xx:1D	7	-
				2	NIC	xx:xx:xx:xx:xx:1E	11	-
				3	NIC	xx:xx:xx:xx:xx:1F	15	-



- If Multichannel function is enabled, SR-IOV has to be disabled.
- Bandwidth Assignments
You must assign minimum and maximum bandwidths to all enabled channels. See the sections 4.1.3 or 4.2.2 or 4.3.2. When the minimum and maximum bandwidths are set to 0, the logical link state for the channel is disabled.
- LPVID Assignments
LPVIDs have to be set as 2-4094 even if the Bandwidth is 0%. See the section 4.2.3 or 4.3.3.

[Note]

For Windows OS, "Custom" personality can not be selected.

1.4 The Specification of 10Gb 4-port converged network expansion card (CB500 series)

1.4.1 Features

The features of 10Gb 4-port converged network expansion card (CNA expansion card hereafter) are as follows.

- The controller has 2 Ethernet ports that have a maximum of 10Gbps transfer rate. The card has 4 ports / 2 controllers.
- PXE Boot function
- Wake On LAN function
- NIC teaming
- VLAN function
- Personality mode variation : NIC personality or Storage personality(iSCSI or FCoE)
- A physical port can be partitioned into up to four PCIe functions (logical ports or channels)
- 10Gbps iSCSI connection with hardware initiator

1.4.2 Equipment to be installed

CNA expansion card can be installed in the following equipment.

- CB500 CB520H A1 / CB520H B1 / CB520A A1 / CB540 A1 / CB540A B1
(The product code of the CNA expansion card :
GG-CN3MXG2X1-Y, GGX-CN3MXG2X1, GGX-CN3MXG2X1EX)
- CB500 CB520H B2
(The product code of the CNA expansion card :
GG-CN3MXG2X1-Y, GGX-CN3MXG2X3, GGX-CN3MXG2X3EX)
- CB500 CB520X B1 / CB520X B2 / CB520H B3 / CB520H B4
(The product code of the CNA expansion card : GG-CN3MXG2X1-Y)

1.4.3 The specifications of the hardware and the function

Table 1-16:

Item	Specification	Remarks
Controller	Emulex Blade Engine 3 (2 controllers per card)	
	Vendor ID	19A2h
	Device ID	0710h (NIC)
		0712h (iSCSI)
		0714h (FCoE)
	Subsystem Vendor ID	1054h
	Subsystem ID	3054h
Interrupt levels	MSI, MSI-X	
Host Interface	Standards	PCI-Express 2.0
	Transfer rate	5.0 GT/s (per lane)
	lanes	8
Switch Module I/F	Network Standards	<ul style="list-style-type: none"> • IEEE 802.3ap 10GBASE-KR, 1000GBASE-KX auto negotiation • IEEE 802.1Q virtual LANs (VLAN) with 128 VLAN IDs and QinQ tagging • IEEE 802.1Qau Ethernet congestion management • IEEE 802.3x Flow control with pause frames • IEEE 802.1p QoS tagging • IEEE 802.1Qbb Priority Flow Control (PFC)
	Transfer rate	10Gbps (per port)
	Ports	2 ports per controller
Network Function	PXE boot	Supported
	Wake On LAN	<ul style="list-style-type: none"> • D3 cold support • Support for 6 Magic Packets
	Redundancy	Supported
	VLAN	<ul style="list-style-type: none"> • IEEE 802.1q virtual LANs (VLAN) with 128 VLAN IDs • Support for nested VLANs (Q-in-Q)
	Offload	<ul style="list-style-type: none"> • IPv4/IPv6 TCP, UDP checksum offload • IPv4/IPv6 Receive Side Scaling (RSS) • IPv4/IPv6 Large Receive Offload (LRO) • IPv4/IPv6 Large Send Offload (LSO)
	Others	<ul style="list-style-type: none"> • NDIS 5.2, 6.0 and 6.2 • Microsoft TCP chimney • Jumbo frame support up to 9000 Bytes • 128 unicast MAC addresses per port
Personality function	NIC, iSCSI/FCoE	
I/O Virtualization	Multichannel	4 channels at the maximum per port. The bandwidth can be set in the range of 10Mbps~10Gbps by 10Mbps.
	Others	On-chip VM-VM switching
Hardware Initiator Function	iSCSI Offload	<ul style="list-style-type: none"> • Full iSCSI protocol offload • Header, data digest (CRC) and PDU handling in hardware • Direct data placement of SCSI data • Up to 4096 outstanding commands • Up to 1024 offloaded iSCSI connections

1.4.4 Quality Standard

Table 1-17:

	Item	Specification	Remarks
General	Physical Dimensions	85mm(H) x 97mm(D) x 39mm(W)	-
	Weight	~ 150 g	
Usage environment	Power supply	3.3V 12V	Provided from the system
	Power Requirements	21W	
	Temperature	5 to 40C	ambient temperature
	Humidity	20~80%Rh	no dew condensation
	Dust	Same level as business offices in general	

1.4.5 The network function

(1) PXE boot

PXE (Preboot eXecution Environment) boot is the function by which the system boots up with OS or installer image loaded via network.

- PXE boot setting up : It is necessary to set up both a controller and server.
- See "EFI User's Guide" for setting up the PXE boot to both the controller and the server.
- The port that can be used for PXE boot : PF (Physical Function)0 or PF1. See "1.2.7 Multichannel Function (I/O Virtualization Function) - (1) Multichannel function" for the PF (Physical Function).
- The number of the port to be set up for PXE boot : 1 port. (Restriction of the system)

(2) Wake On LAN

Wake On LAN is the function to turn on a server blade via a network.

- The settings for the controller in the adapter : None
- The boot order setting on the server may be required. (PXE boot for example.) (See "EFI User's Guide" for Boot order settings on the server.)
- The port to which the Wake On LAN function can be set up. : PF0 or PF1. See "1.2.7 Multichannel Function (I/O Virtualization Function) - (1) Multichannel function" for the PF (Physical Function).

(3) Redundancy setting

See "Hitachi Compute Blade LAN Advanced Function Manual for Emulex" for the NIC redundancy (NIC teaming).

(4) The VLAN function

See "Hitachi Compute Blade LAN Advanced Function Manual for Emulex" for the VLAN settings of NIC.

1.4.6 The personality function

See "1.2.6 The personality function".

1.4.7 I/O Virtualization Function

See "1.2.7 Multichannel Function (I/O Virtualization Function)".

1.4.8 Hardware Initiator Function

iSCSI Offload function enables the 10Gb iSCSI connection with the hardware initiator function.

- iSCSI Offload setting : Set the personality of the controller or adapter to "iSCSI" mode. (See the section "4.1.4 iSCSI Settings" to set the iSCSI.)
- The PF that can be used as iSCSI mode : PF2 or PF3. (See the section "1.2.7 Multichannel Function (I/O Virtualization Function) - (1) Multichannel Function".)

1.5 The Specification of 10Gb 4-port LAN expansion card (CB500 series)

1.5.1 Features

The features of 10Gb 4-port LAN expansion card (LAN expansion card hereafter) are as follows.

- The controller has 2 Ethernet ports that have a maximum of 10Gbps transfer rate. The card has 4 ports / 2 controllers.
- PXE Boot function
- Wake On LAN function
- NIC teaming
- VLAN function
- A physical port can be partitioned into up to four PCIe functions (logical ports or channels)

1.5.2 Equipment to be installed

LAN expansion card can be installed in the following equipment.

- CB500 CB520H A1 / CB520H B1 / CB520A A1 / CB540 A1 / CB540A B1
(The product code of the LAN expansion card :
GG-CN3MXG2X2-Y, GGX-CN3MXG2X2, GGX-CN3MXG2X2EX)
- CB500 CB520H B2
(The product code of the LAN expansion card :
GG-CN3MXG2X2-Y, GGX-CN3MXG2X4, GGX-CN3MXG2X4EX)
- CB500 CB520X B1 / CB520X B2 / CB520H B3 / CB520H B4
(The product code of the LAN expansion card : GG-CN3MXG2X2-Y)

1.5.3 The specifications of the hardware and the function

Table 1-18:

Item		Specification	Remarks
Controller		Emulex Blade Engine 3 (2 controllers per card)	
	Vendor ID	19A2h	
	Device ID	0710h (NIC)	
	Subsystem Vendor ID	1054h	
	Subsystem ID	304Dh	
Interrupt levels		MSI, MSI-X	
Host Interface	Standards	PCI-Express 2.0	
	Transfer rate	5.0 GT/s (per lane)	
	lanes	8	
Switch Module I/F	Network Standards	<ul style="list-style-type: none">• IEEE 802.3ap 10GBASE-KR, 1000GBASE-KX auto negotiation• IEEE 802.1Q virtual LANs (VLAN) with 128 VLAN IDs and QinQ tagging• IEEE 802.1Qau Ethernet congestion management• IEEE 802.3x Flow control with pause frames• IEEE 802.1p QoS tagging• IEEE 802.1Qbb Priority Flow Control (PFC)	
	Transfer rate	10Gbps (per port)	
	Ports	2 ports per controller	
	PXE boot	Supported	
Network Function	Wake On LAN	<ul style="list-style-type: none">• D3 cold support• Support for 6 Magic Packets	
	Redundancy	Supported	
	VLAN	<ul style="list-style-type: none">• IEEE 802.1q virtual LANs (VLAN) with 128 VLAN Ids• Support for nested VLANs (Q-in-Q)	
	Offload	<ul style="list-style-type: none">• IPv4/IPv6 TCP, UDP checksum offload• IPv4/IPv6 Receive Side Scaling (RSS)• IPv4/IPv6 Large Receive Offload (LRO)• IPv4/IPv6 Large Send Offload (LSO)	
	Others	<ul style="list-style-type: none">• NDIS 5.2, 6.0 and 6.2• Microsoft TCP chimney• Jumbo frame support up to 9000 Bytes• 128 unicast MAC addresses per port	
I/O Virtualization	Multichannel	4 channels at the maximum per port. The bandwidth can be set in the range of 10Mbps~10Gbps by 10Mbps.	
	Others	On-chip VM-VM switching	

1.5.4 Quality Standard

Table 1-19:

Item	Specification	Remarks
General	Physical Dimensions	85mm(H) x 97mm(D) x 39mm(W)
	Weight	~ 150 g
Usage environment	Power supply	3.3V 12V
	Power Requirements	21W
	Temperature	5 to 40C
	Humidity	20~80%Rh
	Dust	Same level as business offices in general

1.5.5 The network function

(1) PXE boot

PXE (Preboot eXecution Environment) boot is the function by which the system boots up with OS or installer image loaded via network.

- PXE boot setting up : It is necessary to set up both a controller and server.
- See "EFI User's Guide" for setting up the PXE boot to both the controller and the server.
- The port that can be used for PXE boot : PF (Physical Function)0 or PF1.
See "1.2.7 Multichannel Function (I/O Virtualization Function) - (1) Multichannel function" for the PF (Physical Function).
- The number of the port to be set up for PXE boot : 1 port. (Restriction of the system)

(2) Wake On LAN

Wake On LAN is the function to turn on a server blade via a network.

- The settings for the controller in the adapter : None
- The boot order setting on the server may be required. (PXE boot for example.) (See "EFI User's Guide" for Boot order settings on the server.)
- The port to which the Wake On LAN function can be set up. : PF0 or PF1.
See "1.2.7 Multichannel Function (I/O Virtualization Function) - (1) Multichannel function" for the PF (Physical Function).

(3) Redundancy setting

See "Hitachi Compute Blade LAN Advanced Function Manual for Emulex" for the NIC redundancy (NIC teaming).

(4) The VLAN function

See "Hitachi Compute Blade LAN Advanced Function Manual for Emulex" for the VLAN settings of NIC.

1.5.6 I/O Virtualization Function

See "1.2.7 Multichannel Function (I/O Virtualization Function)".

1.6 The Specification of 8Gb 2-port Fibre Channel expansion card (CB500 series)

1.6.1 Features

The feature of 8Gb 2-port Fibre Channel expansion card is as follows.

- A maximum of 8Gbps transfer rate per port

1.6.2 Equipment to be installed

8Gb 2-port Fibre Channel expansion card can be installed in the following equipment.

- CB500 CB520H A1 / CB520H B1 / CB520A A1 / CB540 A1 / CB540A B1
- CB500 CB520H B2 / CB520H B3 / CB520X B1 / CB520X B2
- CB500 CB520H B4

(The product code of 8Gb 2-port Fibre Channel expansion card:
GG-CC3M8G1X1-Y, GGX-CC3M8G1X1[EX])

1.6.3 The specifications of the hardware and the function

Table 1-20 :

Item		Specification	Remarks
Controller		Emulex 8G Fibre Channel Controller	
	Vendor ID	10DFh	
	Device ID	F100h	
Interrupt levels		MSI-X	
Host Interface	Standards	PCI-Express 2.0	
	Transfer rate	5.0 GT/s (per lane)	
	lanes	8	
Switch Module I/F	FC interface	· ANSI Fibre Channel: FC-PI-4, FC-FS-2, FC-FS-2/AM1, FC-LS, FC-AL-2, FC-GS-6, FC-FLA, FC-PLDA, FC-TAPE, FC-DA, FCP through FCP-4, SBC-3, FC-SP, FC-HBA and SMI-S v1.1 · Fibre Channel class 2 and 3	
	Transfer rate	8Gbps (per port)	
	Ports	2 ports per controller	
	Others	N_Port_ID Virtualization (NPIV)	

1.6.4 Quality Standard

Table 1-21:

	Item	Specification	Remarks
General	Physical Dimensions	85mm(H) x 97mm(D) x 39mm(W)	-
	Weight	~ 80 g	
Usage environment	Power supply	3.3V 12V	Provided from the system
	Power Requirements	7W	
	Temperature	5 to 40C	ambient temperature
	Humidity	20~80%Rh	no dew condensation
	Dust	Same level as business offices in general	

1.7 The Specification of 16Gb 2-port Fibre Channel expansion card (CB500 series)

1.7.1 Features

The feature of 16Gb 2-port Fibre Channel expansion card is as follows.

- A maximum of 16Gbps transfer rate per port

1.7.2 Equipment to be installed

16Gb 2-port Fibre Channel expansion card can be installed in the following equipment.

- CB500 CB520H B2 / CB520H B3 / CB520X B1 / CB520X B2
- CB500 CB520H B4

(The product code of 16Gb 2-port Fibre Channel expansion card :
GG-CC3M161X1-Y, GGX-CC3M161X1[EX])

1.7.3 The specifications of the hardware and the function

Table 1-22 :

Item		Specification	Remarks
Controller		Emulex 16G Fibre Channel Controller	
	Vendor ID	10DFh	
	Device ID	E200h	
Interrupt levels		INTA, MSI, MSI-X	
Host Interface	Standards	PCI-Express 3.0	
	Transfer rate	8.0 GT/s (per lane)	
	lanes	8	
Switch Module I/F	FC interface	- FC-PI-5; FC-FS-2 with Amendment 1; - FC-AL-2 with amendments 1 and 2; FC-LS-2; - FC-GS-6; FC-DA; FC-SP-2; FCP-4; FC-MJS; - FC-SB-4; FC-SP; SPC-4; SBC-3; SSC-3; RFC4338 - Fibre Channel class 2 and 3	
	Transfer rate	16Gbps (per port)	
	Ports	2 ports per controller	
	Others	N_Port_ID Virtualization (NPIV) support	

1.7.4 Quality Standard

Table 1-23:

	Item	Specification	Remarks
General	Physical Dimensions	84.5mm(H) x 96mm(D) x 39mm(W)	-
	Weight	130 g	
Usage environment	Power supply	3.3V 12V	Provided from the system
	Power Requirements	11W	
	Temperature	5 to 40C	ambient temperature
	Humidity	20~80%Rh	no dew condensation
	Dust	Same level as business offices in general	

1.8 The Specification of 10Gb 2/4-port converged network expansion card (CB2000 series)

1.8.1 Features

The features of 10Gb 2/4-port converged network expansion card (CNA expansion card hereafter) are as follows.

- The controller has 2 or 4 Ethernet ports that have a maximum of 10Gbps transfer rate.
- NIC teaming
- VLAN function
- Personality mode variation : NIC personality or Storage personality(iSCSI or FCoE)
- A physical port can be partitioned into up to four PCIe functions (logical ports or channels)
- 10Gbps iSCSI connection with hardware initiator

1.8.2 Equipment to be installed

The CNA expansion card can be installed in the following equipment.

- CB2000 Standard Server Blade (X55R3/X55S3 models)
(The product codes of the CNA expansion card :
GV-CN2MXG3X1-Y, GVX-CN2MXG3X1, GVX-CN2MXG3X1EX : 2-port,
GV-CN2MXG4X1-Y, GVX-CN2MXG4X1, GVX-CN2MXG4X1EX : 4-port)
- CB2000 Standard Server Blade (X55R4 model)
(The product codes of the CNA expansion card :
GV-CN2MXG3X1-Y, GVX-CN2MXG3X2, GVX-CN2MXG3X2EX : 2-port,
GV-CN2MXG4X1-Y, GVX-CN2MXG4X2, GVX-CN2MXG4X2EX : 4-port)
- CB2000 High-performance Server Blade (X57A2 model)
(The product codes of the CNA expansion card :
GV-CN2MXG3X1-Y, GVX-CN2MXG3X1, GVX-CN2MXG3X1EX : 2-port,
GV-CN2MXG4X1-Y, GVX-CN2MXG4X1, GVX-CN2MXG4X1EX : 4-port)

1.8.3 The specifications of the hardware and the function

Table 1-24:

Item		Specification	
Product Name		Emulex 10Gb 2-port CNA expansion card	Emulex 10Gb 4-port CNA expansion card
Product Code		GV-CN2MXG3X1-Y GVX-CN2MXG3X1[EX] GVX-CN2MXG3X2[EX]	GV-CN2MXG4X1-Y GVX-CN2MXG4X1[EX] GVX-CN2MXG4X2[EX]
Controller		Emulex BladeEngine 3 (1 controller per card)	Emulex BladeEngine 3 (2 controllers per card)
Vendor ID	Vendor ID	0x19A2	
	Device ID	0x0710	
	Sub System ID	0x3057	0x304B
	Sub System Vendor ID	0x1054	
Interrupt levels		INTA, INTB, MSI-X	
Server I/F	Standards	PCI Express 2.0	
	Transfer rate	5.0 GT/s (per lane)	
	lanes	4 lane / 1 controller 4 lane / card	4 lane / 1 controller 8 lane / card
Switch Module I/F	Switch Module	Brocade 10Gb DCB Switch Module Hitachi 1Gb LAN Switch Module Hitachi 1/10Gb LAN Switch Module 10Gb LAN path through module	
	Standards	IEEE 802.3ae 10GBASE-KR IEEE 802.3az 1000BASE-KX	
	Transfer rate	10000Mbps (per port)	
	Ports	2ports/card (1port x2Switch Module)	4ports/card (2ports x2 Switch Module)
Network Function	Protocol	IPv4/IPv6/TCP/UDP	
	Maximum MTU	9000 Byte	
	VLAN	IEEE 802.1Q (Tag VLAN)	
	Offload	Checksum offload ability Tx/Rx IP (IPv4, IPv6), TCP, UDP Checksum Offload Large segment offload for TCP data (IPv4, IPv6) header checksum offload	
	Redundancy , Load Balancing	FO :Failover SLB : Smart Load Balancing Generic Trunking (Not Supported) IEEE 802.1ax:2008 link aggregation (Not Supported)	
	Others	Universal MultiChannel (8PF/BE3)	
Converged Network Function	Converged FCoE	T11 FC-BB-5 IEEE 802.1Qbb Ver. 0 Priority based CEE Flow Control IEEE 802.1Qaz Ver. 0 Enhanced Transmission Selection IEEE 802.1 DCB Capability Exchange Protocol (DCBX) ver 1.01 Full hardware offload for FCoE protocol processing	
	FCoE offload	Generation and verification of FCoE CRC On-chip data segmentation and framing	
	Converged iSCSI	RFC 3729 Internet Small Computer Systems Interface (iSCSI) RFC 4171 Internet Storage Name Service (iSNS) RFC 4544 Definitions of Managed Objects for iSCSI RFC 4545 definitions of Managed Objects for IP Storage User Identify T10-DIFF Support for End-to-End Data Integrity	
	iSCSI offload	Full iSCSI protocol offload Header, data digest (CRC) PDU handling	
Server Function	Load Balancing	RSS (Receive Side Scaling)	
Power Requirements		12[W]	24[W]
Weight		88.66[g]	104.59[g]

1.8.4 The network function

(1) PXE boot

This 10Gb 2/4-port converged network expansion card does not support the PXE boot function.

(2) Wake On LAN

This 10Gb 2/4-port converged network expansion card does not support the Wake On LAN function.

(3) Redundancy setting

See "Hitachi Compute Blade LAN Advanced Function Manual for Emulex" for the NIC redundancy (NIC teaming).

(4) The VLAN function

See "Hitachi Compute Blade LAN Advanced Function Manual for Emulex" for the VLAN settings of NIC.

1.8.5 The personality function

See "1.2.6 The personality function".

1.8.6 I/O Virtualization Function

See "1.2.7 Multichannel Function (I/O Virtualization Function)".

1.8.7 Hardware Initiator Function

iSCSI Offload function enables the 10Gb iSCSI connection with the hardware initiator function.

- iSCSI Offload setting : Set the personality of the controller or adapter to "iSCSI" mode. (See the section "4.1.4 iSCSI Settings" to set the iSCSI.)
- The PF that can be used as iSCSI mode : PF2 or PF3. (See the section "1.2.7 Multichannel Function (I/O Virtualization Function) - (1) Multichannel Function".)

1.9 The Specification of 10Gb 2/4-port LAN expansion card (CB2000 series)

1.9.1 Features

The features of 10Gb 2/4-port LAN expansion card (LAN expansion card hereafter) are as follows.

- The controller has 2 or 4 Ethernet ports that have a maximum of 10Gbps transfer rate.
- NIC teaming
- VLAN function
- A physical port can be partitioned into up to four PCIe functions (logical ports or channels)

1.9.2 Equipment to be installed

The LAN expansion card can be installed in the following equipment.

- CB2000 Standard Server Blade (X55R3/X55S3 models)
(The product codes of the LAN expansion card :
GV-CN2MXG1X1-Y, GVX-CN2MXG1X1, GVX-CN2MXG1X1EX : 2-port,
GV-CN2MXG2X1-Y, GVX-CN2MXG2X1, GVX-CN2MXG2X1EX : 4-port)
- CB2000 Standard Server Blade (X55R4 model)
(The product codes of the LAN expansion card :
GV-CN2MXG1X1-Y, GVX-CN2MXG1X2, GVX-CN2MXG1X2EX : 2-port,
GV-CN2MXG2X1-Y, GVX-CN2MXG2X2, GVX-CN2MXG2X2EX : 4-port)
- CB2000 High-performance Server Blade (X57A2 model)
(The product codes of the LAN expansion card :
GV-CN2MXG1X1-Y, GVX-CN2MXG1X1, GVX-CN2MXG1X1EX : 2-port,
GV-CN2MXG2X1-Y, GVX-CN2MXG2X1, GVX-CN2MXG2X1EX : 4-port)

1.9.3 The specifications of the hardware and the function

Table 1-25:

Item		Specification	
Product Name		Emulex 10Gb 2-port LAN expansion card	Emulex 10Gb 4-port LAN expansion card
Product Code		GV-CN2MXG1N1(EX) GVX-CN2MXG1X1(EX) GV-CN2MXG1X1-Y	GV-CN2MXG2N1(EX) GVX-CN2MXG2X1(EX) GV-CN2MXG2X1-Y
Controller		Emulex BladeEngine 3 (1 controller per card)	Emulex BladeEngine 3 (2 controllers per card)
Vendor ID	Vendor ID	0x19A2	
	Device ID	0x0710	
	Sub System ID	0x3058	0x304C
	Sub System Vendor ID	0x1054	
Interrupt levels		INTA, INTB, MSI-X	
Server I/F	Standards	PCI Express 2.0	
	Transfer rate	5.0 GT/s (per lane)	
	lanes	4 lane / 1 controller 4 lane / card	4 lane / 1 controller 8 lane / card
Switch Module I/F	Switch Module	Brocade 10Gb DCB Switch Module Hitachi 1Gb LAN Switch Module Hitachi 1/10Gb LAN Switch Module 10Gb LAN path through module	
	Standards	IEEE 802.3ae 10GBASE-KR IEEE 802.3az 1000BASE-KX	
	Transfer rate	10000Mbps (per port)	
	Ports	2ports/card (1port x2Switch Module)	4ports/card (2ports x2 Switch Module)
Network Function	Protocol	IPv4/IPv6/TCP/UDP	
	Maximum MTU	9000 Byte	
	VLAN	IEEE 802.1Q (Tag VLAN)	
	Offload	Checksum offload ability Tx/Rx IP (IPv4, IPv6), TCP, UDP Checksum Offload Large segment offload for TCP data (IPv4, IPv6) header checksum offload	
	Redundancy , Load Balancing	FO : Failover SLB : Smart Load Balancing Generic Trunking (Not Supported) IEEE 802.1ax:2008 link aggregation (Not Supported)	
	Others	Universal MultiChannel (8PF/BE3)	
Server Function	Load Balancing	RSS (Receive Side Scaling)	
Power Requirements		12[W]	24[W]
Weight		88.66[g]	104.59[g]

1.9.4 The network function

(1) PXE boot

This 10Gb 2/4-port LAN expansion card does not support the PXE boot function.

(2) Wake On LAN

This 10Gb 2/4-port LAN expansion card does not support the Wake On LAN function.

(3) Redundancy setting

See "Hitachi Compute Blade LAN Advanced Function Manual for Emulex" for the NIC redundancy (NIC teaming).

(4) The VLAN function

See "Hitachi Compute Blade LAN Advanced Function Manual for Emulex" for the VLAN settings of NIC.

1.9.5 I/O Virtualization Function

See "1.2.7 Multichannel Function (I/O Virtualization Function)".

1.10 The Specification of 8Gb 2-port Fibre Channel expansion card (CB2000 series)

1.10.1 Features

The feature of 8Gb 2-port Fibre Channel expansion card is as follows.

- A maximum of 8Gbps transfer rate per port

1.10.2 Equipment to be installed

FC expansion card can be installed in the following equipment.

- CB2000 Standard Server Blade (X55A1/X55A2 models)
- CB2000 Standard Server Blade (X55R3/X55S3 models)
- CB2000 Standard Server Blade (X55R4 model)
- CB2000 High-performance Server Blade (X57A1/X57A2 models)

1.10.3 The specifications of the hardware and the function

Table 1-26:

Item		Specification
Product Name		Emulex 8Gb 2-port Fibre Channel expansion card
Product Code		GV-CC2M8G3X1-Y GV-CC2M8G3XR-Y (for RoHS) GVX-CC2M8G3X1[EX]
Controller		Emulex 8Gb Fibre Channel controller
Vendor ID	Vendor ID	10DF
	Device ID	F100
Interrupt levels		INTA, MSI, MSI-X
Server I/F	Standards	PCI Express 2.0
	Transfer rate	5.0 GT/s (per lane)
	lanes	4 lane
Switch Module I/F	Switch Module	Brocade 8Gb Fibre Channel Switch Module
	FC IF Specification	FC-PI-4, FC-FS-2, FC-FS-2/AM1, FC-LS, FC-AL-2, FC-GS-6, FC-FLA, FC-PLDA, FC-TAPE, FC-DA, FCP through FCP-4, SBC-3, FC-SP, FC-HBA and SMI-S v1.1 Fibre Channel class 2 and 3
	Transfer rate	8Gbps
	Ports	2 ports/card
Power Requirements		8W
Weight		0.08kg

1.11 The Specification of 10Gb 2-port converged network board (CB2000 series, CB2500 series)

1.11.1 Features

The features of 10Gb 2-port converged network board (CNA board hereafter) are as follows.

- The controller has 2 Ethernet ports that have a maximum of 10Gbps transfer rate.
- NIC teaming
- VLAN function
- Personality mode variation : NIC personality or storage personality(iSCSI or FCoE)
- A physical port can be partitioned into up to four PCIe functions (logical ports or channels)
- 10Gbps iSCSI connection with hardware initiator

1.11.2 Equipment to be installed

The CNA board can be installed in the following equipment.

- CB2000 Standard Server Blade (X55R3/X55S3 models)
(The product codes of the CNA board :
 - : for chassis,
GV-CN2NXG3X1-Y, GV-CN2NXG3XR-Y, GVX-CN2NXG3X1[BX]
 - : for I/O expansion unit
GV-CN2DXG3X1-Y, GVX-CN2DXG3X1[EX])
- CB2000 Standard Server Blade (X55R4 model)
(The product codes of the CNA board :
 - : for chassis,
GV-CN2NXG3X1-Y, GV-CN2NXG3XR-Y, GVX-CN2NXG3X2[BX]
 - : for I/O expansion unit
GV-CN2DXG3X1-Y, GVX-CN2DXG3X2[EX])
- CB2000 High-performance Server Blade (X57A2 model)
(The product codes of the CNA board :
 - : for chassis,
GV-CN2NXG3X1-Y, GV-CN2NXG3XR-Y, GVX-CN2NXG3X1[BX]
 - : for I/O expansion unit
GV-CN2DXG3X1-Y, GVX-CN2DXG3X1[EX])
- CB2500 CB520X B1 / CB520X B2 / CB520X B3 / CB520H B3 / CB520H B4
(The product code of CNA board : GG-CN4NXG3X1-Y)

1.11.3 The specifications of the hardware and the function

Table 1-27:

Item		Specification		
Product Name		CB2000 CNA (Converged Network Adapter) board		
Product Code	GV-CN2NXG3X1-Y	Installed to CB2000 chassis.		
	GV-CN2NXG3XR-Y	Installed to CB2000 chassis.(for RoHS standards)		
	GVX-CN2NXG3X1[BX]	Installed to CB2000 chassis.		
	GVX-CN2NXG3X2[BX]	Installed to CB2000 chassis. (for X55R4 model)		
	GV-CN2DXG3X1-Y	Installed to CB2000 I/O slot expansion unit		
	GVX-CN2DXG3X1[EX]	Installed to CB2000 I/O slot expansion unit		
	GVX-CN2DXG3X2[EX]	Installed to CB2000 I/O slot expansion unit (for X55R4 model)		
GG-CN4NXG3X1-Y		Installed to CB2500 chassis		
Controller		Emulex BladeEngine 3 (1 controller per card)		
Vendor ID		NIC	iSCSI	FCoE
	Vendor ID	19A2	19A2	19A2
	Device ID	0710	0712	0714
	Sub System Vendor ID	10DF	10DF	10DF
	Sub System Device ID	E702	E702	E702
Inner I/F	Standards	PCI Express 2.0 Gen2		
	Transfer rate	5.0GT/s		
	Connector type	PCI Express x8		
	PCIe slot type	PCI Express x8		
Outer I/F	Standards	NIC, iSCSI, FCoE		
	Transfer rate	10Gb/s (8Gb/s for connecting to FC device)		
	Ports	2		
	Connector type	SFP+		
	Cable type	Multi Mode Optical Fibre (300m at the maximum)		
Power supply		12V : 0.83A / 0.93A(Max.) 3.3V : 0.48A / 0.61A(Max.)		
Power Requirements		11.4W/ 13.2W(Max.)		
Temperature		0C~55C(Operating) / -20C~70C(In non-operating status)		
Humidity		10%~90%(no dew condensation)		
Dust		Same level as business offices in general		
Weight		160g		
Physical Dimensions (WxDxH: mm)		18 x169±2 x 56±2 (Except the bracket)		

1.11.4 The network function

(1) PXE boot

This 10Gb 2-port converged network board does not support the PXE boot function.

(2) Wake On LAN

This 10Gb 2-port converged network board does not support the Wake On LAN function.

(3) Redundancy setting

See "Hitachi Compute Blade LAN Advanced Function Manual for Emulex" for the NIC redundancy (NIC teaming).

(4) The VLAN function

See "Hitachi Compute Blade LAN Advanced Function Manual for Emulex" for the VLAN settings of NIC.

1.11.5 The personality function

See "1.2.6 The personality function".

1.11.6 I/O Virtualization Function

See "1.2.7 Multichannel Function (I/O Virtualization Function)".

1.11.7 Hardware Initiator Function

iSCSI Offload function enables the 10Gb iSCSI connection with the hardware initiator function.

- iSCSI Offload setting : Set the personality of the controller or adapter to "iSCSI" mode. (See the section "4.1.4 iSCSI Settings" to set the iSCSI.)
- The PF that can be used as iSCSI mode : PF2 or PF3. (See the section "1.2.7 Multichannel Function (I/O Virtualization Function) - (1) Multichannel Function".)

1.12 The Specification of 8Gb 2-port Fibre Channel board (CB2000 series, CB2500 series)

1.12.1 Features

The feature of 8Gb 2-port Fibre Channel board is as follows.

- A maximum of 8Gbps transfer rate per port

1.12.2 Equipment to be installed

8Gb 2-port Fibre Channel board can be installed in the following equipment.

- CB2000 Standard Server Blade (X55A1/X55SA2 models)
- CB2000 Standard Server Blade (X55R3/X55S3 models)
- CB2000 Standard Server Blade (X55R4 model)
- CB2000 High-performance Server Blade (X57A1/X57A2 models)
(The product code of 8Gb 2-port Fibre Channel board :
: for chassis,
GV-CC2N8G3X1-Y, GV-CC2N8G3XR-Y, GVX-CC2N8G3X1[BX]
: for I/O expansion unit
GV-CC2D8G3X1-Y, GVX-CC2D8G3X1[EX])
- CB2500 CB520X B1 / CB520X B2 / CB520X B3 / CB520H B3 / CB520H B4
(The product code of 8Gb 2-port Fibre Channel board : GG-CC4N8G3X1-Y)

1.12.3 The specifications of the hardware and the function

Table 1-28:

Item		Specification
Product Name		Emulex 8Gb 2-port Fibre Channel board
Product Code		GV-CC2N8G3X1-Y, GV-CC2D8G3X1-Y GVX-CC2N8G3X1(BX), GVX-CC2D8G3X1(EX) GG-CC4N8G3X1-Y
Controller		Emulex 8Gb Fibre Channel controller
Interrupt levels		INTA, MSI, MSI-X
Server I/F	Standards	PCI Express 2.0
	Transfer rate	5.0 GT/s (per lane)
	lanes	4 lane
Interface	FC IF Specification	Fibre Channel Physical and Signaling Interface-3(FC-PH-3) Fibre Channel Arbitrated Loop (FC-AL-2)
	Transfer rate	8Gbps (per port)
	Ports	2 ports
	Connector type	SFP+
Power Requirements		8.8W(Normal) 13.3W(Max.)
Weight		170[g]

1.13 The Specification of 16Gb 2-port Fibre Channel board (CB2000 series, CB2500 series)

1.13.1 Features

The feature of 16Gb 2-port Fibre Channel board is as follows.

- A maximum of 16Gbps transfer rate per port

1.13.2 Equipment to be installed

16Gb 2-port Fibre Channel board can be installed in the following equipment.

- CB2000 Standard Server Blade (X55R4 model)
- CB2000 High-performance Server Blade (X57A2 model)
(The product code of 8Gb 2-port Fibre Channel board :
: for chassis,
GV-CC2N163X1-Y, GVX-CC2N163X1[BX]
: for I/O expansion unit
GV-CC2D163X1-Y, GVX-CC2D163X1[EX])
- CB2500 CB520X B1 / CB520X B2 / CB520X B3 / CB520H B3 / CB520H B4
(The product code of 16Gb 2-port Fibre Channel board : GG-CC4N163X1-Y)

1.13.3 The specifications of the hardware and the function

Table 1-29:

Item		Specification
Product Name		Emulex 16Gb 2-port Fibre Channel board
Product Code		GV-CC2N163X1-Y GV-CC2D163X1-Y GVX-CC2N163X1[BX] GVX-CC2D163X1[EX] GG-CC4N163X1-Y
Controller		Emulex 16Gb Fibre Channel controller
Interrupt levels		INTA, MSI, MSI-X
Server I/F	Standards	PCI Express 3.0 Gen3
	Transfer rate	8.0 GT/s (per lane)
	lanes	8 lane
Interface	FC IF Specification	Fibre Channel Physical and Signaling Interface-3(FC-PH-3) Fibre Channel Arbitrated Loop (FC-AL-2)
	Transfer rate	16Gbps (per port)
	Ports	2 ports
	Connector type	SFP+
Power Requirements		11.1W(Normal) 13.3W(Max.)
Weight		150[g]

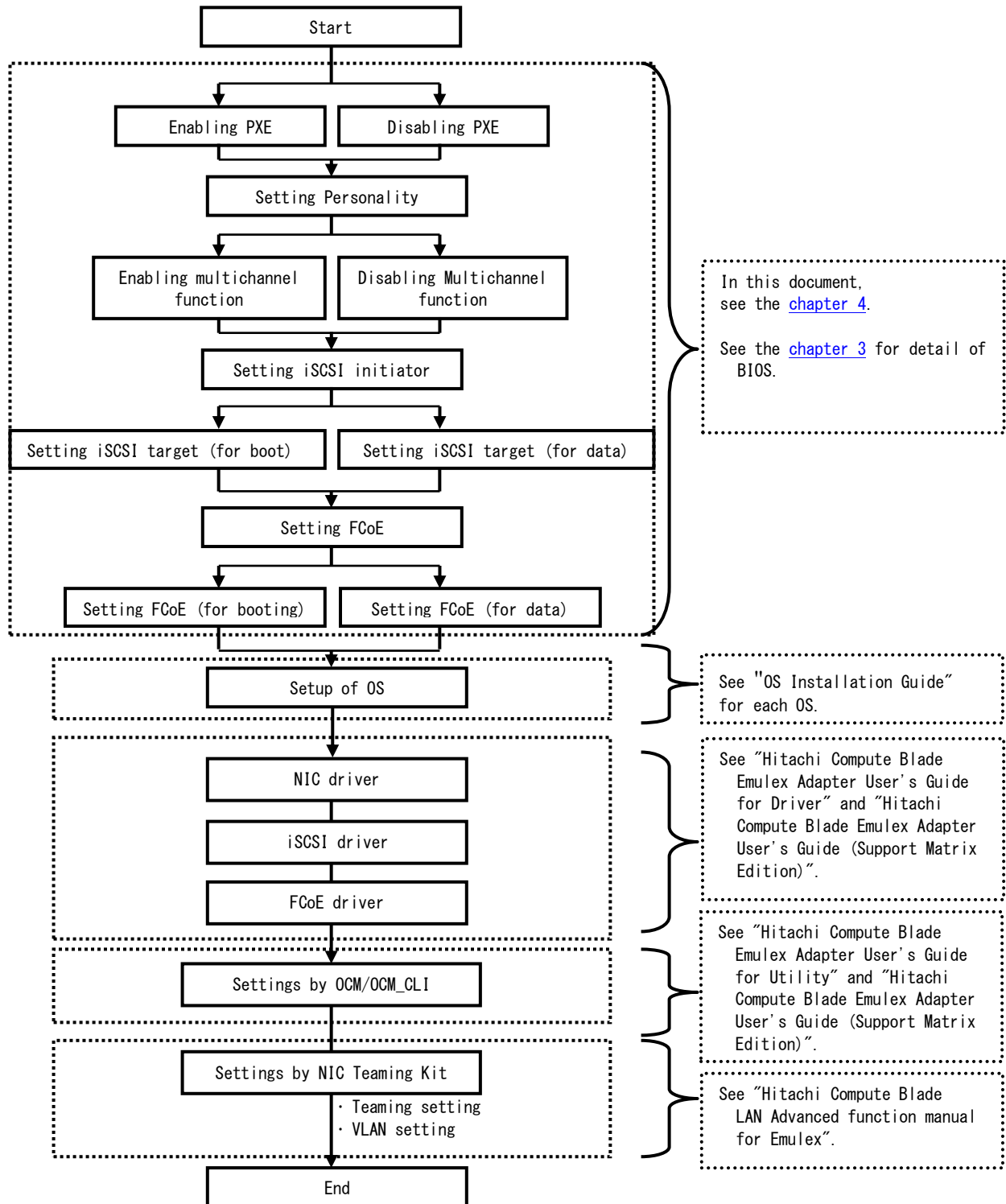
Flow Chart of Setting up

This chapter describes the flow chart of setting up for Emulex adapters.

- [2.1 The Flow Chart of Setting up for Onboard CNA / CNA expansion card / LAN expansion card / CNA board](#)
- [2.2 The Flow Chart of Setting up for FC expansion card / FC board](#)

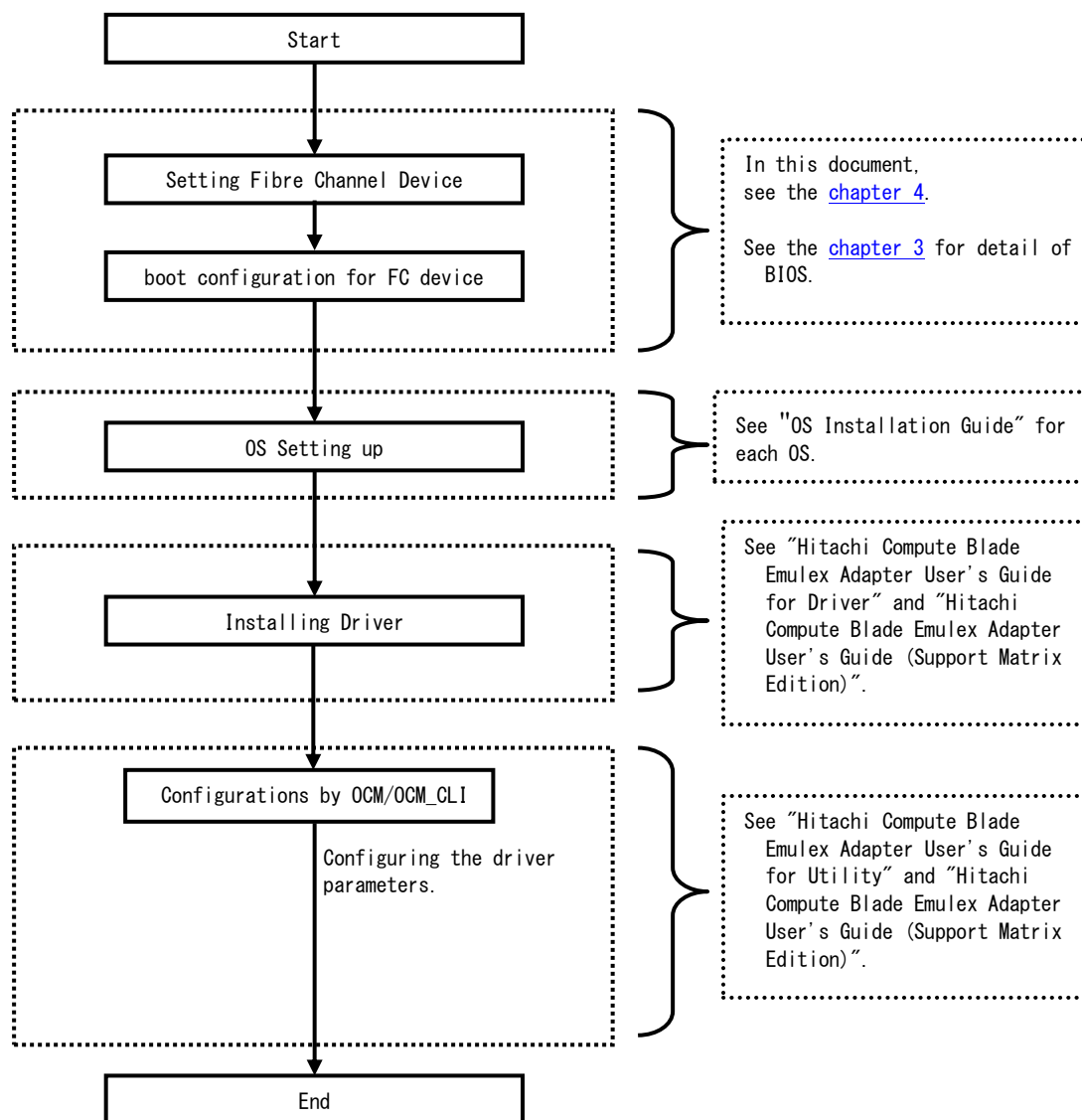
2.1 The Flow Chart of Setting up for Onboard CNA / CNA expansion card / LAN expansion card / CNA board

The flow chart of setting up for onboard CNA / CNA expansion card / LAN expansion card / CNA board is as follows.



2.2 The Flow Chart of Setting up for FC expansion card / FC board

The setting flow of FC expansion card / FC board is as follows



BIOS/UEFI Utility

This chapter describes BIOS utility for Emulex adapters.

There are some kinds of BIOS utility as follows.

- Emulex PXESelect Utility : Use for the multichannel configuring and the personality configuring for onboard CNA, CNA expansion card, LAN expansion card and CNA board.
 - Emulex iSCSISelect Utility : Use for the iSCSI configuring for onboard CNA, CNA expansion card and CNA board.
 - Emulex BIOS Utility : Use for the fibre channel configuring for FC expansion card and FC board.
 - Emulex UEFI Utility : Use for CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4.
-
- ☐ [3.1 Onboard CNA / CNA expansion card / LAN expansion card / CNA board \(Legacy BIOS\)](#)
 - ☐ [3.2 Onboard CNA \(UEFI on CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4\)](#)
 - ☐ [3.3 CNA expansion card / LAN expansion card / CNA board \(UEFI on CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4\)](#)
 - ☐ [3.4 FC expansion card / FC board \(Legacy BIOS\)](#)
 - ☐ [3.5 FC expansion card / FC board \(UEFI on CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4\)](#)

3.1 Onboard CNA / CNA expansion card / LAN expansion card / CNA board (Legacy BIOS)

3.1.1 Emulex PXESelect Utility

(1) Emulex PXESelect Utility functions

The main functions of Emulex PXESelect Utility are listed below.

Table 3-1 :

No.	Functions	Explanation
1	Configuring PXE	Configuring the PXE boot enabled/disabled per controller
2	Configuring multichannel	Configuring the multichannel enabled/disabled per controller
3	Configuring personality	Configuring the personality per controller
4	Displaying the physical port information	Displaying the numbers : Controller, Port, Bus, Dev Displaying Port Speed, Physical Link Status

(2) Opening Emulex PXESelect Utility

1. Turn on the remote console, then click **Power - Power On** in tool bar of the remote console to turn on the system.
2. When "**Press <Ctrl> <P> for PXESelect(TM) Utility**" appears during startup of the system, press <Ctrl> and <P> simultaneously.

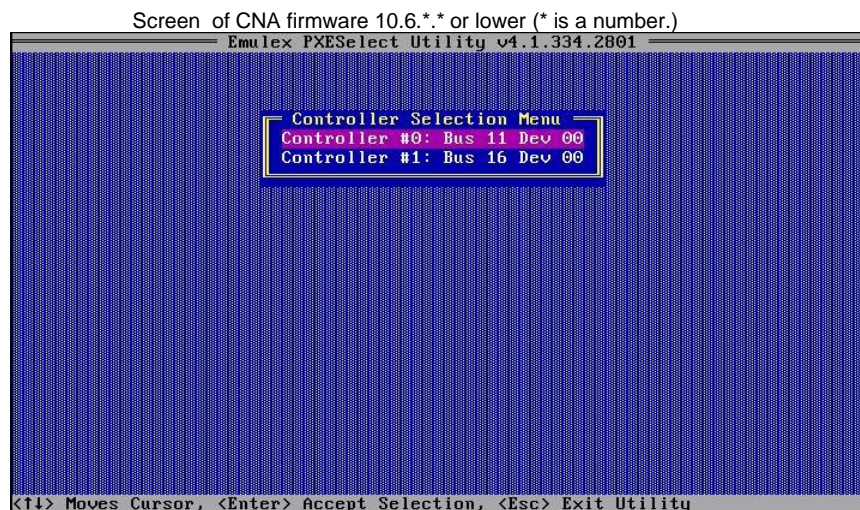
```
Emulex 10Gb UNDI, PXE-2.0 BIOS v4.1.334.2801
Copyright (C) 2006-2012 Emulex Corporation

<<< Press <Ctrl><P> for PXESelect(TM) Utility >>>

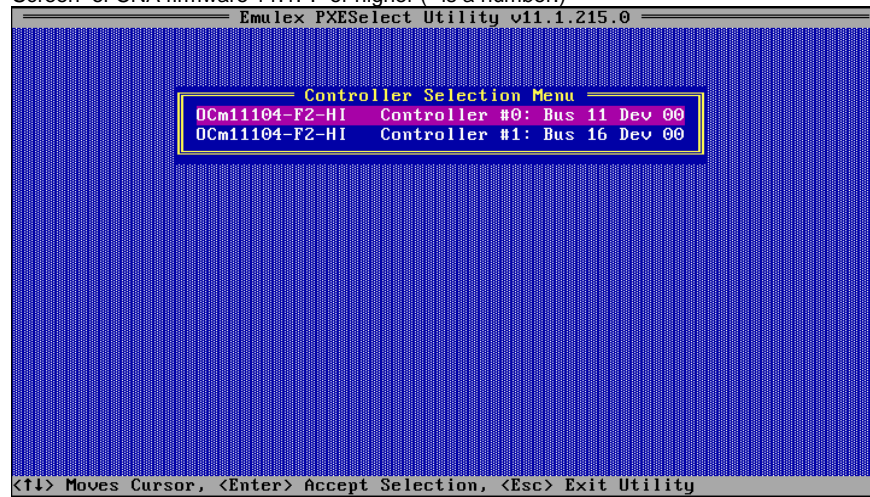
<Ctrl><P> Pressed-Utility will be invoked after BIOS initialization.

Controller Status: Init done
```

3. When PXESelect Utility opens, the following screen is displayed.



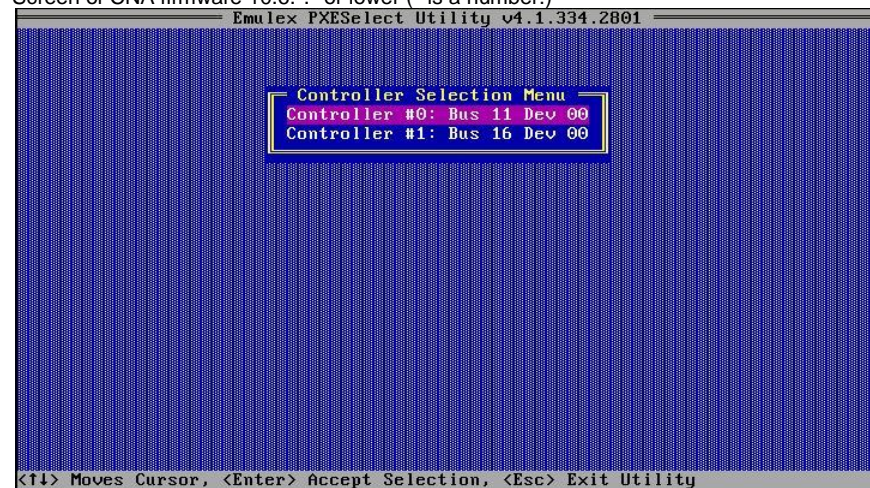
Screen of CNA firmware 11.1.*.* or higher (* is a number.)



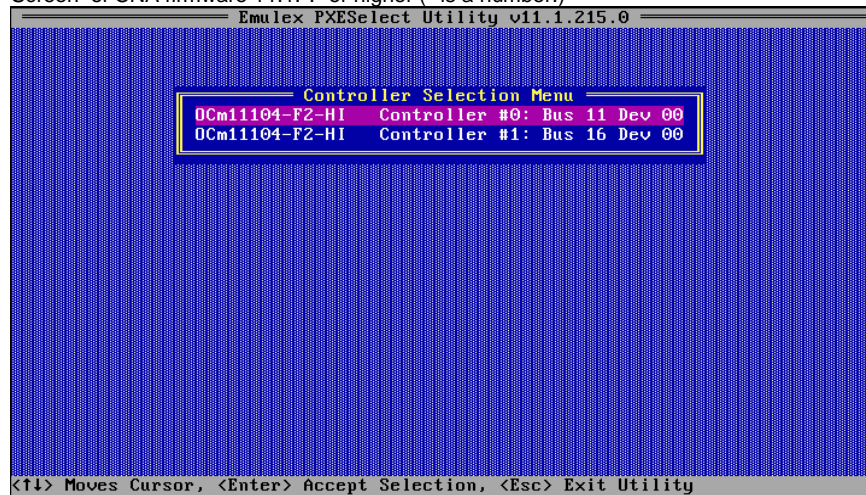
(3) Exiting Emulex PXESelect Utility

1. Press <Esc> key on the **Controller Selection Menu** screen.

Screen of CNA firmware 10.6.*.* or lower (* is a number.)



Screen of CNA firmware 11.1.*.* or higher (* is a number.)



2. When the message **Do you want to exit from the utility [Y/N]?** is displayed, press **<Y>** key.
3. In the case that the configuration is changed, the system reboots. Or in the case that the configuration is not changed, the system continues booting.

(4) Operating the Emulex PXESelect Utility menu

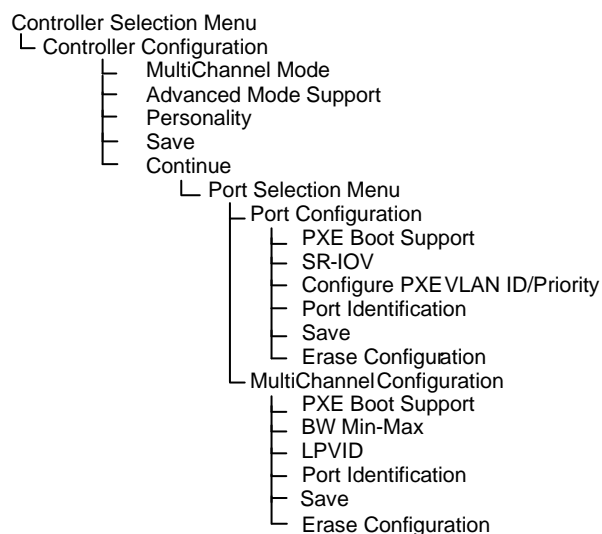
The operation and keys to use are displayed on the lower part of the screen for each menu.

The basic keys for operation of the utility are as follows.

- arrow key : used to select an item or value.
- <tab> key : used to select an item.
- <Enter> key : used to decide an item or a value to set.
- number key : used to input a value to set

(5) Emulex PXESelect Utility menu tree

Emulex PXESelect Utility menu tree is as follows.



Each menu item is explained below.

Item	Explanation	Remarks
Controller Selection Menu	Selects a controller.	
Controller Configuration	MultiChannel Support (FW 4.6.*.* or lower) or MultiChannel Mode (FW 10.*.* or higher)	Configures the multichannel function.
	Advanced Mode Support	- Supported only for : SR-IOV function on Hyper-V or CNA firmware version is 10.6.*.* or higher
	Personality	Configures the personality.
	Save	Saves the configuration.
	Continue	Displays "Port Selection" menu.
Port Selection Menu	Select "Port".	
Port Configuration	PXE Boot Support	Configures the PXE Boot.
	SR-IOV	Configures the SR-IOV function.
	Configure PXE VLAN ID/Priority	- Not supported
	Port Identification	- Not supported
	Save	Saves the configuration.
	Erase Configuration	Erases the configuration.
MultiChannel Configuration	PXE Boot Support	Configures the PXE Boot.
	Admin Logical Link	Configures the logical port. (*1)
	Bandwidth (FW 4.6.*.* or lower) or BW Min-Max (FW 10.*.* or higher)	Configures the bandwidth to occupy.
	LPVID	Sets the ID of LPVID.
	Configure PXE VLAN ID/Priority	Configures VLAN. (*2)

	Port Identification	-	Not supported
	Save	Saves the configuration.	
	Erase Configuration	Erases the configuration.	

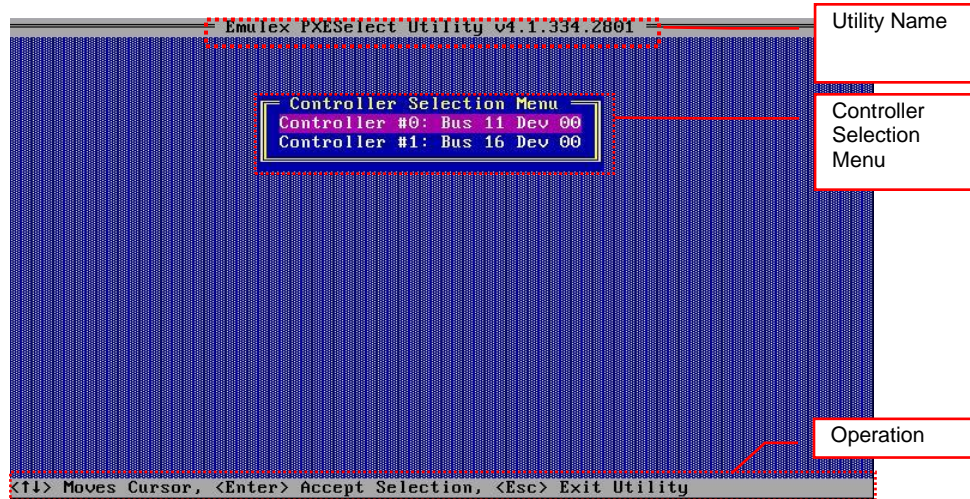
(*1) Displayed when using FW 4.2.*.* or lower (* is a number.)

(*2) Displayed when using FW 10.*.*.* or lower (* is a number.)

(6) Emulex PXESelect Utility Menu Screens

Controller Selection Menu

(1) CNA firmware version : 4.1.*.*, 4.2.*.*, 4.6.*.* or 10.*.*.* (* is a number.)



Utility Name Area

Item	Expression	Explanation	Remarks
Utility Name	Example : Emulex PXESelect Utility	Displays the utility name.	
Firmware version	Example : v4.1.334.2801	Displays the firmware version.	

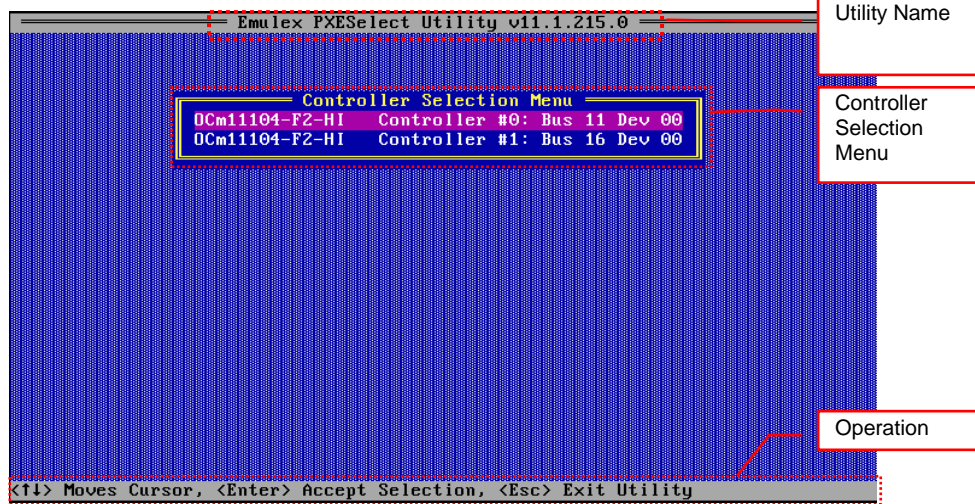
Controller Selection Menu Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Select the controller to be configured.	Move the cursor to the controller and press [Enter] key. "Controller Configuration" screen is displayed.	The controllers are listed. Select the controller to be configured. Example : Controller #0 : Bus 11 Device 00	

Operation Area

Item	Operation	Explanation	Remarks
Moves Cursor	Press Arrow key.	Moves the cursor.	
<Enter> Accept Selection	Press [Enter] key.	Accepts the selection.	
<Esc> to Exit Utility	Press [Esc] key.	Exits the utility.	

(2) CNA firmware version : 11.*.*.* (* is a number.)



Utility Name Area

Item	Expression	Explanation	Remarks
Utility Name	Example : Emulex PXESelect Utility	Displays the utility name.	
Firmware version	Example : v11.1.215.0	Displays the firmware version.	

Controller Selection Menu Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Select the controller to be configured.	Move the cursor to the controller and press [Enter] key. "Controller Configuration" screen is displayed.	The controllers are listed. Select the controller to be configured. Example : OCm11104-F2-HI Controller #0 : Bus 11 Device 00	

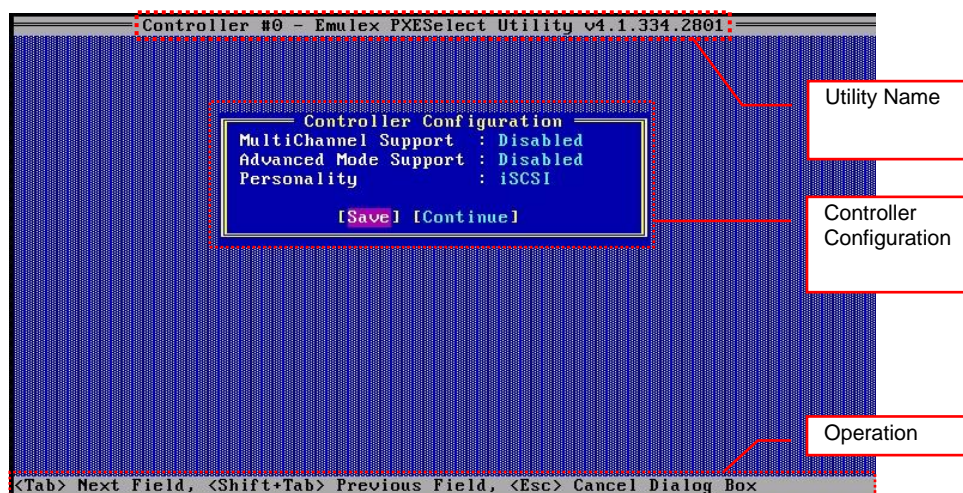
Operation Area

Item	Operation	Explanation	Remarks
Moves Cursor	Press Arrow key.	Moves the cursor.	
<Enter> Accept Selection	Press [Enter] key.	Accepts the selection.	
<Esc> to Exit Utility	Press [Esc] key.	Exits the utility.	



In the case that the system has only one controller, the "Controller Selection Menu" is not displayed. The Emulex PXESelect Utility starts from "Controller Configuration" screen.

Controller Configuration



Utility Name Area

Item	Expression	Explanation	Remarks
Controller number	Example : Controller #0	Displays the controller number that is selected.	
Utility Name	Example : Emulex PXESelect Utility	Displays the utility name that is running.	
Firmware version	Example : v4.1.334.2801	Displays the firmware version.	

Controller Configuration Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
MultiChannel Support (FW 4.6.* or lower) or MultiChannel Mode (FW 10.*.* or higher)	Choice : Enabled / Disabled Default : Disabled	Configures the multichannel function.	
Advanced Mode Support	-	-	Supported only for : SR-IOV function on Hyper-V or CNA firmware version is 10.6.*.* or higher
Personality	Choice : NIC / iSCSI / FCoE Default : NIC	Configures the personality.	
Save	-	Saves the configuration.	
Continue	Move the cursor to [Continue] and press [Enter] key "Port Selection Menu" screen is displayed.	Changes the details of the configuration.	

Operation Area

Item	Operation	Explanation	Remarks
<Tab> Next Field	Press [Tab] key.	Moves to next field.	
<Shift+Tab> Previous Field	Press [Tab] key and [Shift] key simultaneously	Moves to previous field.	
<Esc> Cancel Dialog Box	Press [Esc] key.	Cancels the Dialog Box or returns to the previous menu.	

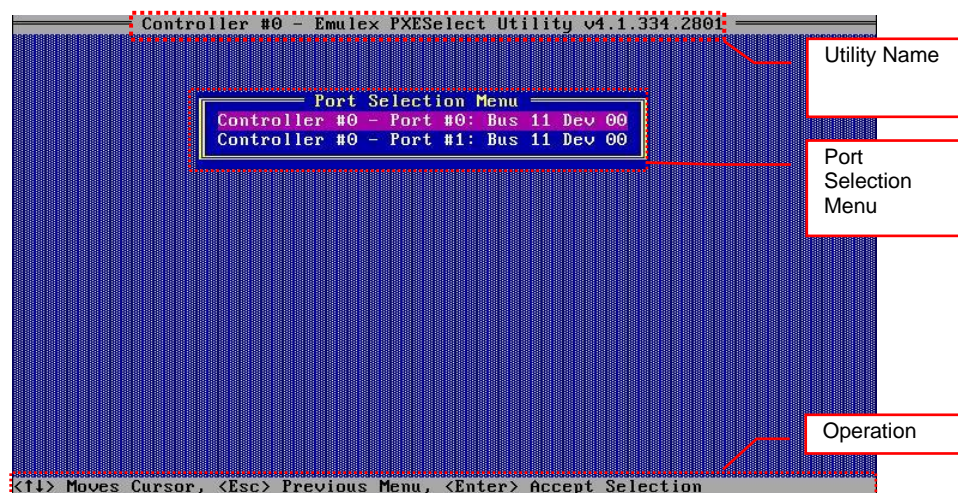


In the following cases, set "Enabled" to [Advanced Mode Support]. Otherwise, set "Disabled".

- using SR-IOV function in Hyper-V environment.
- using bare metal environment with CNA FW version 10.6 or higher (recommend).
- using on LPAR manager with CNA FW version 10.6 or higher

Port Selection Menu

(1) CNA firmware version : 4.1.*.*, 4.2.*.*, 4.6.*.* or 10.*.*.* (* is a number.)



Utility Name Area

Item	Expression	Explanation	Remarks
Controller number	Example : Controller #0	Displays the controller number that is selected.	
Utility Name	Example : Emulex PXESelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v4.1.334.2801	Displays the firmware version.	

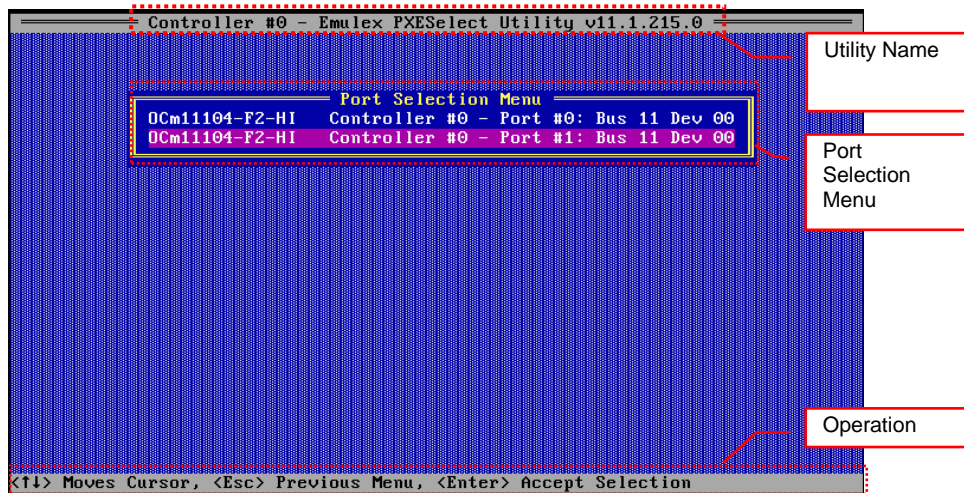
Port Selection Menu Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Select the port to be configured.	Move the cursor to the port and press [Enter] key. "Port Configuration" screen is displayed.	The ports are listed. Select the port to be configured. Example : Controller #0 - Port #0 : Bus 11 Device 00	

Operation Area

Item	Operation	Explanation	Remarks
Moves Cursor	Press arrow key.	Moves the cursor.	
<Esc> Previous Menu	Press [Esc] key.	Returns to the previous menu.	
<Enter> Accept Selection	Press [Enter] key.	Accepts the selection.	

(2) CNA firmware version : 11.*.*.* (* is a number.)



Utility Name Area

Item	Expression	Explanation	Remarks
Controller number	Example : Controller #0	Displays the controller number that is selected.	
Utility Name	Example : Emulex PXESelect Utility	Displays the utility name that is running.	
Firmware version	Example : v11.1.215.0	Displays the firmware version.	

Port Selection Menu Area

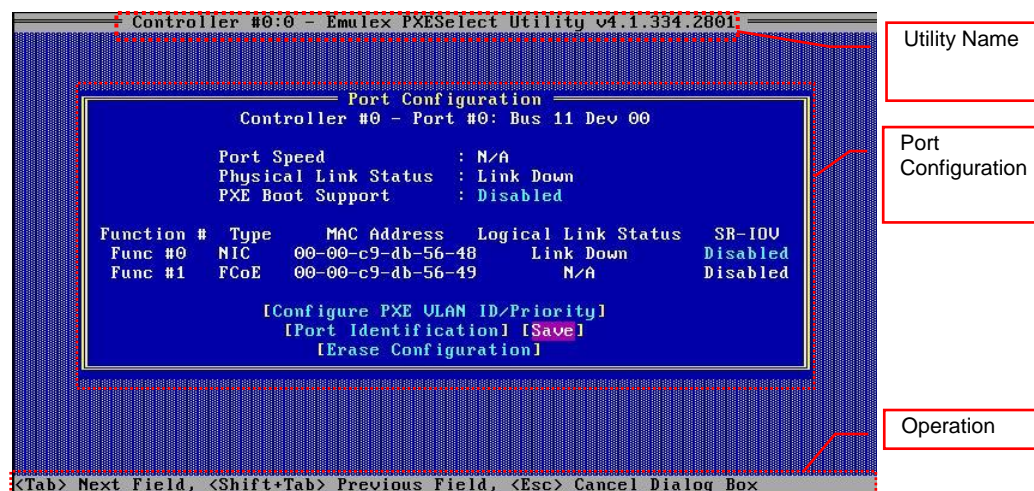
Item	Configuration/ Select menu / Expression	Explanation	Remarks
Select the port to be configured.	Move the cursor to the port and press [Enter] key. "Port Configuration" screen is displayed.	The ports are listed. Select the port to be configured. Example : OCm11104-F2-HI Controller #0 - Port #0 : Bus 11 Device 00	

Operation Area

Item	Operation	Explanation	Remarks
Moves Cursor	Press arrow key.	Moves the cursor.	
<Esc> Previous Menu	Press [Esc] key.	Returns to the previous menu.	
<Enter> Accept Selection	Press [Enter] key.	Accepts the selection.	

Port Configuration

(1) CNA firmware version : 4.1.*.* or 4.2.*.* (* is a number.)



<Tab> Next Field, <Shift+Tab> Previous Field, <Esc> Cancel Dialog Box

Utility Name Area

Item	Expression	Explanation	Remarks
Controller number and port number	Example : Controller #0:0	Displays the controller number and port number that are selected.	
Utility Name	Example : Emulex PXESelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v4.1.334.2801	Displays the firmware version.	

Port Configuration Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Controller #x - Port #x : Bus xx Dev xx	Example : Controller #0 - Port #0 : Bus 11 Dev 00	Displays each number : Controller, Port, Bus, Device.	
Port Speed	Example : N/A / 1 Gbps / 10Gbps	Displays the link speed of the port.	
Physical Link Status	Example : Link UP / Link Down	Displays the link status of the physical port.	
PXE Boot Support	Choice : Enabled / Disabled Default : Disabled	Configures the PXE boot setting.	
Function #	Example : Func #0~1 (MultiChannel Support :Enabled: #0~3)	Displays the logical port number.	
Type	Example : NIC / iSCSI / FCoE	Displays the function name of the logical port.	
MAC Address	Example : 00-00-c9-db-56-48	Displays the MAC address.	
Logical Link Status	Example : N/A / Link Down / Link UP	Displays the link status of the logical port.	
SR-IOV	Choice : Enabled / Disabled Default : Disabled	Configures the SR-IOV setting.	
Configure PXE VLAN ID/Priority	-	-	Not supported
Port Identification	-	-	Not supported
Save	-	Saves the configuration.	
Erase Configuration	-	Erases the configuration.	

Operation Area

Item	Operation	Explanation	Remarks
<Tab> Next Field	Press [Tab] key.	Moves to next field.	
<Shift+Tab> Previous Field	Press [Tab] key and [Shift] key simultaneously	Moves to previous field.	
<Esc> Cancel Dialog Box	Press [Esc] key.	Cancels the Dialog Box or returns to the previous menu.	

(2) CNA firmware version : 4.6.*.* , 10.*.*.* or 11.*.*.* (* is a number.)

Utility Name Area

Item	Expression	Explanation	Remarks
Controller number and port number	Example : Controller #0:0	Displays the controller number and port number that are selected.	
Utility Name	Example : Emulex PXESelect Utility	Displays the utility name that is running.	
Firmware version	Example : v4.6.209.2	Displays the firmware version.	

Port Configuration Area

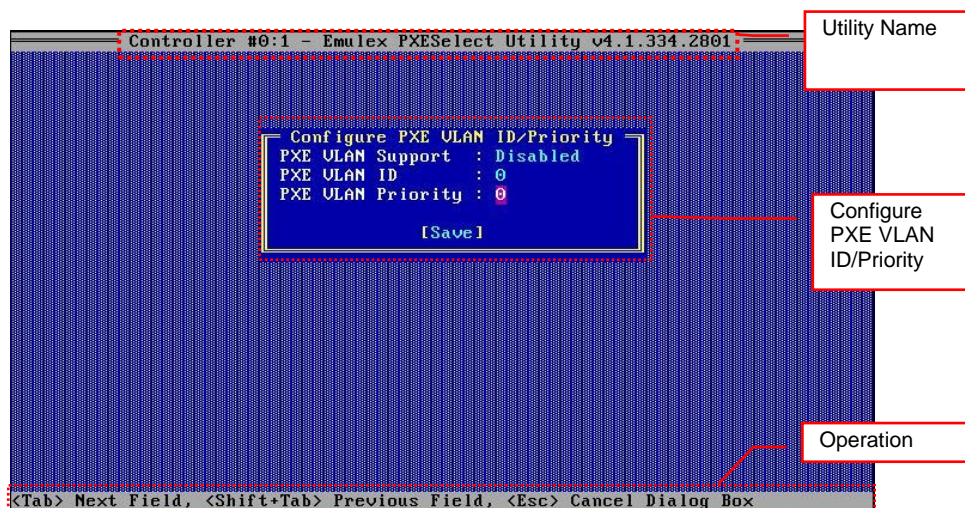
Item	Configuration/ Select menu / Expression	Explanation	Remarks
Controller #x - Port #x : Bus xx Dev xx	Example : Controller #0 - Port #2 : Bus 11 Dev 00	Displays each number : Controller, Port, Bus, Device.	
Firmware Version	Example : v4.6.209.2	Displays the firmware version.	
Port Speed	Example : N/A or 1 Gbps or 10Gbps	Displays the link speed of the port.	
Physical Link Status	Example : Link UP or Link Down	Displays the link status of the physical port.	
PXE Boot Support	Choice : Enabled or Disabled Default : Disabled	Configures the PXE boot setting.	
PF#	Example : Func #0 (MultiChannel Support :Enabled: #0~3)	Displays the logical port number.	
Type (FW4.6.*.*) or Protocol (FW10.*.* or higher)	Example : NIC / iSCSI / FCoE	Displays the function name of the logical port.	
MAC Address	Example : 00-00-c9-db-56-48	Displays the MAC address.	
Logical Link Status	Example : N/A / Link Down / Link UP	Displays the link status of the logical port.	

SR-IOV	Choice : Enabled / Disabled Default : Disabled	Configures the SR-IOV setting.	
Configure PXE VLAN ID/Priority	-	-	Not supported
Port Identification	-	-	Not supported
Save	-	Saves the configuration.	
Erase Configuration	-	Erases the configuration.	

Operation Area

Item	Operation	Explanation	Remarks
<Tab> Next Field	Press [Tab] key.	Moves to next field.	
<Shift+Tab> Previous Field	Press [Tab] key and [Shift] key simultaneously	Moves to previous field.	
<Esc> Cancel Dialog Box	Press [Esc] key.	Cancels the Dialog Box or returns to the previous menu.	

Configure PXE VLAN ID/Priority (Not supported)



Utility Name Area

Item	Expression	Explanation	Remarks
Controller number and port number	Example : Controller #0:0	Displays the controller number and port number that are selected.	
Utility Name	Example : Emulex PXESelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v4.1.334.2801	Displays the firmware version.	

Configure PXE VLAN ID/Priority Area

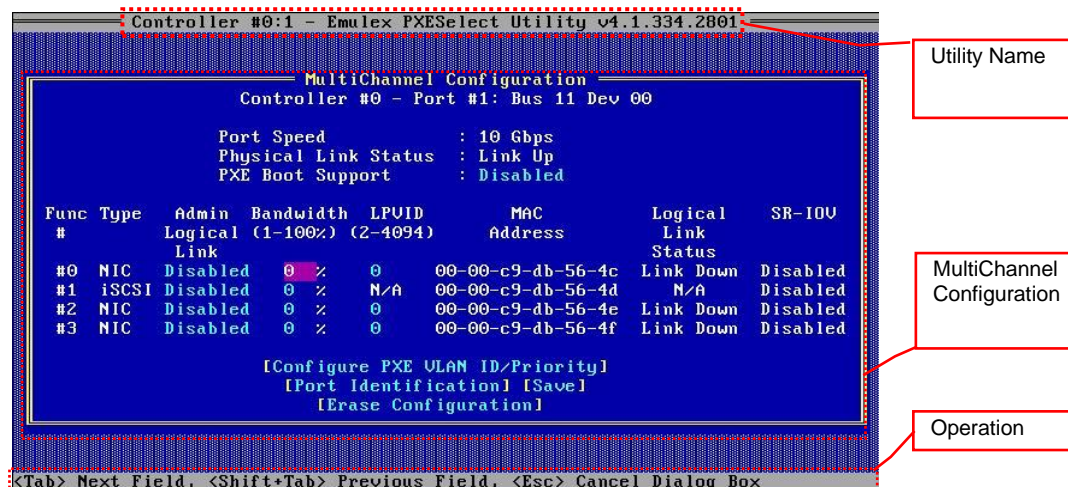
Item	Configuration/ Select menu / Expression	Explanation	Remarks
PXE VLAN Support	-	-	Not supported
PXE VLAN ID	-	-	Not supported
PXE VLAN Priority	-	-	Not supported
Save	-	-	Not supported

Operation Area

Item	Operation	Explanation	Remarks
<Tab> Next Field	Press [Tab] key.	Moves to next field.	
<Shift+Tab> Previous Field	Press [Tab] key and [Shift] key simultaneously	Moves to previous field.	
<Esc> Cancel Dialog Box	Press [Esc] key.	Cancels the Dialog Box or returns to the previous menu.	

MultiChannel Configuration

(1) CNA firmware version: 4.1.*.* or 4.2.*.* (* is a number.)



Utility Name Area

Item	Expression	Explanation	Remarks
Controller number and port number	Example : Controller #0:0	Displays the controller number and port number that are selected.	
Utility Name	Example : Emulex PXESelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v4.1.334.2801	Displays the firmware version.	

MultiChannel Configuration Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Controller #x - Port #x : Bus xx Dev xx	Example : Controller #0 - Port #0 : Bus 0c Dev 00	Displays each number : Controller, Port, Bus, Device.	
Port Speed	Example : N/A / 1 Gbps / 10Gbps	Displays the link speed of the port.	
Physical Link Status	Example : Link UP / Link Down	Displays the link status of the physical port.	
PXE Boot Support	Choice :Enabled / Disabled Default : Disabled	Configure the PXE boot setting.	
Function #	Example : Func #0~3(MultiChannel Mode:Enabled: #0~3)	Displays the logical port number.	
Type	Example : NIC / iSCSI / FCoE	Displays the function name of the logical port.	
Admin Logical Link	Choice :Enabled / Disabled Default : Disabled	Configures the logical port.	
Bandwidth (1-100%)	Choice : 1 - 100% Default : 0%	Configures the bandwidth of logical port (PF). The sum of the percentage must be 100%.	
LPVID(2-4094)	Choice : 2 - 4094 Default : 0	Configure the VID of the logical port. The value must not be the same VID as other PF.	Type=NIC only.
MAC Address	Example : 00-00-c9-db-56-4c	Displays the MAC address.	
Logical Link Status	Example : N/A / Link Down / Link UP	Displays the link status of the logical port.	

SR-IOV	Example : Disabled	Displays the SR-IOV setting.	
Configure PXE VLAN ID/Priority	-	-	Not supported
Port Identification	-	-	Not supported
Save	-	Saves the configuration.	
Erase Configuration	-	Erases the configuration.	

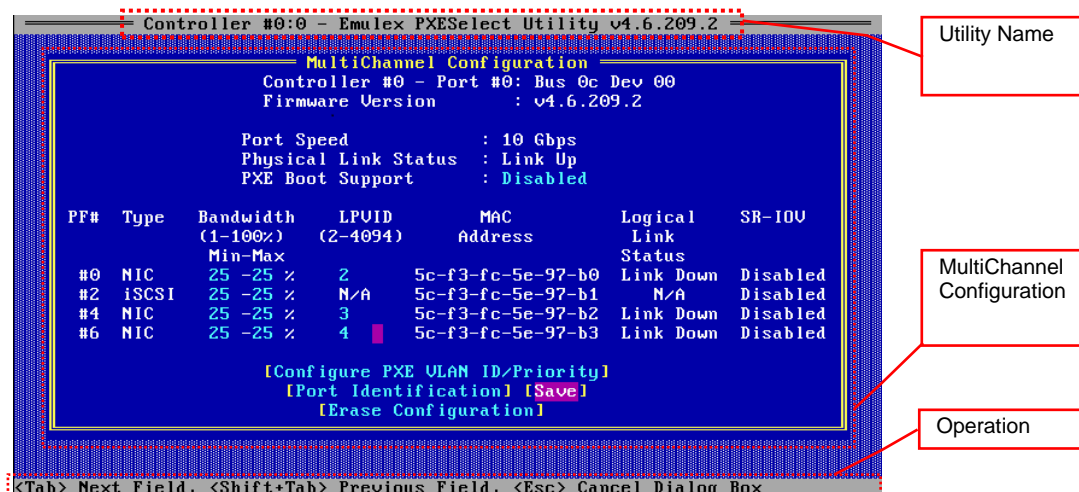
Operation Area

Item	Operation	Explanation	Remarks
<Tab> Next Field	Press [Tab] key.	Moves to next field.	
<Shift+Tab> Previous Field	Press [Tab] key and [Shift] key simultaneously	Moves to previous field.	
<Esc> Cancel Dialog Box	Press [Esc] key.	Cancels the Dialog Box or returns to the previous menu.	



Data is not transferred when the value of Bandwidth is 0%. Even if the value of Bandwidth is 0%, the logical port is still recognized on the OS.

(2) CNA firmware version: 4.6.*.* or 10.*.*.* (* is a number.)



Utility Name Area

Item	Expression	Explanation	Remarks
Controller number and port number	Example : Controller #0:0	Displays the controller number and port number that are selected.	
Utility Name	Example : Emulex PXESelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v4.6.209.2	Displays the firmware version.	

MultiChannel Configuration Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Controller #x - Port #x : Bus xx Dev xx	Example : Controller #0 - Port #0 : Bus 0c Dev 00	Displays each number : Controller, Port, Bus, Device.	
Port Speed	Example : N/A / 1 Gbps / 10Gbps	Displays the link speed of the port.	
Firmware Version	Example : v4.6.209.2	Displays the firmware version.	
Physical Link Status	Example : Link UP / Link Down	Displays the link status of the physical port.	
PXE Boot Support	Choice :Enabled / Disabled Default : Disabled	Configures the PXE boot setting.	
PF #	Example : Func #0~6(MultiChannel Mode:Enabled: #0~6)	Displays the logical port number.	
Type	Example : NIC / iSCSI / FCoE	Displays the function name of the logical port.	
Bandwidth (1-100%) (FW4.6.*.*) or BW Min-Max (0-100%) (FW10.*.*)	Choice : 1 - 100% Default : 0%	Configures the bandwidth of logical port (PF). The sum of the percentage must be 100% Set the same value to "Min" and "Max".	
LPVID(2-4094)	Choice : 2 - 4094 Default : 0	Configure the VID of the logical port. The value must not be the same VID as other PF.	Type=NIC only.
MAC Address	Example : 00-00-c9-db-56-4c	Displays the MAC address.	
Logical Link Status	Example : N/A / Link Down / Link UP	Displays the link status of the logical port.	

SR-IOV	Example : Disabled	SR-IOV support can only be enabled if multichannel support is disabled.	
Configure PXE VLAN ID/Priority	-	-	Not supported
Port Identification	-	-	Not supported
Save	-	Saves the configuration.	
Erase Configuration	-	Erases the configuration.	

Operation Area

Item	Operation	Explanation	Remarks
<Tab> Next Field	Press [Tab] key.	Moves to next field.	
<Shift+Tab> Previous Field	Press [Tab] key and [Shift] key simultaneously	Moves to previous field.	
<Esc> Cancel Dialog Box	Press [Esc] key.	Cancels the Dialog Box or returns to the previous menu.	

(3) CNA firmware version: 11.*.*.* (* is a number.)

Controller #0:0 - Emulex PXESelect Utility v11.1.215.0

MultiChannel Configuration

Controller #0 - Port #0: Bus 0c Dev 00
 Firmware Version : v11.1.215.0
 Port Speed : 10 Gbps
 Physical Link Status : Link Up
 PXE Boot Support : Enabled

PF#	Protocol	BW Min-Max (0-100%)	LPUID (2-4094)	MAC Address	Logical Link Status	SR-IOV
# 0	NIC	0 - 0 %	0	00-1f-67-53-34-70	Link Up	Disabled
# 2	NIC	0 - 0 %	0	00-1f-67-53-34-71	Link Down	Disabled
# 4	NIC	0 - 0 %	0	00-1f-67-53-34-72	Link Down	Disabled
# 6	NIC	0 - 0 %	0	00-1f-67-53-34-73	Link Down	Disabled

[Port Identification] [Save]
 [Erase Configuration]

<Tab> Next Field, <Shift+Tab> Previous Field, <Esc> Cancel Dialog Box

Utility Name Area

Item	Expression	Explanation	Remarks
Controller number and port number	Example : Controller #0:0	Displays the controller number and port number that are selected.	
Utility Name	Example : Emulex PXESelect Utility	Displays the utility name that is running.	
Firmware version	Example : v11.1.215.0	Displays the firmware version.	

MultiChannel Configuration Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Controller #x - Port #x : Bus xx Dev xx	Example : Controller #0 - Port #0 : Bus 0c Dev 00	Displays each number : Controller, Port, Bus, Device.	
Firmware Version	Example : v11.1.215.0	Displays the firmware version.	
Port Speed	Example : N/A / 1 Gbps / 10Gbps	Displays the link speed of the port.	

Physical Link Status	Example : Link UP / Link Down	Displays the link status of the physical port.	
PXE Boot Support	Choice : Enabled / Disabled Default : Disabled	Configures the PXE boot setting.	
PF#	Example : PF#0-6	Displays the logical port number.	
Protocol	Example : NIC / iSCSI / FCoE	Displays the function name of the logical port.	
BW Min-Max (0-100%)	Choice : 1 - 100% Default : 0%	Configures the bandwidth of logical port (PF). The sum of the percentage must be 100%. Set the same value to "Min" and "Max".	
LPVID(2-4094)	Choice : 2 - 4094 Default : 0	Configure the VID of the logical port. The value must not be the same VID as other PF.	Type=NIC only.
MAC Address	Example : 00-00-c9-db-56-4c	Displays the MAC address.	
Logical Link Status	Example : N/A / Link Down / Link UP	Displays the link status of the logical port.	
SR-IOV	Example : Disabled	SR-IOV support can only be enabled if multichannel support is disabled.	
Port Identification	-	-	Not supported
Save	-	Saves the configuration.	
Erase Configuration	-	Erases the configuration.	

Operation Area

Item	Operation	Explanation	Remarks
<Tab> Next Field	Press [Tab] key.	Moves to next field.	
<Shift+Tab> Previous Field	Press [Tab] key and [Shift] key simultaneously	Moves to previous field.	
<Esc> Cancel Dialog Box	Press [Esc] key.	Cancels the Dialog Box or returns to the previous menu.	



To disable the transfer of PF#, the values of Min and Max have to be set as 0%. Even if these values are 0%, the driver on the OS still recognizes the logical port.

3.1.2 Emulex iSCSISelect Utility

This utility is used for onboard CNA, CNA expansion card and CNA board. To open this utility, configure iSCSI personality with Emulex PXESelect Utility.



- iSCSI is not supported on RHEL6.7 or later, RHEL7.1 or later, Windows Server 2016 or later, VMware6.0 U3 or later and VMware6.5 or later.

(1) Emulex iSCSISelect Utility functions

The main functions of Emulex iSCSISelect Utility are listed below.

No.	Functions	Explanation
1	Configuring iSCSI initiator	Configuring the iSCSI initiator name, network address etc.
2	Configuring iSCSI target	Configuring the boot device and data device.

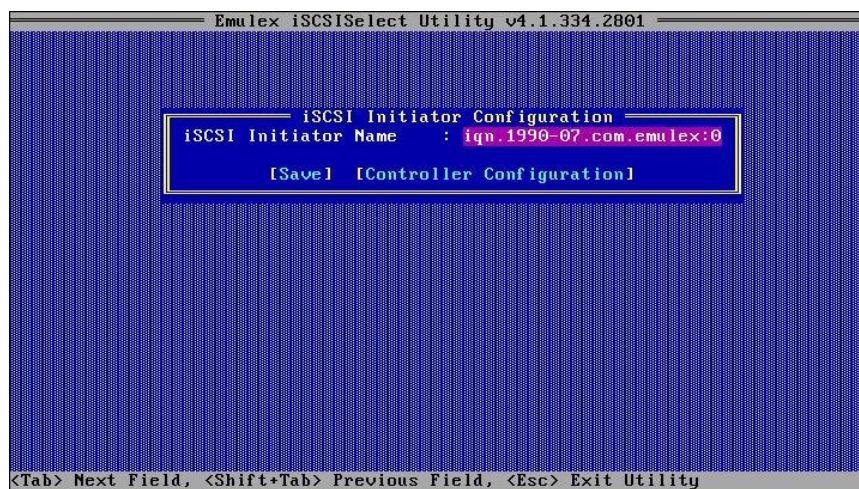
(2) Booting Emulex iSCSISelect Utility

1. Turn on the remote console, then click **Power - Power On** in tool bar of the remote console to turn on the system.
2. When **Press <Ctrl> <S> for iSCSISelect(TM) Utility** appears during startup of the system, press <Ctrl> and <S> simultaneously.

```
Emulex 10Gb iSCSI Initiator BIOS v4.1.334.2801
(c) 2005-2012 Emulex Corporation. All Rights Reserved.
(c) 1998-2005 Adaptec, Inc. All Rights Reserved.

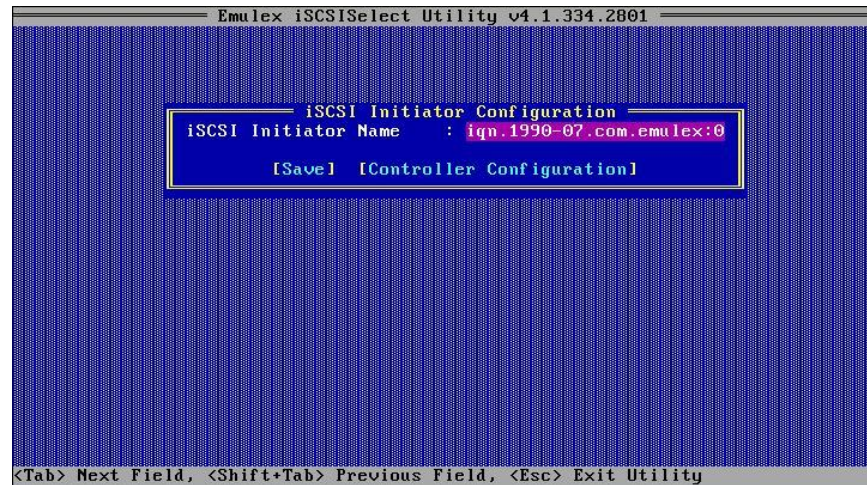
<<< Press <Ctrl><S> for iSCSISelect(TM) Utility >>>
```

3. When iSCSISelect Utility opens, the following screen is displayed.



(3) Exiting Emulex iSCSISelect Utility

1. Press <Esc> key on the **iSCSI Initiator Configuration** screen.



2. When the message **Do you want to exit from the utility [Y/N]?** is displayed, press<Y>key.
3. In the case that the configuration is changed, the system reboots. Or in the case that the configuration is not changed, the system continues booting.

(4) Operating the Emulex iSCSISelect Utility menu

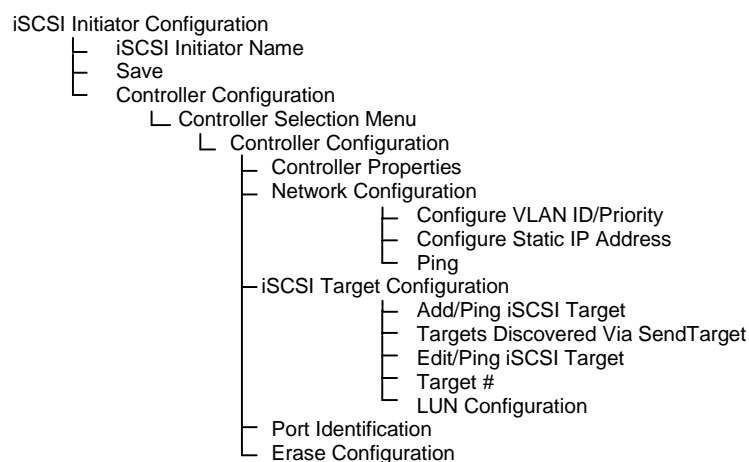
The operation and keys to use are displayed on the lower part of the screen for each menu.

The basic keys for operation of the utility are as follows.

- arrow key : used to select an item or value.
- <tab> key : used to select an item.
- <Enter> key : used to decide an item or a value to set.
- number key : used to input a value to set

(5) Emulex iSCSISelect Utility menu tree

Emulex iSCSISelect Utility menu tree is as follows.

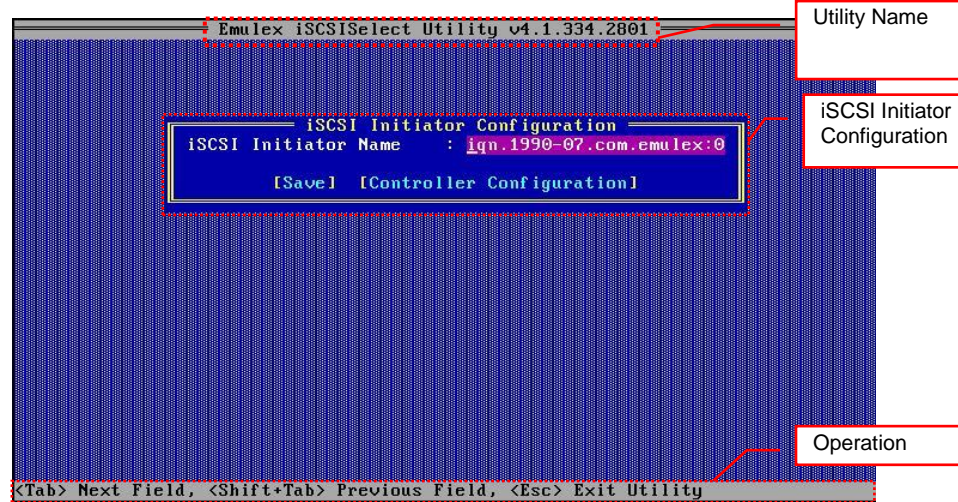


Each menu item is explained below.

Item		Explanation	Remarks
iSCSI Initiator Configuration	iSCSI Initiator Name	Displays the iSCSI initiator Name.	
	Save	Saves the configuration.	
	Controller Configuration	Displays Controller Selection menu.	
Controller Selection Menu		Selects the controller and port.	
Controller Configuration	Controller Properties	Displays and configures the controller information.	
	Network Configuration	Displays and configures the network information.	
	Configure VLAN ID/Priority	Configures VLAN.	
	Configure Static IP Address	Configures IP address.	
	Ping (Ping Target)	Confirms the network settings.	
	iSCSI Target Configuration	Configures iSCSI target.	
	Add/Ping iSCSI Target	Configures iSCSI target, confirms the network settings.	
	Targets Discovered Via SendTarget	Displays iSCSI target, connecting, and disconnecting.	
	Edit/Ping iSCSI Target	Configures iSCSI target, confirms the network settings.	
	Target #	Displays iSCSI target.	
	LUN Configuration	Displays the LUN configuration.	
	Port Identification	-	Not supported
	Erase Configuration	Erases the configuration.	

(6) Emulex iSCSISelect Utility Menu Screens

iSCSI Initiator Configuration



Utility Name Area

Item	Expression	Explanation	Remarks
Utility Name	Example : Emulex iSCSISelect Utility	Displays the utility name.	
Firmware version	Example : v4.1.334.2801	Displays the firmware version.	

iSCSI Initiator Configuration Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
iSCSI Initiator Name	Default : iqn.1990-07.com.emulex:xx-xx-xx-xx-xx-xx (xx-xx-xx-xx-xx-xx :MAC address)	Displays iSCSI initiator Name.	
Save	-	Saves the configuration.	
Controller Configuration	Move the cursor to this itemr and press [Enter] key. "Controller Selection Menu" screen is displayed.	Displays "Controller Selection Menu" screen.	

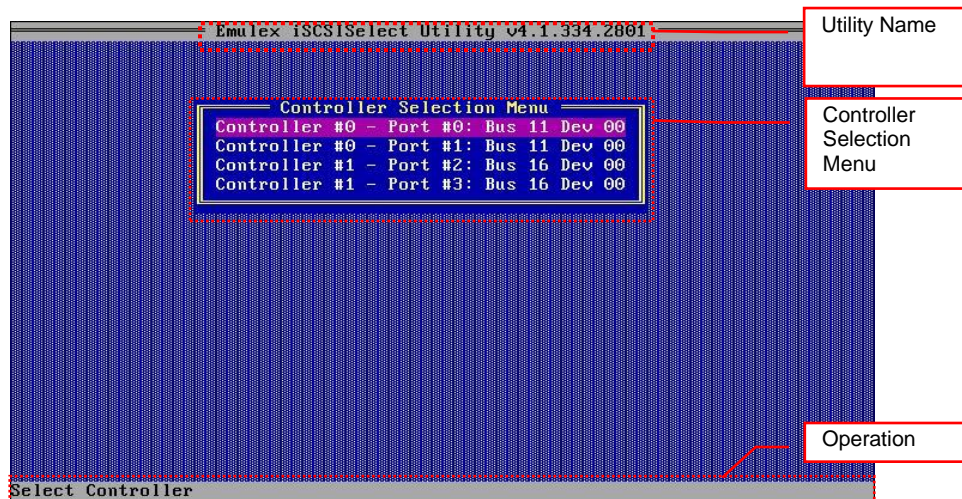
Operation Area (CNA firmware is 10.2.*.* or lower)

Item	Operation	Explanation	Remarks
<Tab> Next Field	Press [Tab] key.	Moves to next field.	
<Shift+Tab> Previous Field	Press [Tab] key and [Shift] key simultaneously	Moves to previous field.	
<Esc> to Exit Utility	Press [Esc] key.	Exits the utility.	

Operation Area (CNA firmware is 10.6.*.*)

Item	Operation	Explanation	Remarks
<↑↓> Move Cursor	Press [↑↓] key.	Moves the cursor.	
<Enter> Select	Press [Enter] key	Selects the item.	
<Esc> Exit	Press [Esc] key.	Returns to the previous menu.	

Controller Selection Menu



Utility Name Area

Item	Expression	Explanation	Remarks
Utility Name	Example : Emulex iSCSISelect Utility	Displays the utility name.	
Firmware version	Example : v4.1.334.2801	Displays the firmware version.	

Controller Selection Menu Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Select the controller and port to be configured.	Move the cursor to the controller - port and press [Enter] key. "Controller Configuration" screen is displayed.	The controllers and ports are listed. Select the controller -port to be configured. Example : Controller #0 - Port #0 : Bus 11 Device 00	

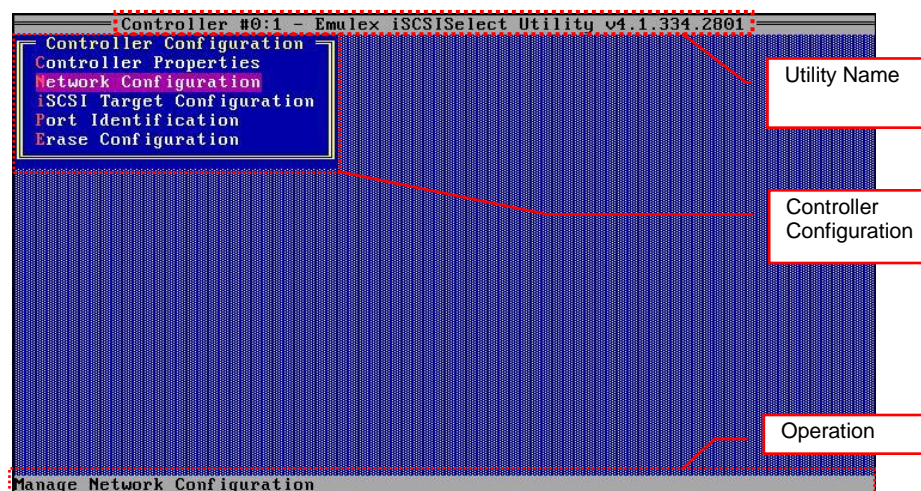
Operation Area (CNA firmware is 10.2.*.* or lower)

Item	Operation	Explanation	Remarks
Select Controller	Press arrow key and press [Enter].	Select the controller and port to be configured.	
<Esc>	Press [Esc] key.	Returns to the previous menu.	

Operation Area (CNA firmware is 10.6.*.*)

Item	Operation	Explanation	Remarks
<↑↓> Move Cursor	Press [↑ ↓] key.	Moves the cursor.	
<Enter> Select	Press [Enter] key	Selects the.item.	
<Esc> Back	Press [Esc] key.	Returns to the previous menu.	

Controller Configuration



Utility Name Area

Item	Expression	Explanation	Remarks
Controller number and port number	Example : Controller #0:1	Displays the controller number and port number that are selected.	
Utility Name	Example : Emulex iSCSISelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v4.1.334.2801	Displays the firmware version.	

Controller Configuration Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Controller Properties	Moves the cursor to select this item, press [Enter] key. "Controller properties" screen is displayed.	Configures the controller.	
Network Configuration (10.2.*.* or lower) or Network Properties (10.6.*.*)	Moves the cursor to select this item, press [Enter] key. "Network Configuration" screen is displayed.	Configures the network.	
iSCSI Target Configuration	Moves the cursor to select this item, press [Enter] key. "iSCSI Target Configuration" screen is displayed.	Configures the iSCSI target.	
Port Identification	-	-	Not supported
Erase Configuration	-	Erases the configuration.	

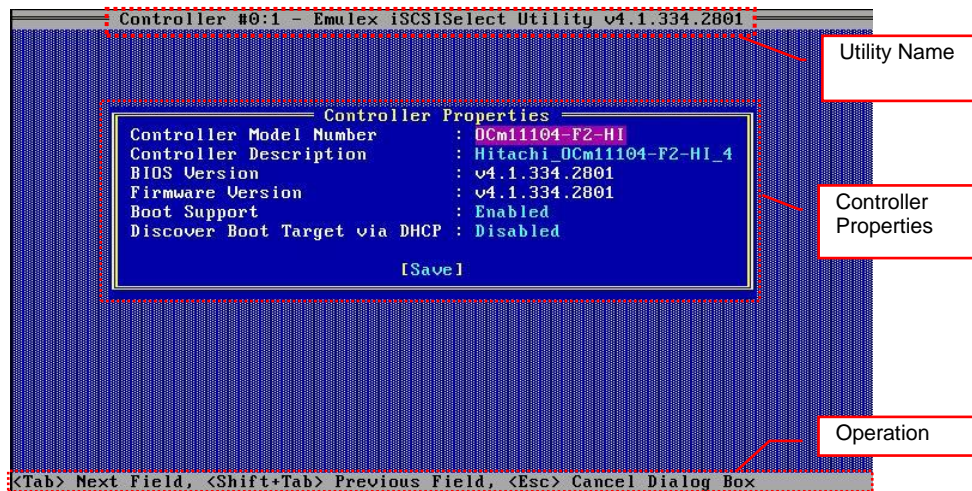
Operation Area (CNA firmware is 10.2.*.* or lower)

Item	Operation	Explanation	Remarks
Manage Network Configuration (4.*.*.) or Display Controller Properties (10.2.*.*)	Press arrow key and press [Enter].	Select the controller and port to be configured.	
<Esc>	Press [Enter] key.	Returns to the previous menu.	

Operation Area (CNA firmware is 10.6.*.*)

Item	Operation	Explanation	Remarks
<↑↓> Move Cursor	Press [↑ ↓] key.	Moves the cursor.	
<Enter> Select	Press [Enter] key	Selects the item.	
<Esc> Back	Press [Esc] key.	Returns to the previous menu.	

Controller Properties



Utility Name Area

Item	Expression	Explanation	Remarks
Controller number	Example : Controller #0	Displays the controller number that is selected.	
Utility Name	Example : Emulex PXESelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v4.1.334.2801	Displays the firmware version.	

Controller Properties Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Controller Model Number	Example(CNA expansion card) : OCm11104-F2-HI	Displays the controller model name.	
Controller Description	Example(CNA expansion card) : Hitachi_OCm11104-F2-HI_4port_10Gbps_Converged_Network_Mezzanin	Displays the controller model name.	
BIOS Version	Example : v4.1.334.2801	Displays the BIOS version.	
Firmware Version	Example : v4.1.334.2801	Displays the firmware version.	
Boot Support	Choice : Enabled / Disabled Default : Disabled	Configures the boot device.	
Discover Boot Target via DHCP	-	-	Not supported
Save	-	Saves the configuration.	

Operation Area (CNA firmware is 10.2.*.* or lower)

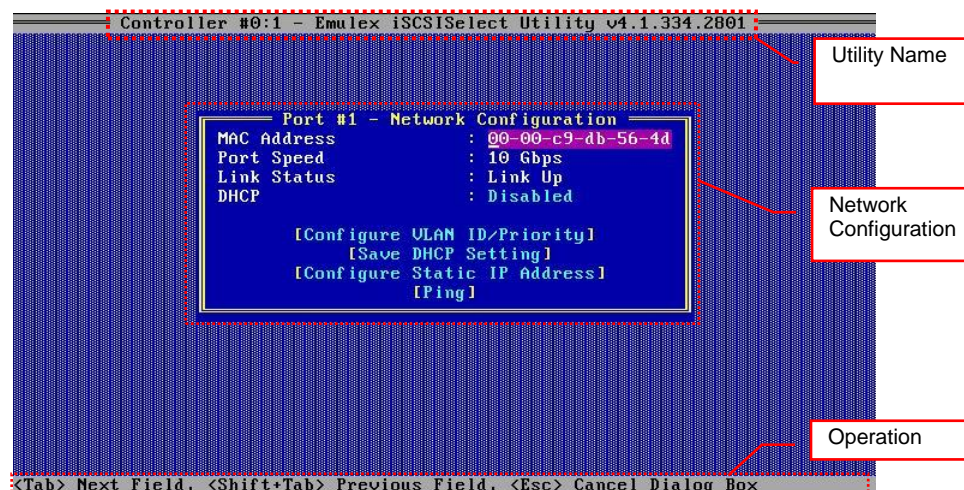
Item	Operation	Explanation	Remarks
<Tab> Next Field	Press [Tab] key.	Moves to next field.	
<Shift+Tab> Previous Field	Press [Tab] key and [Shift] key simultaneously	Moves to previous field.	
<Esc> Cancel Dialog Box	Press [Esc] key.	Cancels the Dialog Box or returns to the previous menu.	

Operation Area (CNA firmware is 10.6.*.*)

Item	Operation	Explanation	Remarks
<↑↓> Move Cursor	Press [↑ ↓] key.	Moves the cursor.	

<Enter> Select	Press [Enter] key	Selects the item.	
<Esc> Back	Press [Esc] key.	Returns to the previous menu.	

Network Configuration (CNA firmware 10.2.*.* or lower) (* is a number.)



Utility Name Area

Item	Expression	Explanation	Remarks
Controller number and port number	Example : Controller #0:0	Displays the controller number and port number that are selected.	
Utility Name	Example : Emulex iSCSISelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v4.1.334.2801	Displays the firmware version.	

Network Configuration Area

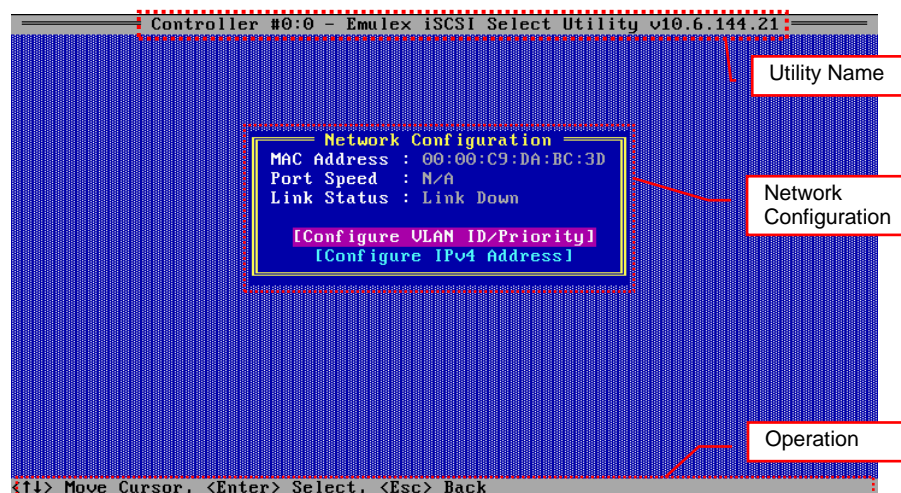
Item	Configuration/ Select menu / Expression	Explanation	Remarks
MAC Address	Example : 00-00-c9-db-56-4d	Displays the MAC address.	
Port Speed	Example : N/A / 1 Gbps / 10Gbps	Displays the port link speed.	
Link Status	Example : Link UP / Link Down	Displays the link status.	
DHCP	-	-	Not supported
Configure VLAN ID/Priority	-	-	Not supported
Save DHCP Setting	-	Saves the settings.	
Configure Static IP Address	Move the cursor to this item and press [Enter] key. "Static IP Address" screen is displayed..	Configures the IP address.	
Ping	Move the cursor to this item and press [Enter] key. "Ping Target" screen is displayed.	Executes the Ping test.	

Operation Area

Item	Operation	Explanation	Remarks
<Tab> Next Field	Press [Tab] key.	Moves to next field.	

<Shift+Tab> Previous Field	Press [Tab] key and [Shift] key simultaneously	Moves to previous field.	
<Esc> Cancel Dialog Box	Press [Esc] key.	Cancels the Dialog Box or returns to the previous menu.	

Network Configuration (CNA firmware 10.6.*.*) (* is a number.)



Utility Name Area

Item	Expression	Explanation	Remarks
Controller number and port number	Example : Controller #0:0	Displays the controller number and port number that are selected.	
Utility Name	Example : Emulex iSCSISelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v10.6.144.21	Displays the firmware version.	

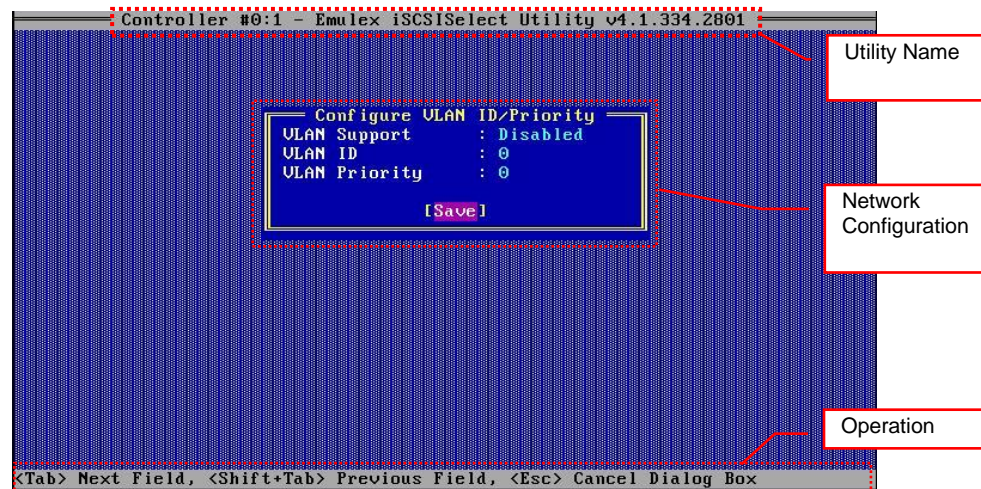
Network Configuration Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
MAC Address	Example : 00-00-c9-db-56-4d	Displays the MAC address.	
Port Speed	Example : N/A / 1 Gbps / 10Gbps	Displays the port link speed.	
Link Status	Example : Link UP / Link Down	Displays the link status.	
Configure VLAN ID/Priority	-	-	Not supported
Configure IPv4 Address	Move the cursor to this item and press [Enter] key. "Configure IPv4 Address" screen is displayed.	Configures IPv4 address.	

Operation Area

Item	Operation	Explanation	Remarks
<↑↓> Move Cursor	Press [↑ ↓] key.	Moves the cursor.	
<Enter> Select	Press [Enter] key	Selects the item.	
<Esc> Back	Press [Esc] key.	Returns to the previous menu.	

Configure VLAN ID/Priority (Not supported)



Utility Name Area

Item	Expression	Explanation	Remarks
Controller number	Example : Controller #0	Displays the controller number that is selected.	
Utility Name	Example : Emulex PXESelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v4.1.334.2801	Displays the firmware version.	

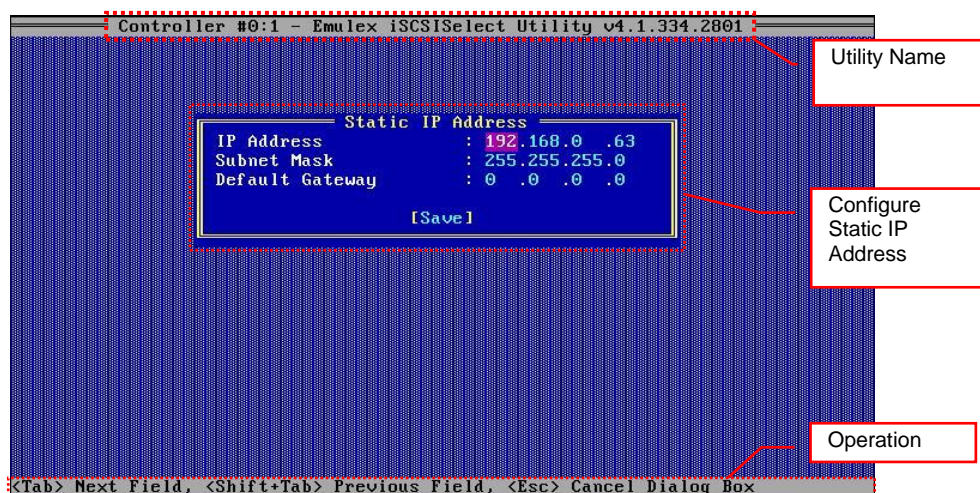
Configure VLAN ID/Priority Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
VLAN Support	-	-	Not supported
VLAN ID	-	-	Not supported
VLAN Priority	-	-	Not supported
Save	-	-	Not supported

Operation Area

Item	Operation	Explanation	Remarks
<Tab> Next Field	Press [Tab] key.	Moves to next field.	
<Shift+Tab> Previous Field	Press [Tab] key and [Shift] key simultaneously	Moves to previous field.	
<Esc> Cancel Dialog Box	Press [Esc] key.	Cancels the Dialog Box or returns to the previous menu.	

Configure Static IP Address (CNA firmware 10.2.*.* or lower) (* is a number.)



Utility Name Area

e	Expression	Explanation	Remarks
Controller number and port number	Example : Controller #0:0	Displays the controller number and port number that are selected.	
Utility Name	Example : Emulex PXESelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v4.1.334.2801	Displays the firmware version.	

Configure Static IP Address Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
IP Address	Choice : 0 - 255 Default : 0	Configures the IP address.	
Subnet Mask	Choice : 0 - 255 Default : 0	Configures the subnet mask.	
Default Gateway	-	-	Not supported
Save	-	Saves the configuration.	

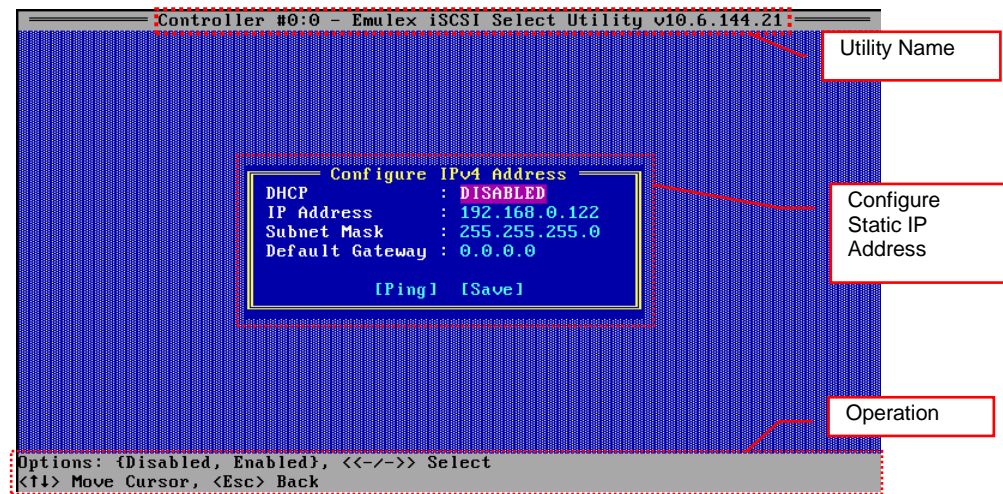
Operation Area

Item	Operation	Explanation	Remarks
<Tab> Next Field	Press [Tab] key.	Moves to next field.	
<Shift+Tab> Previous Field	Press [Tab] key and [Shift] key simultaneously	Moves to previous field.	
<Esc> Cancel Dialog Box	Press [Esc] key.	Cancels the Dialog Box or returns to the previous menu.	



- [Default Gateway] item is not supported. Do not configure this item.

Configure IPv4 Address (CNA firmware 10.6.*.*) (* is a number.)



Utility Name Area

e	Expression	Explanation	Remarks
Controller number and port number	Example : Controller #0:0	Displays the controller number and port number that are selected.	
Utility Name	Example : Emulex PXESelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v10.6.144.21	Displays the firmware version.	

Configure IPv4 Address Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
DHCP	ENABLED / DISABLED	Configures DHCP enable or disable.	
IP Address	Choice : 0 - 255 Default : 0	Configures the IP address.	
Subnet Mask	Choice : 0 - 255 Default : 0	Configures the subnet mask.	
Default Gateway	-	-	Not supported
Ping	-	Execute Pinging.	
Save	-	Saves the configuration.	

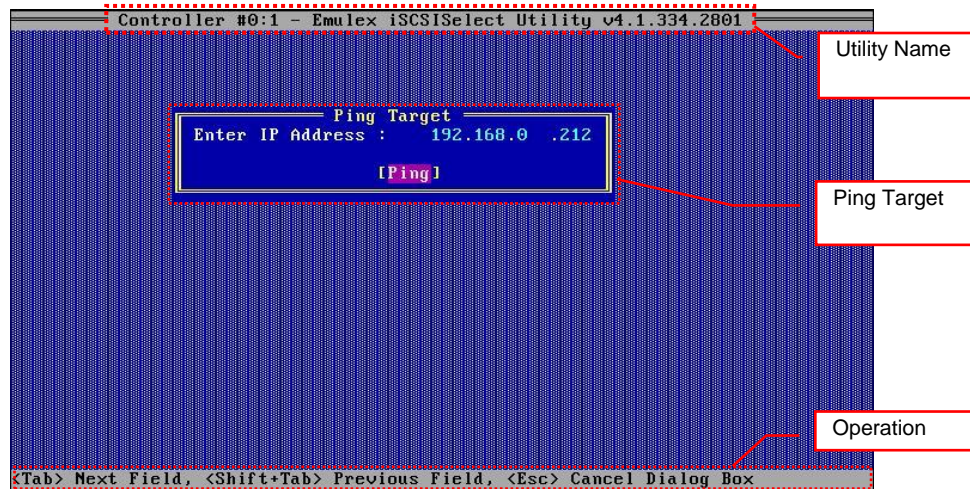
Operation Area

Item	Operation	Explanation	Remarks
Options: {Disabled, Enabled}	Press [Alt] key.	Presses [Alt] key when cursor is on the DHCP position, selects DHCP enable or disable.	
<<-/->> Select	Press [←/→] key	Selects the item.	
<↑↓> Move Cursor	Press [↑ ↓] key.	Moves the cursor.	
<Esc> Back	Press [Esc] key.	Returns to the previous menu.	



- [Default Gateway] item is not supported. Do not configure this item.

Ping Target (CNA firmware 10.2.*.* or lower) (* is a number.)



Utility Name Area

Item	Expression	Explanation	Remarks
Controller number and port number	Example : Controller #0:0	Displays the controller number and port number that are selected.	
Utility Name	Example : Emulex PXESelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v4.1.334.2801	Displays the firmware version.	

Ping Target Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Enter IP Address:	Choice : 0 - 255 Default : 0	Enter the Target IP Address.	
Ping	-	Execute pinging.	

Operation Area

Item	Operation	Explanation	Remarks
<Tab> Next Field	Press [Tab] key.	Moves to next field.	
<Shift+Tab> Previous Field	Press [Tab] key and [Shift] key simultaneously	Moves to previous field.	
<Esc> Cancel Dialog Box	Press [Esc] key.	Cancels the Dialog Box or returns to the previous menu.	

If the ping is successful, **PASS** is displayed.

Ping Target				
S.No	IP Address	Resp.Time	Result	
0	192.168. 0.212	10 ms	PASS	
1	192.168. 0.212	10 ms	PASS	
2	192.168. 0.212	10 ms	PASS	
3	192.168. 0.212	10 ms	PASS	

If the ping is not successful, **FAILED** is displayed.

Ping Target				
S.No	IP Address	Resp.Time	Result	
0	192.168. 1.212	0 ms	FAILED	
1	192.168. 1.212	0 ms	FAILED	
2	192.168. 1.212	0 ms	FAILED	
3	192.168. 1.212	0 ms	FAILED	

iSCSI Target Configuration

Utility Name Area

Item	Expression	Explanation	Remarks
Controller number and port number	Example : Controller #0:0	Displays the controller number and port number that are selected.	
Utility Name	Example : Emulex iSCSISelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v4.1.334.2801	Displays the firmware version.	

iSCSI Target Configuration Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
[Add New iSCSI Target]	Move the cursor to this item and press [Enter] key. "Add/Ping iSCSI Target" screen is displayed.	Registers iSCSI Target.	
Registered Target	Move the cursor to this item and press [Enter] key. You log in the target, and "Edit/Ping iSCSI Target" screen is displayed..	Displays the registered target. Log in the target.	
#	Example : 001	Displays the target number.	
Target Name	Example : iqn.199404.jp.co.hitachi:rsd.d8m.t.10 098.0a035	Displays the target name.	
IP Version	Example : IPv4	Displays the IP version.	
IP Address	Example : 192.168.0.212	Displays the IP address.	
TCP Port	Example : 3260	Displays the TCP port.	
OneConnect Port	Example : 1	Displays the port number.	
Boot Target	Example : yes : Boot device No : Not Boot device	Displays the Boot device.	
Connection Status	Example : Connected Disconnected	Displays the connection status.	

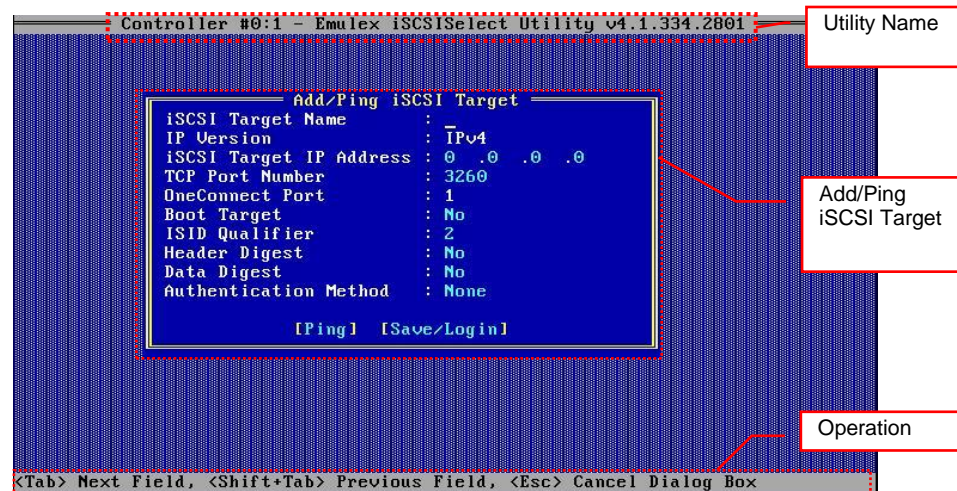
Operation Area (CNA firmware is 10.2.*.* or lower)

Item	Operation	Explanation	Remarks
<Enter> Target Configuration	Move the cursor to [Add New iSCSI Target] or registered target, and press [Enter] key.	Configures the target.	
 Delete Target	Move the cursor to the target to be deleted, press [DEL] key.	Deletes the registered target.	
<Esc> Previous Menu	Press [Esc] key.	Returns to the previous menu.	
F5 Login Target	Press F5 key.	[Connection Status] column is changed to [Connected].	
F6 Logout Target	Press F6 key.	[Connection Status] column is changed to [Disconnected].	
F7 LUN Configuration	Press F7 key.	Displays the LUN information.	

Operation Area (CNA firmware is 10.6.*.*)

Item	Operation	Explanation	Remarks
<↑↓> Move Cursor	Press [↑ ↓] key.	Moves the cursor.	
<Enter> Add Target	Press [Enter] key	Presses [Enter] key, which navigates you to the Add iSCSI IPv4 Target screen.	
<Esc> Back	Press [Esc] key.	Returns to the previous menu.	

Add/Ping iSCSI Target (CNA firmware 10.2.*.* or lower) (* is a number.)



Utility Name Area

item	Expression	Explanation	Remarks
Controller number and port number	Example : Controller #0:0	Displays the controller number and port number that are selected.	
Utility Name	Example : Emulex iSCSISelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v4.1.334.2801	Displays the firmware version.	

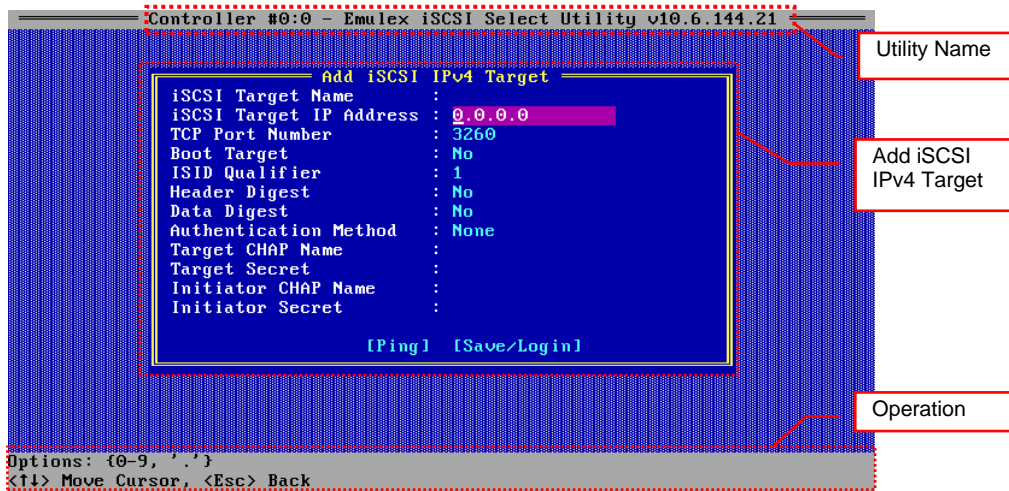
Add/Ping iSCSI Target Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
iSCSI Target Name	Default : (Space)	Input the iSCSI target name with alphanumeric character or symbols.	
IP Version	Example : IPv4	Displays the IP version.	
iSCSI Target IP Address	Choice : 0 - 255 Default : 0	Configure the IP address.	
TCP Port Number	Default : 3260	Configure the TCP port number.	
OneConnect Port	Example : 1	Displays the port number.	
Boot Target	Choice : Yes / No Default : No	Configures the Boot device and ,Data device.	
ISID Qualifier	-	-	Not supported
Header Digest	-	-	Not supported
Data Digest	-	-	Not supported
Authentication Method	-	-	Not supported
Ping	-	Execute Ping.	
Save/Login	Log in the target or displays "Targets Discovered Via SendTargets" screen.	Saves the configuration and log in the target.	

Operation Area

Item	Operation	Explanation	Remarks
<Tab> Next Field	Press [Tab] key.	Moves to next field.	
<Shift+Tab> Previous Field	Press [Tab] key and [Shift] key simultaneously	Moves to previous field.	
<Esc> Cancel Dialog Box	Press [Esc] key.	Cancels the Dialog Box or returns to the previous menu.	

Add iSCSI IPv4 Target (CNA firmware 10.6.*.*) (* is a number.)



Utility Name Area

item	Expression	Explanation	Remarks
Controller number and port number	Example : Controller #0:0	Displays the controller number and port number that are selected.	
Utility Name	Example : Emulex iSCSISelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v10.6.144.21	Displays the firmware version.	

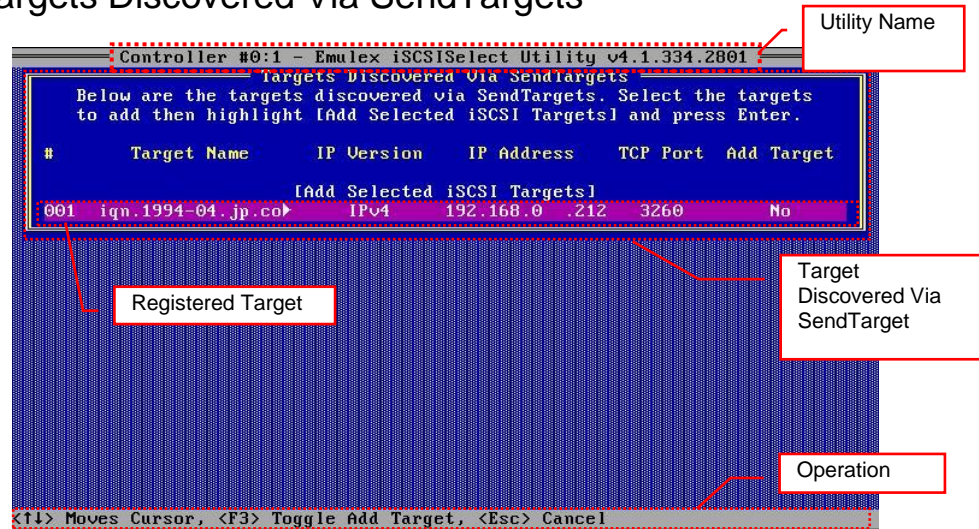
Add iSCSI IPv4 Target Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
iSCSI Target Name	Default : (Space)	Input the iSCSI target name with alphanumeric character or symbols.	
iSCSI Target IP Address	Choice : 0 - 255 Default : 0	Configure the IP address.	
TCP Port Number	Default : 3260	Configure the TCP port number.	
Boot Target	Choice : Yes / No Default : No	Configures the Boot device and ,Data device.	
ISID Qualifier	-	-	Not supported
Header Digest	-	-	Not supported
Data Digest	-	-	Not supported
Authentication Method	-	-	Not supported
Target CHAP Name	-	-	Not supported
Target Secret	-	-	Not supported
Initiator CHAP Name	-	-	Not supported
Initiator Secret	-	-	Not supported
Ping	-	Execute Ping.	
Save/Login	Log in the target or displays "Targets Discovered Via SendTargets" screen.	Saves the configuration and log in the target.	

Operation Area

Item	Operation	Explanation	Remarks
Options: {0-9, '.', ' '}	Press {0-9} ,or ' '	Moves to next field.	
<↑↓> Move Cursor	Press [↑ ↓] key.	Moves the cursor.	

Targets Discovered Via SendTargets



Utility Name Area

e	Expression	Explanation	Remarks
Controller number and port number	Example : Controller #0:0	Displays the controller number and port number that are selected.	
Utility Name	Example : Emulex iSCSISelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v4.1.334.2801	Displays the firmware version.	

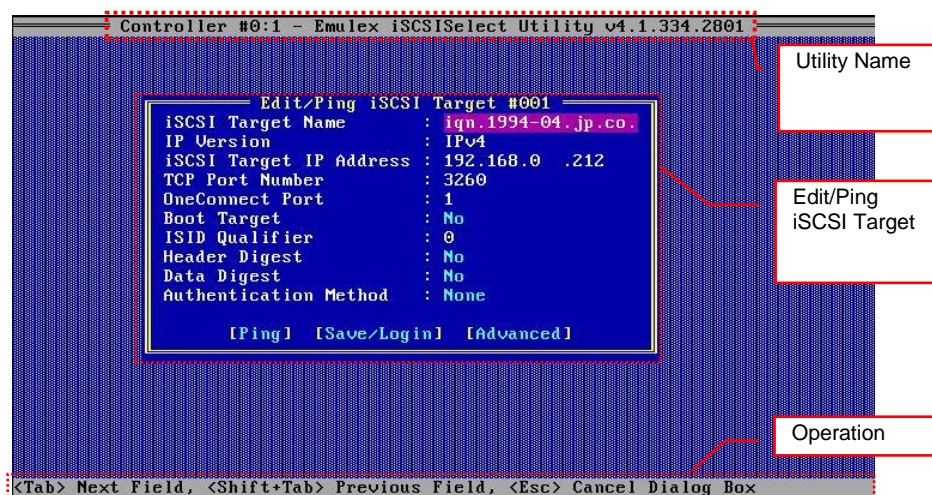
Target Discovered Via SendTarget Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Registered Target	Example : yes : connected No : disconnected	Displays the target list and [Add Target] status. [Add Target] status is changed with [F3] key.	
Add Selected iSCSI Target	Registers the target, and "iSCSI Target Configuration" screen is displayed.	Registers the iSCSI target. Move the cursor to this item and press [Enter] key.	
#	Example : 001	Displays the target number.	
Target Name	Example : iqn.1994-04.jp.co.hitachi:rsd.d8m.t.10098.0a035	Displays the target name.	
IP Version	Example : IPv4	IP version.	
IP Address	Example : 192.168.0.212	Displays the IP address.	
TCP Port	Example : 3260	Displays the TCP port.	
Add Target	Example : yes : connected No : disconnected	Displays the status of the target connection.	

Operation Area

Item	Operation	Explanation	Remarks
Moves Cursor	Press arrow key.	Moves the cursor.	
<F3> Toggle Add Target	Press [F3] key.	Changes [Add Target] status.	
<Esc> Cancel	Press [ESC] key.	Returns to the previous menu.	

Edit/Ping iSCSI Target # (CNA firmware 10.2.*.* or lower) (* is a number.)



Utility Name Area

Item	Expression	Explanation	Remarks
Controller number and port number	Example : Controller #0:0	Displays the controller number and port number that are selected.	
Utility Name	Example : Emulex iSCSISelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v4.1.334.2801	Displays the firmware version.	

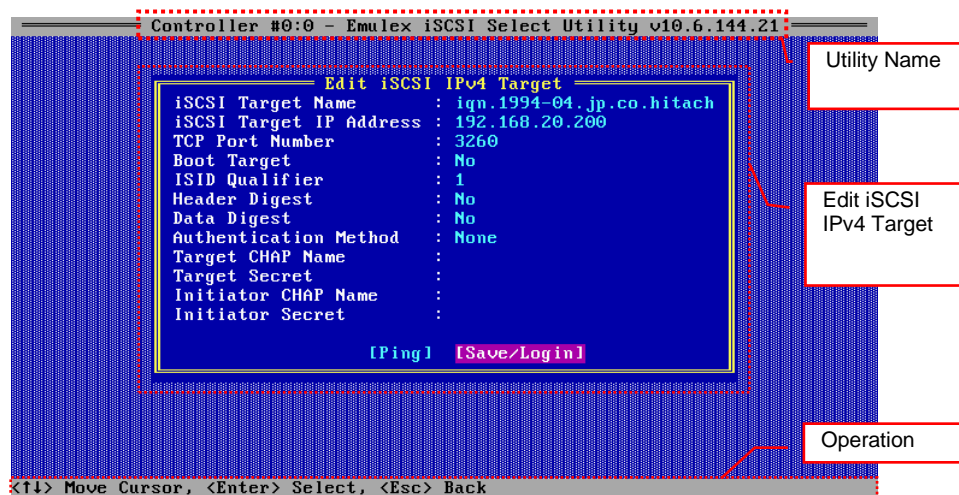
Edit/Ping iSCSI Target Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
iSCSI Target Name	Example : iqn.1994-04.jp.co.hitachi:rsd.d8m.t.10098.0a035	Input the iSCSI target name with alphanumeric character or symbols.	
IP Version	Example :IPv4	Displays the IP version.	
iSCSI Target IP Address	Example : 192.168.0.212	Displays the IP address.	
TCP Port Number	Example :3260	Displays TCP port number.	
OneConnect Port	Example : 1	Displays the port number.	
Boot Target	Choice : Yes / No Default : No	Configures the Boot device and ,Data device.	
ISID Qualifier	Example: 0	Displays ISID Qualifier.	
Header Digest	-	-	Not supported
Data Digest	-	-	Not supported
Authentication Method	-	-	Not supported
Ping	-	Execute Pinging.	
Save/Login	Logs in to the target.	Saves the configuration and log in the target.	
Advanced	Displays "Target #".	Displays the other information of the target.	

Operation Area

Item	Operation	Explanation	Remarks
<Tab> Next Field	Press [Tab] key.	Moves to next field.	
<Shift+Tab> Previous Field	Press [Tab] key and [Shift] key simultaneously	Moves to previous field.	
<Esc> Cancel Dialog Box	Press [Esc] key.	Cancels the Dialog Box or returns to the previous menu.	

Edit iSCSI IPv4 Target (CNA firmware 10.6.*.*) (* is a number.)



Utility Name Area

Item	Expression	Explanation	Remarks
Controller number and port number	Example : Controller #0:0	Displays the controller number and port number that are selected.	
Utility Name	Example : Emulex iSCSISelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v10.6.144.21	Displays the firmware version.	

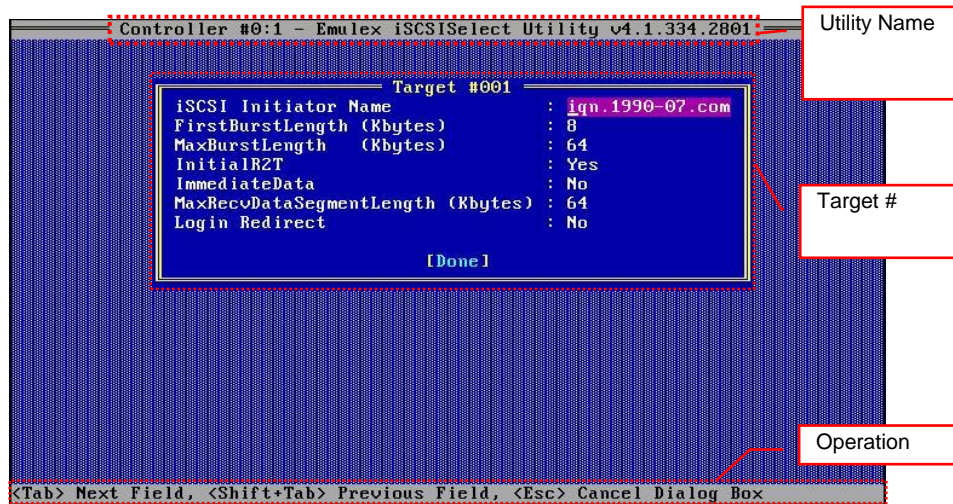
Edit/Ping iSCSI Target Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
iSCSI Target Name	Example : iqn.1994-04.jp.co.hitachi:rsd.d8m.t.10098.0a035	Input the iSCSI target name with alphanumeric character or symbols.	
iSCSI Target IP Address	Example : 192.168.0.212	Displays the IP address.	
TCP Port Number	Example :3260	Displays TCP port number.	
Boot Target	Choice : Yes / No Default : No	Configures the Boot device and ,Data device.	
ISID Qualifier	Example: 0	Displays ISID Qualifier.	
Header Digest	-	-	Not supported
Data Digest	-	-	Not supported
Authentication Method	-	-	Not supported
Target CHAP Name	-	-	Not supported
Target Secret	-	-	Not supported
Initiator CHAP Name	-	-	Not supported
Initiator Secret	-	-	Not supported
Ping	-	Execute Pinging.	
Save/Login	Logs in to the target.	Saves the configuration and log in the target.	

Operation Area

Item	Operation	Explanation	Remarks
<↑↓> Move Cursor	Press [↑ ↓] key.	Moves the cursor.	
<Enter> Select	Press [Enter] key	Selects the item.	
<Esc> Back	Press [Esc] key.	Returns to the previous menu.	

Target # (CNA firmware 10.2.*.* or lower) (* is a number.)



Utility Name Area

Item	Expression	Explanation	Remarks
Controller number and port number	Example : Controller #0:0	Displays the controller number and port number that are selected.	
Utility Name	Example : Emulex iSCSISelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v4.1.334.2801	Displays the firmware version.	

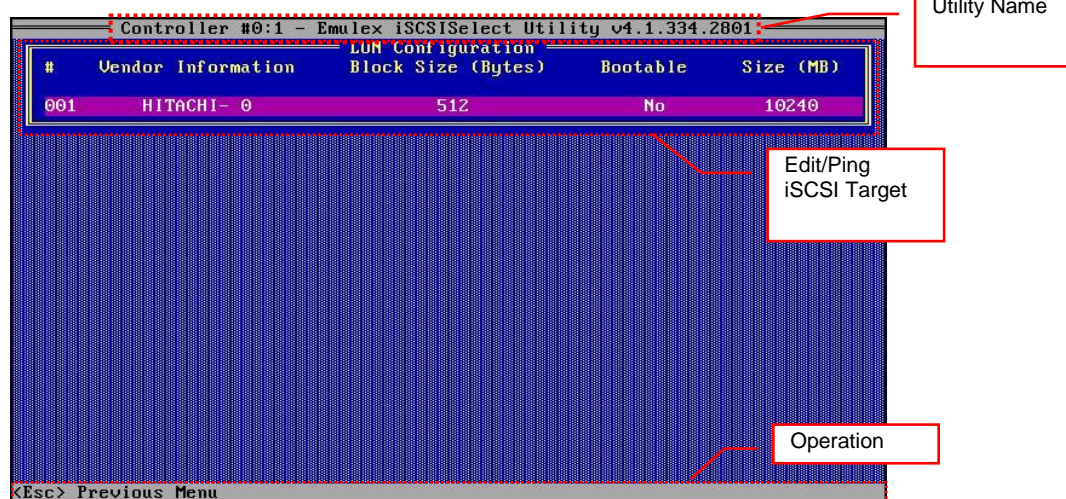
Target # Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
iSCSI Initiator Name	Example : iqn.1990-07.com.emulex:xx-xx-xx-xx-xx-xx (xx-xx-xx-xx-xx-xx :MAC address)	Displays iSCSI initiator name.	
First burst Length(Kbytes)	Example : 8	Displays First burst Length.	
MAX burst Length(Kbytes)	Example : 64	Displays MAX burst Length.	
InitialR2T	Example : Yes	Displays InitialR2T.	
ImmediateData	Example :No	Displays ImmediateData.	
MaxRecvData Segment Length(Kbytes)	Example :64	Displays MaxRecvData Segment Length.	
Login Redirect	Example : No	Displays Login Redirect.	
[Done]	-	Closes the menu.	

Operation Area

Item	Operation	Explanation	Remarks
<Tab> Next Field	Press [Tab] key.	Moves to next field.	
<Shift+Tab> Previous Field	Press [Tab] key and [Shift] key simultaneously	Moves to previous field.	
<Esc> Cancel Dialog Box	Press [Esc] key.	Cancel the Dialog Box or returns to the previous menu.	

LUN Configuration (CNA firmware 10.2.*.* or lower) (* is a number.)



Utility Name Area

item	Expression	Explanation	Remarks
Controller number and port number	Example : Controller #0:0	Displays the controller number and port number that are selected.	
Utility Name	Example : Emulex iSCSISelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v4.1.334.2801	Displays the firmware version.	

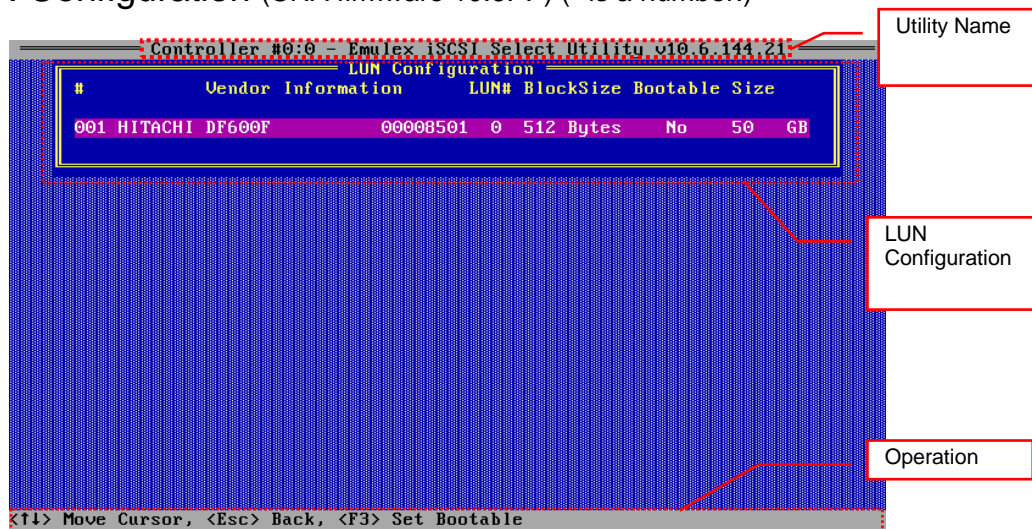
LUN Configuration Area

item	Expression	Explanation	Remarks
#	Example : 001	Displays the target number.	
Vendor Information	Example : HITACHI- 0	Displays the vendor information.	
Block Size (Bytes)	Example : 512	Displays the block size.	
Bootable	Example : No Yes : Boot No : Not Boot	Displays bootable or not.	
Size(MB)	Example :10240	Displays LU size.	

Operation Area

Item	Operation	Explanation	Remarks
<Esc> Previous Menu	Press [Esc] key.	Returns to the previous menu.	

LUN Configuration (CNA firmware 10.6.*.*) (* is a number.)



Utility Name Area

item	Expression	Explanation	Remarks
Controller number and port number	Example : Controller #0:0	Displays the controller number and port number that are selected.	
Utility Name	Example : Emulex iSCSISelect Utility	Displays the Utility name that is running.	
Firmware version	Example : v10.6.144.21	Displays the firmware version.	

LUN Configuration Area

item	Expression	Explanation	Remarks
#	Example : 001	Displays the target number.	
Vendor Information	Example : HITACHI DF600F 00008501	Displays the vendor information.	
LUN#	Example : 0	Displays the LUN number.	
Block Size (Bytes)	Example : 512	Displays the block size.	
Bootable	Example : No Yes : Boot No : Not Boot	Displays bootable or not.	
Size(MB)	Example :10240	Displays LU size.	

Operation Area

Item	Operation	Explanation	Remarks
<↑↓> Move Cursor	Press [↑ ↓] key.	Moves the cursor.	
<ESC> Back	Press [ESC] key	Returns to the previous menu.	
<F3> Set Bootable	Press [F3] key.	Select Yes/No for Bootable.	

3.2 Onboard CNA (UEFI on CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4)

3.2.1 Emulex UEFI Utility

(1) Emulex UEFI Utility functions

The main functions of Emulex UEFI Utility are listed below.

No.	Target	Explanation
1	Storage	Sets initiator name Sets the target name Sets the IP address
2	Network	Configures the enabled/disabled setting for PXE boot function per controller. Configures the personality per controller Displays controller No., port No., bus No., device No., port speed, physical link status.

(2) Opening Emulex UEFI Utility

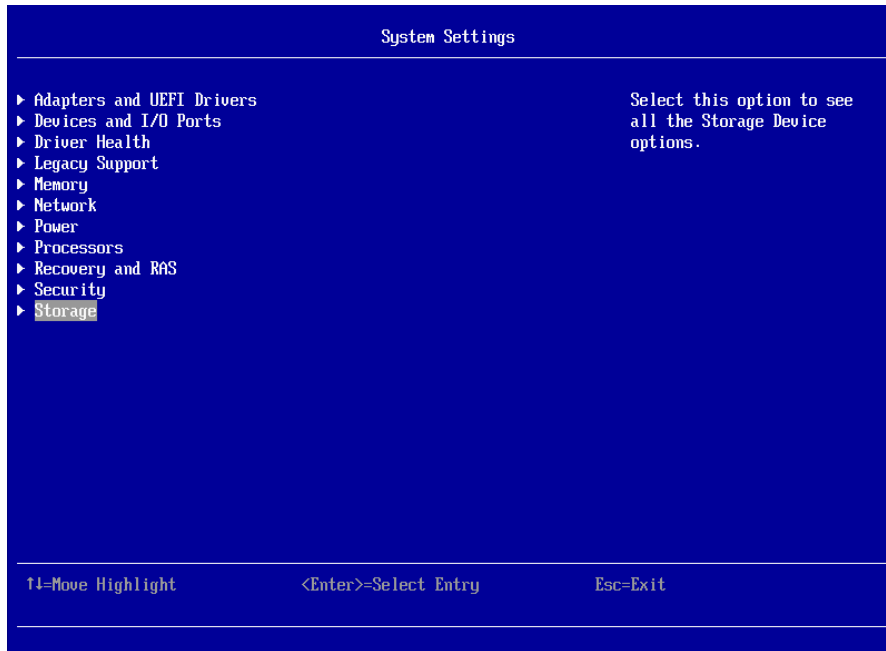
1. Turn on the remote console, then click **Power - Power On** in tool bar of the remote console to turn on the system.
2. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



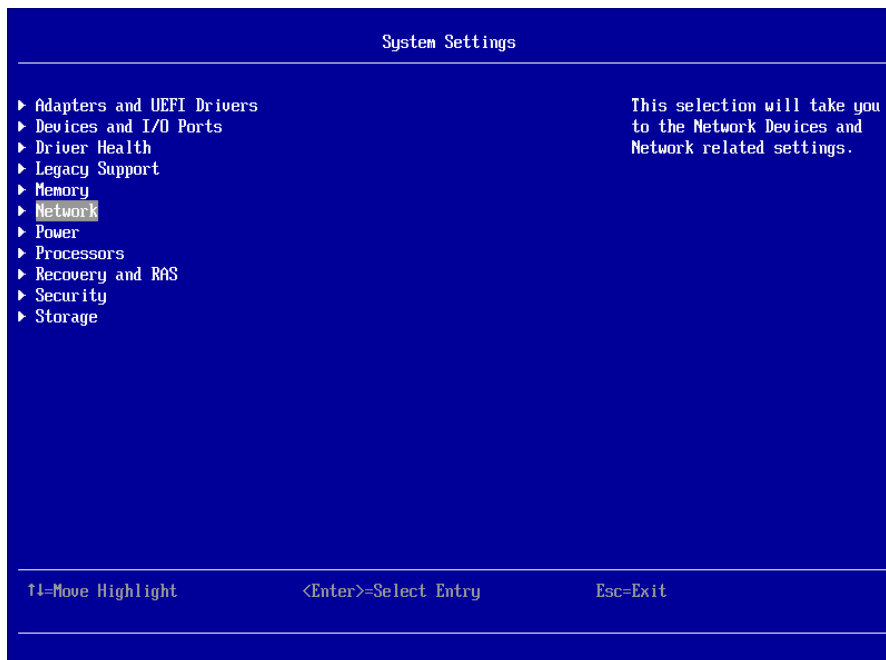
3. **System Configuration and Boot Management** screen opens, and select **System Settings** and press <Enter>.



4. When using storage function (iSCSI, FCoE), move the cursor to **Storage** and press <Enter> key.

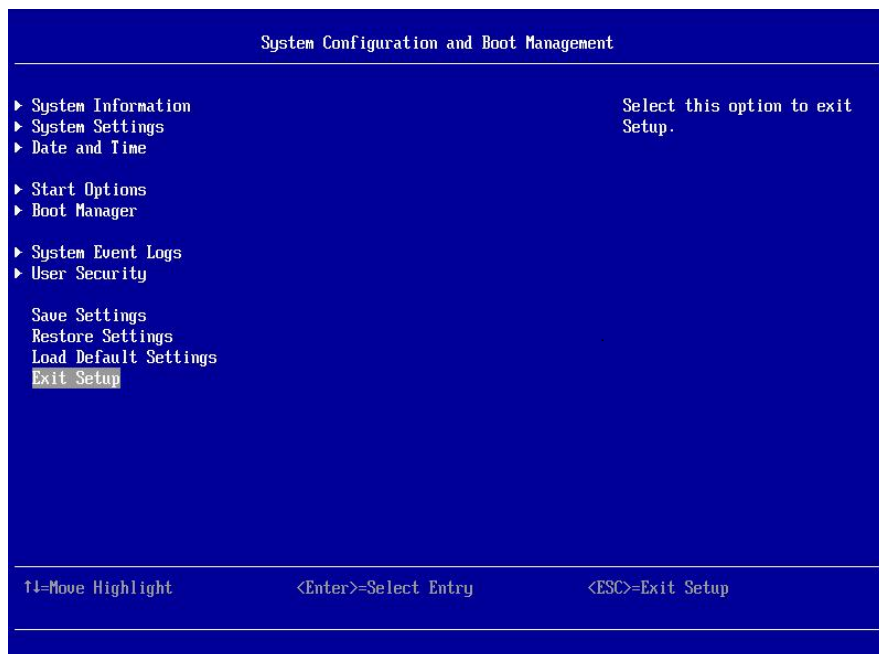


When using network function, move the cursor to **Network** and press <Enter> key.



(3) Exiting Emulex UEFI Utility

1. Select **Exit Setup** in **System Configuration and Boot Management** screen and press <Enter> key.



2. The message "**Do you want to exit Setup Utility?**" displayed, and press <Y> key.
3. In the case that the configuration is changed, the system reboots. Or in the case that the configuration is not changed, the system continues booting.

(4) Operating the Emulex UEFI Utility menu

The operation and keys to use are displayed on the lower part of the screen for each menu.

The basic keys for operation of the utility are as follows.

- arrow key : used to select an item or value.
- [tab] key : used to select an item.
- [Enter] key : used to decide an item or a value to set.
- number key : used to input a value to set

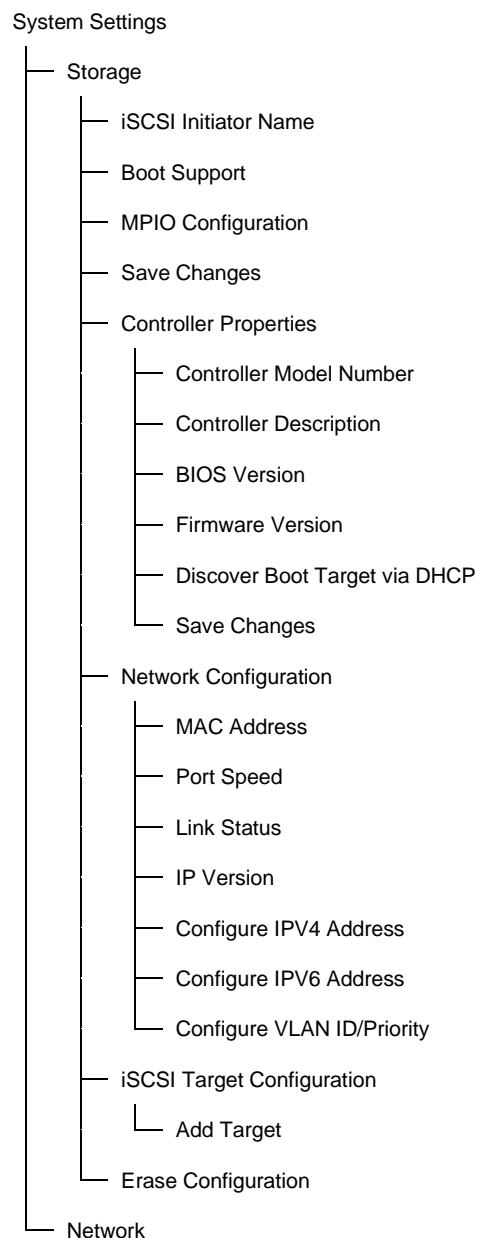
(5) Emulex UEFI Utility menu tree



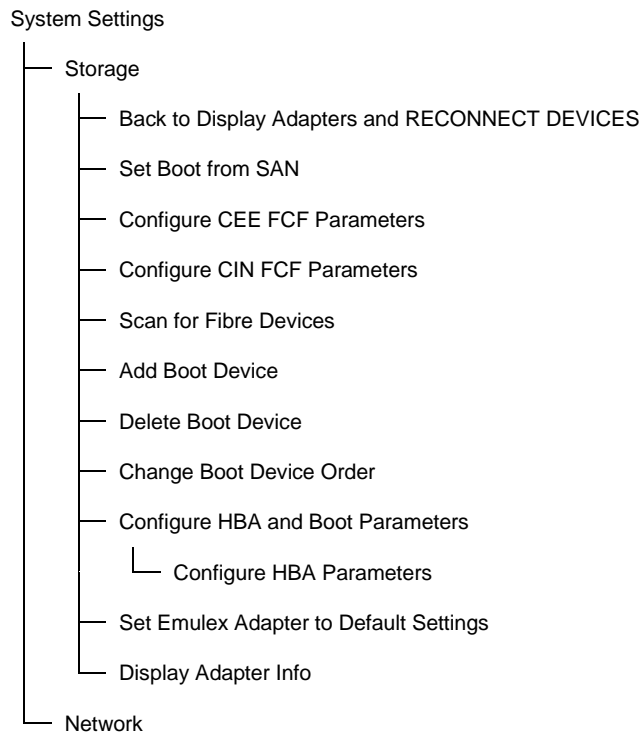
- iSCSI is not supported on RHEL6.7 or later, RHEL7.1 or later, Windows Server 2016 or later, VMware6.0 U3 or later and VMware6.5 or later.

- FCoE is not supported on RHEL6.8 or later, RHEL7.3 or later, Windows Server 2016 or later, VMware6.0 U3 or later and VMware6.5 or later.

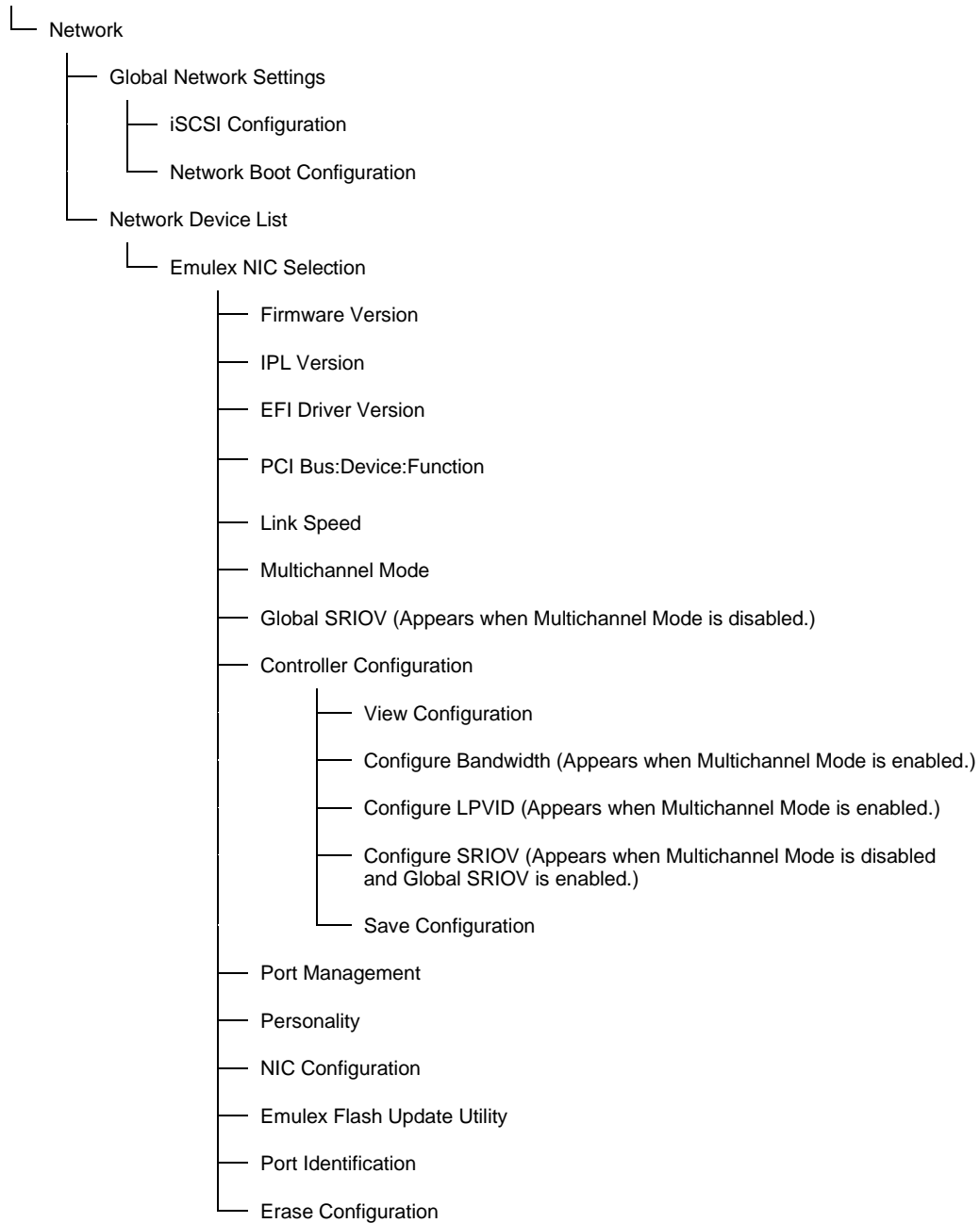
Emulex UEFI Utility menu (iSCSI) tree is as follows.



Emulex UEFI Utility menu (FCoE) tree is as follows.



Emulex UEFI Utility menu (NIC) tree is as follows.



Each menu item is explained below.

iSCSI menu

Item		Explanation	Remarks
Storage		-	
Controller Configuration Menu	iSCSI Initiator Name	Sets iSCSI initiator name.	
	Boot Support	Configures the boot device.	
	MPIO Configuration	Configures the MPIO.	
	Save Changes	Saves the configuration.	
	Controller Properties	Displays the controller properties.	
	Controller Model Number	Displays the model name.	
	Controller Description	Displays the Description.	
	BIOS Version	Displays the BIOS version.	
	Firmware Version	Displays the firmware version.	
	Discover Boot Target via DHCP	-	Not supported
	Save Changes	Saves the configuration.	
	Network Configuration	Configures the network.	
	MAC Address	Displays MAC Address.	
	Port Speed	Displays Port speed.	
	Link Status	Displays Link status.	
	IP Version	Displays IP Version.	
	Configure IPV4 Address	Configures the IPV4 Address.	
	Configure IPV6 Address	Configures the IPV6Address.	
	Configure VLAN ID/Priority	-	Not supported
	iSCSI Target Configuration	Configures the iSCSI Target.	
	Add Target	Configures the Add Target.	
	Erase Configuration	Initializes the configuration.	

FCoE menu

Item		Explanation	Remarks
Storage		-	
Controller Configuration Menu	Back to Display Adapters and RECONNECT DEVICES	Back to display adapters.	
	Set Boot from SAN	Configures the boot device.	
	Configure DCBX Mode	Configures the DCBX Mode.	
	Configure CEE FCF Parameters	Configure CEE FCF.	
	Configure CIN FCF Parameters	Configure CIN FCF.	
	Scan for Fibre Devices	Displays fibre devices.	
	Add Boot Device	Configures the boot device.	
	Delete Boot Device	Deletes the configuration of the boot device.	
	Change Boot Device Order	Changes the configuration of the boot device.	
	Configure HBA and Boot Parameters	Configure HBA and boot parameters.	
	Configure HBA and Boot Parameters	Configure HBA and boot parameters.	
	Set Emulex Adapter to Default Settings	Set Emulex adapter to default settings.	
	Display Adapter Info	Displays adapter Info.	

Network menu

Item		Explanation	Remarks
Network		-	
Global Network Settings	iSCSI Configuration	-	Not supported
	Network Boot Configuration	Configures PXE mode.	
Network Device List	Emulex NIC Selection	Configures the network.	
	Firmware Version	Displays the firmware version.	
	IPL Version	Displays the IPL version.	(*1)
	EFI Driver version	Displays the EFI driver version.	(*2)
	Bus:Device:Function (FW10.*.* or lower) or PCI Bus:Device:Function (FW11.1.*.* or higher)	Displays Bus:Device:Function.	
	Link Speed	Displays the port speed.	
	Multichannel Mode	Configures the multichannel mode.	
	Global SRIOV	Configures the SRIOV.	Not supported (*2)
	Controller Configuration	Configures the controller.	
	View Configuration	Displays the configuration.	
	Configure Bandwidth	Configures the bandwidth.	
	Configure LPVID	Configures the LPVID.	
	Configure SRIOV	Configures the SRIOV.	
	Save Configuration	Saves the configuration.	
	Port Management	-	Not supported (*2)
	Personality	Sets NIC/iSCSI/FCoE.	
	NIC Configuration	-	Not supported (*2)
	Emulex Flash Update Utility	-	Not supported
	Port Identification	-	Not supported
	Erase Configuration	Initializes the configuration.	

(*1) Displayed when using FW10.*.*.* or higher (* is a number.)

(*2) Displayed when using FW11.1.*.* or higher (* is a number.)

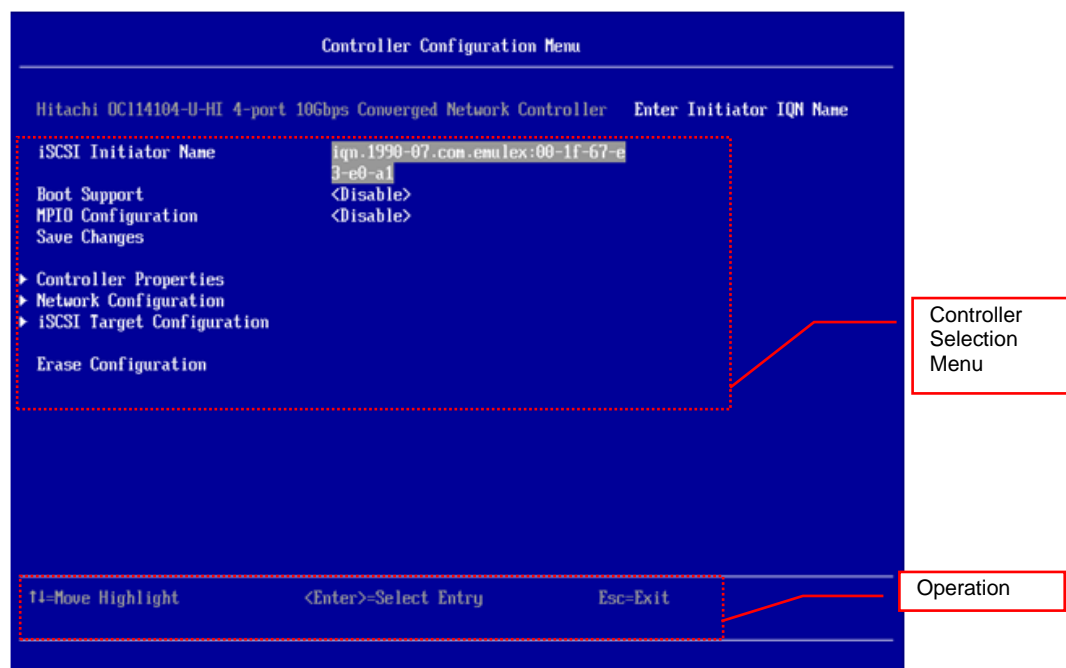


- See supported environments for SR-IOV on "[4.2.6 SR-IOV configuration \(Hyper-V Environment\)](#)" or "[4.2.7 SR-IOV configuration \(LPAR manager Environment\)](#)"

(6) Emulex UEFI Utility menu screens

(a) Screens for iSCSI menu

Controller Configuration Menu



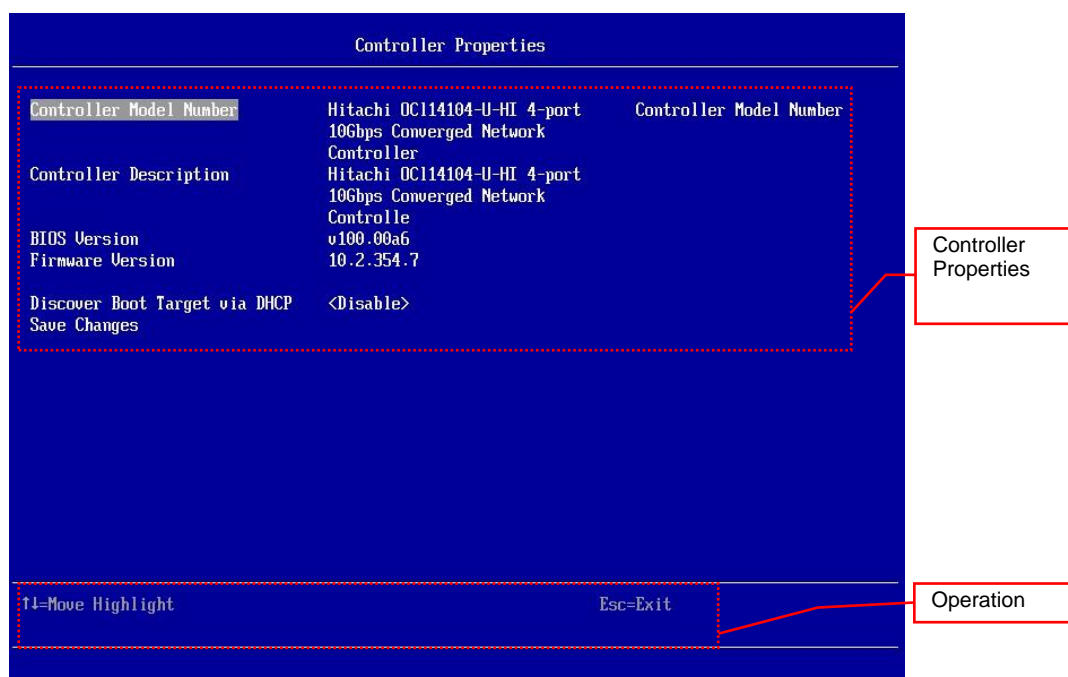
Controller Configuration Menu Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
iSCSI Initiator Name	Move the cursor to this item, and press [Enter] key.	Displays the iSCSI initiator name.	
Boot Support	Choice : Enable / Disable Default : Enable	Configures the boot device.	
MPIO Configuration	Choice : Enable / Disable Default : Disable	Configures the boot MPIO.	
Save Changes	Move the cursor to this item, and press [Enter] key.	Saves the configuration.	
Controller Properties	Move the cursor to this item, and press [Enter] key. "Controller Properties" screen is displayed.	Displays the controller properties.	
Network Configuration	Move the cursor to this item, and press [Enter] key. "Network Configuration" screen is displayed.	Configures the network.	
iSCSI Target Configuration	Move the cursor to this item, and press [Enter] key. "iSCSI Target Configuration" screen is displayed.	Configures the iSCSI Target.	
Erase Configuration	Move the cursor to this item, and press [Enter] key.	Initializes the configuration.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

Controller Properties



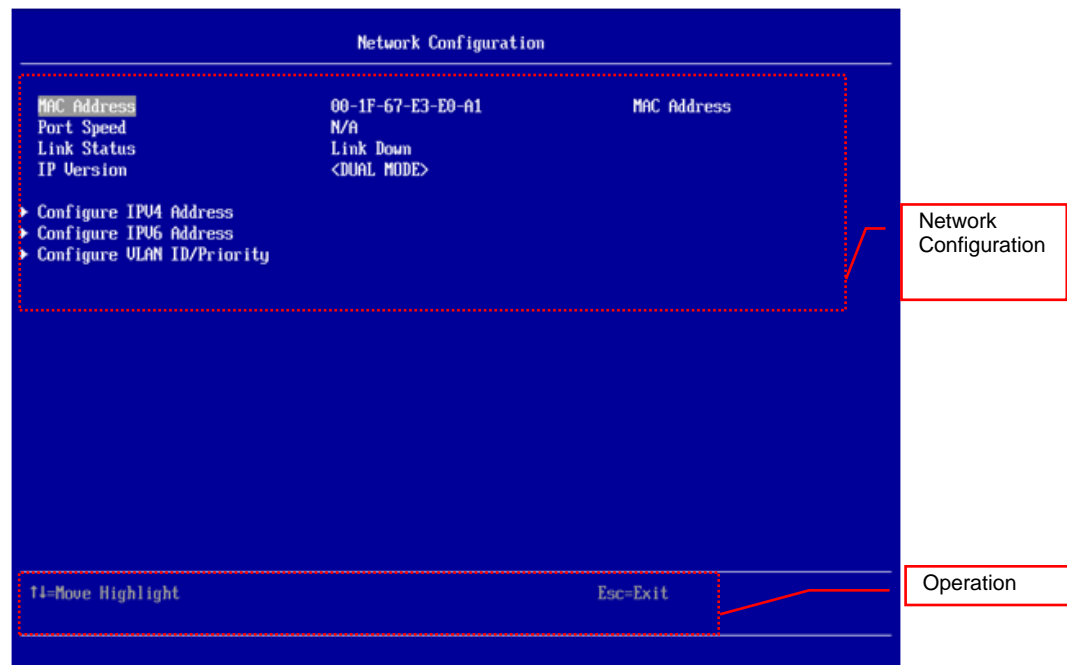
Controller Properties Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Controller Model Number	Example: Hitachi OC114104-U-HI 4-port 10Gbps Converged Network Controller	Displays Emulex adapter name.	
Controller Description	Example: Hitachi OC114104-U-HI 4-port 10Gbps Converged Network Controller	Displays Emulex adapter name.	
BIOS Version	Example: v100.00a6	Displays BIOS version.	
Firmware Version	Example: 10.2.354.7	Displays the firmware version.	
Discover Boot Target via DHC	-	-	Not supported
Save Changes	Move the cursor to this item and press [Enter] key.	Saves the configuration.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

Network Configuration



Network Configuration Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
MAC Address	Example: 00:90:FA:07:D9:A7	Displays the MAC address.	
Port Speed	Example: 10 Gbps	Displays the port speed.	
Link Status	Example: Link up	Displays the link status.	
IP Version	Choice : IPV4 / IPV6 /DUAL MODE Default : DUAL MODE	Configures the IP version.	
Configure IPV4 Address	Move the cursor to this item, and press [Enter] key.	Configures the IPV4 Address.	
Configure IPV6 Address	Move the cursor to this item, and press [Enter] key.	Configures the IPV6 Address.	
Configure VLAN ID/Priority	-	-	Not supported

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

Configure IPV4 Address ~ Configure Static IP Address

Configure IPV4 Address

Initiator IP via DHCP Disable Enable/Disable DHCP

Save DHCP Settings

► **Configure Static IPV4 Address**

► Ping

Configure Static IP Address

IP Address 192.168.0.213 Enter the IP Address

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

Save Changes

↑↓=Move Highlight <Enter>=Select Entry Esc=Exit

Configure IPV4 Address Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Initiator IP via DHCP	-	-	Not supported
Save DHCP Settings	-	-	Not supported
Configure Static IPV4 Address	Move the cursor to this item and press [Enter] key.	Configures IP Address.	
Ping		Execute pinging.	

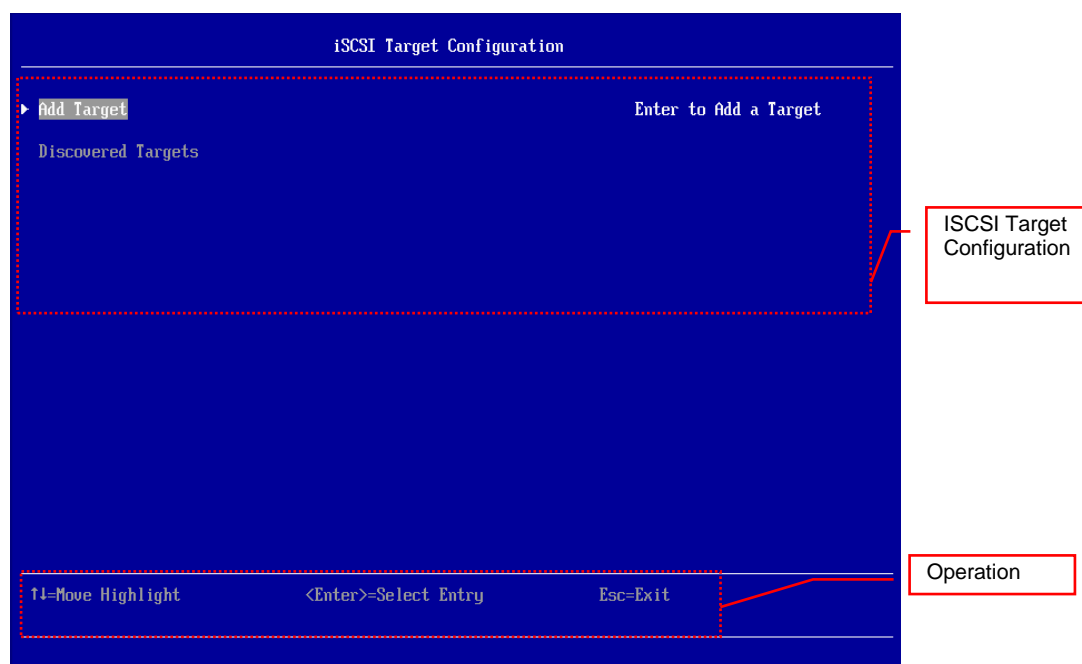
Configure Static IP Address Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
IP Address	Move the cursor to this item and press [Enter] key.	Configures IP Address.	
Subnet Mask		Configures Subnet Mask.	
Default Gateway		-	Not supported
Save Changes		Saves the configuration.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

iSCSI Target Configuration



iSCSI Target Configuration Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Add Target	Move the cursor to this item and press [Enter] key. "Add/Ping iSCSI Target" screen is displayed.	Sets the target name.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	



If the target can not be set, perform the following settings.

- (1) Return to "**System Configuration and Boot Management**" screen with ESC key.
- (2) Select **Save Settings** with arrow keys, and press **Enter** key.
- (3) Configure **iSCSI Initiator Name** again.

Add/Ping iSCSI Target

Add/Ping iSCSI Target

iSCSI Target Name

IP Version <IPv4>

iSCSI Target IP Address

TCP Port Number [3260]

BladeEngine Port Number 0

ISID Qualifier [1]

Boot Target <No>

Header Digest <No>

Data Digest <No>

Authentication Method <None>

Ping

► Save/Login

Enter iSCSI Target Name

↑↓=Move Highlight <Enter>=Select Entry Esc=Exit

Add/Ping iSCSI Target

Operation

Add/Ping iSCSI Target Area

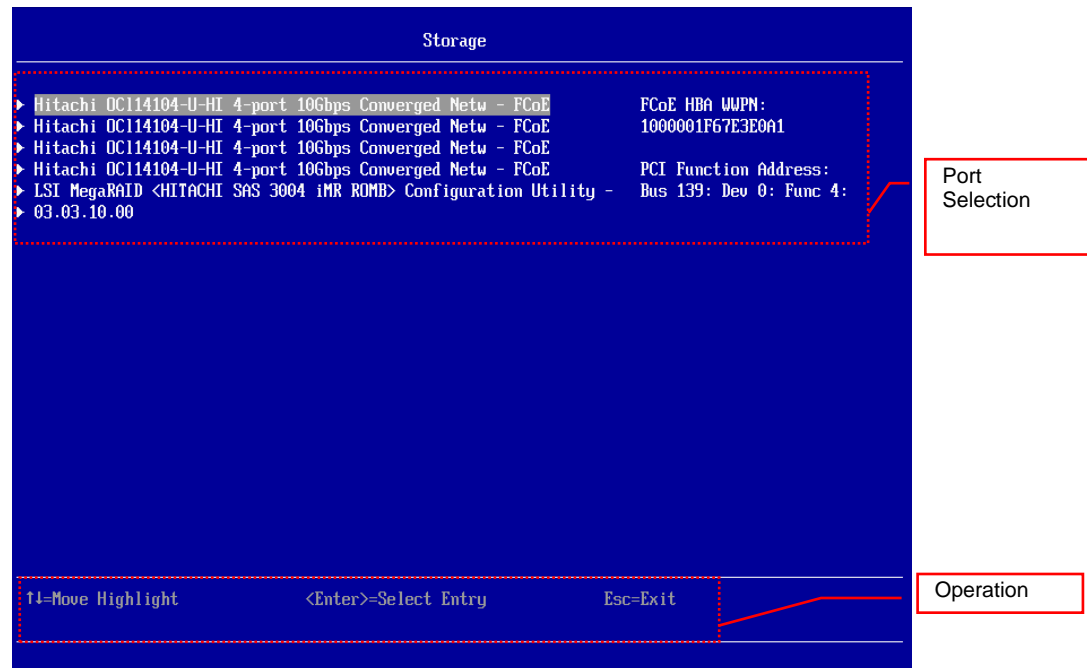
Item	Configuration/ Select menu / Expression	Explanation	Remarks
iSCSI Target Name	Move the cursor to this item and press [Enter] key.	Sets iSCSI Target name.	
IP Version	Choice: IPv4/IPv6	Selects IPV4 or IPV6.	
iSCSI Target IP Address	Move the cursor to this item and press [Enter] key.	Configures IP Address.	
TCP Port Number	Example: 3260	-	
BladeEngine Port Number	Example: 0	-	
ISID Qualifier	-	-	Not supported
Boot Target	Choice : None/ Primary/ Secondary	Configures the boot target.	
Header Digest	-	-	Not supported
Data Digest	-	-	Not supported
Authentication Method	-	-	Not supported
Ping		Execute ping.	
Save/Login	Move the cursor to this item and press [Enter] key.	Saves the configuration and logs in the target.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

(b) Screens for FCoE menu

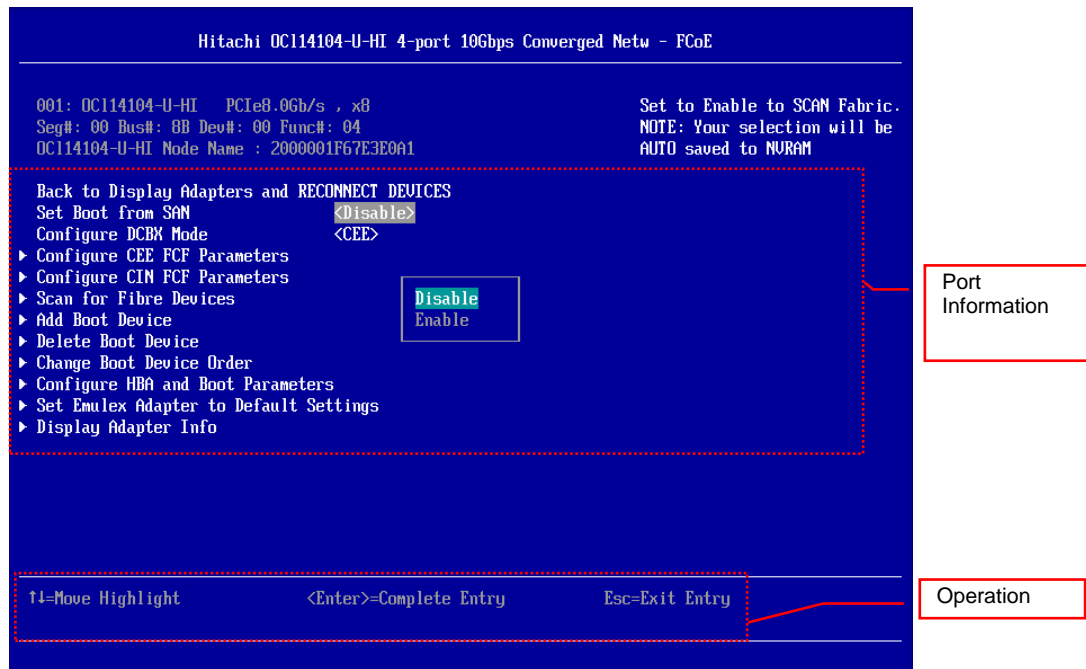
Storage



Port Selection Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Port List	Example: Hitachi Ocl14104-U-HI 4-Port 10Gbps Converged Netw -FCoE	Displays the port list.	

Storage



Port Information Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Back to Display Adapters and RECONNECT DEVICES	Move the cursor to this item, and press [Enter] key.	Back to display adapters.	
Set Boot from SAN	Choice : Enable / Disable Default : Disable	Configures the boot device.	
Configure DCBX Mode	Choice : CEE / CIN Default : CEE	Configures the DCBX Mode.	
Configure CEE FCF Parameters	Move the cursor to this item, and press [Enter] key.	Configure the CEE FCF.	
Configure CIN FCF Parameters	Move the cursor to this item, and press [Enter] key.	Configure the CIN FCF.	
Scan for Fibre Devices	Move the cursor to this item, and press [Enter] key.	Displays fibre devices.	
Add Boot Device	Move the cursor to this item, and press [Enter] key.	Configures the boot device.	
Delete Boot Device	Move the cursor to this item, and press [Enter] key.	Deletes the configuration of the boot device.	
Change Boot Device Order	Move the cursor to this item, and press [Enter] key.	Changes the configuration of the boot device.	
Configure HBA and Boot Parameters	Move the cursor to this item, and press [Enter] key.	Configure HBA and boot parameters.	
Set Emulex Adapter to Default Settings	Move the cursor to this item, and press [Enter] key.	Set Emulex adapter to default settings.	
Display Adapter Info	Move the cursor to this item, and press [Enter] key.	Displays adapter Info.	

Configure HBA Parameters

Configure HBA Parameters

OC114104-U-HI Node Name : 2000001F67E3E0A1
 Configure HBA Parameters

Discard Changes and Go to
the Previous Page

▶ Discard Changes
 ▶ Commit Changes
 PLOGI Retry Timer
 Configure Boot Parameters

<Disable - Default>

Maximum Luns/Target [256]
 Boot Target Scan Method <Boot Path From NURAM Targets>
 Delay Device Discovery [0]

F1=Move Highlight <Enter>=Select Entry Esc=Exit

Port
Parameter
Selction

Operation

Port Parameter Selection Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Commit Changes	Move the cursor to this item, and press [Enter] key.	Saves the configuration.	
PLOGI Retry Timer		Configures the PLOGI Retry Timer.	
Maximum Luns/Target		Configures the Luns/Target.	
Boot Target Scan Method		Configures the Boot Target Scan Method.	
Delay Device Discovery		Configures the Delay Device Discovery.	

Controller Information

Controller Information

001: OC114104-U-HI PCIe8.0Gb/s , x8 Go to Configuration Main Menu
 Seg#: 00 Bus#: 8B Dev#: 00 Func#: 04

→ Go to Configuration Main Menu
 Link Status: Down
 VLANID: N/A
 Boot from SAN: Disabled
 Firmware : 10.2.230.16
 EFI Boot : 10.2.228.0
 Link Speed: NA

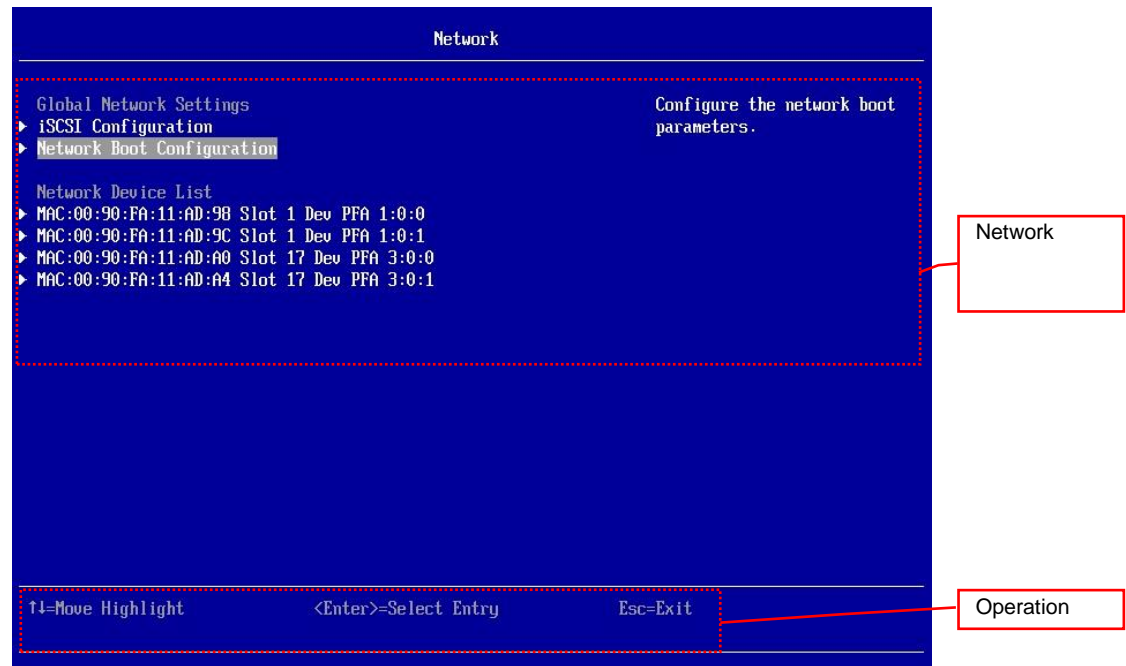
↑↓=Move Highlight <Enter>=Select Entry Esc=Exit

Controller Information Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Go to Configuration Main Menu	Move the cursor to this item, and press [Enter] key.	Go to Configuration Main Menu.	
Link Status	Example: Down VLANID:N/A	Displays link Status.	
Boot from SAN	Example:Disabled	Displays Boot from SAN.	
Firmware	Example:10.2.230.16	Displays Firmware.	
EFI Boot	Example:10.2.230.16	Displays EFI Boot.	
Link Speed	Example:NA	Displays Link Speed.	

(c) Screens for NIC menu

Network



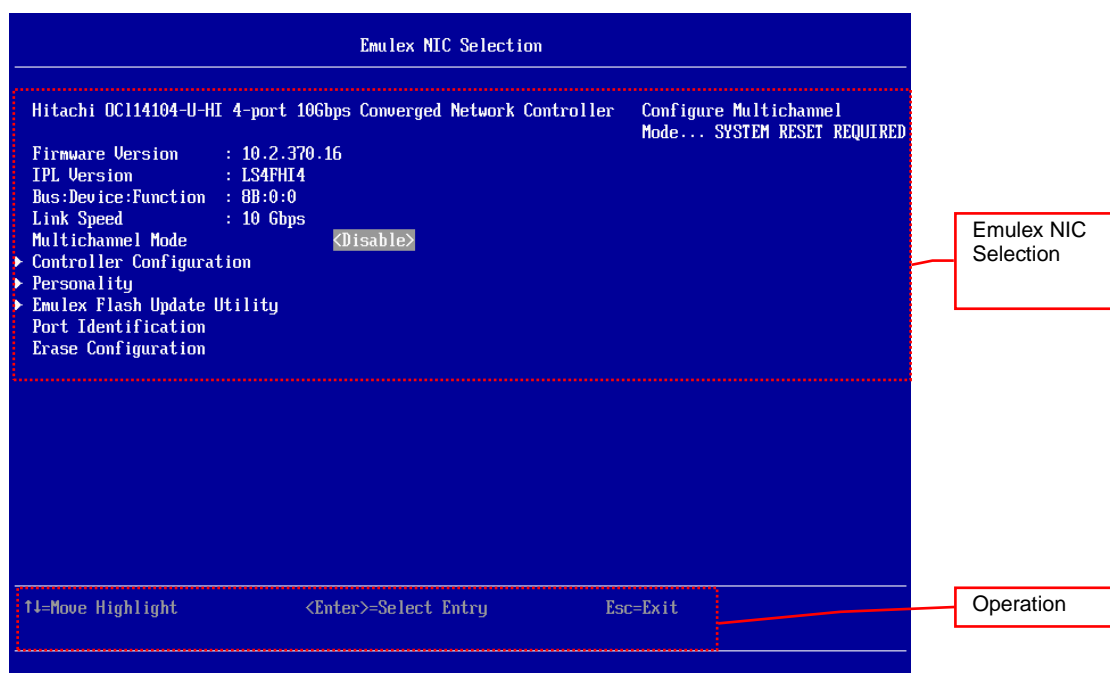
Network Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
iSCSI Configuration	-	-	Not supported
Network Boot Configuration	Move the cursor to this item and press [Enter] key.	Configures the PXE Mode.	
Network Device List	Move the cursor to this item and press [Enter] key. "Emulex NIC Selection" screen is displayed.	Selects the network device.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

Emulex NIC Selection (FW10.6.*.* or lower)



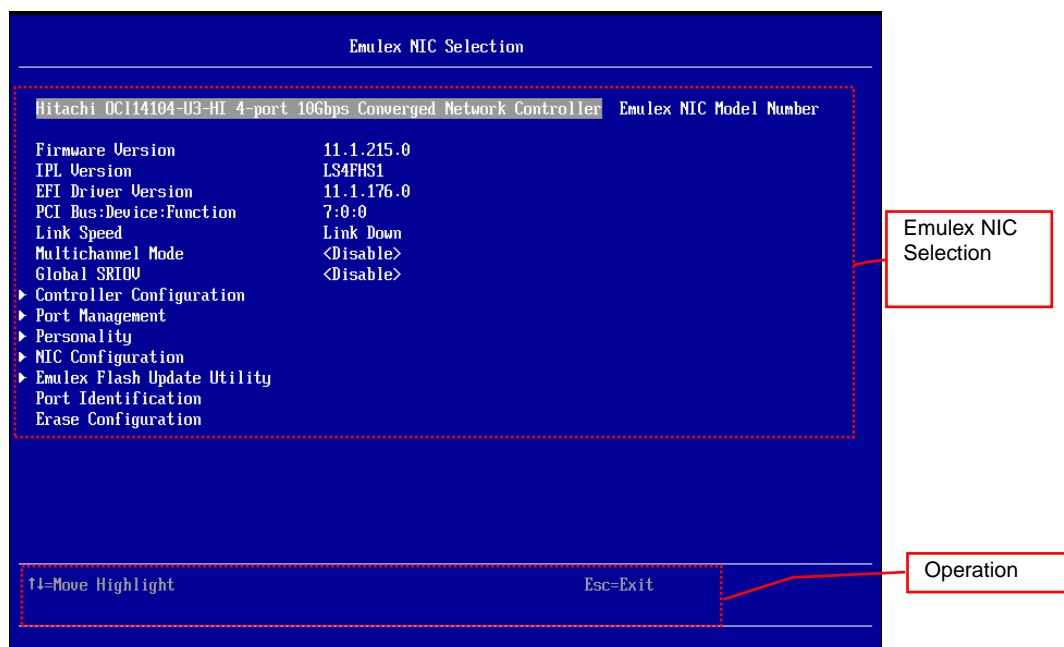
Emulex NIC Selection Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Firmware Version	Example: 10.2.370.16	Displays the firmware version.	
IPL Version	Example:LS4FHI4	Displays IPL version.	
Bus:Device:Function	Example:8B:0:0	Displays the Bus:Device:Function.	
Multichannel Mode	Choice : Enable / Disable Default : Disable	Configures the MultiChannel.	
Controller Configuration	Move the cursor to this item, and press [Enter] key.	"Controller Configuration" screen is displayed.	
Personality	Move the cursor to this item, and press [Enter] key.	Configures the personality.	
Emulex Flash Update Utility	-	-	Not supported
Port Identification	-	-	Not supported
Erase Configuration	Move the cursor to this item, and press [Enter] key.	Initializes the configuration.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

Emulex NIC Selection (FW11.1.*.* or higher)



Emulex NIC Selection Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Firmware Version	Example: 11.1.215.0	Displays the firmware version.	
IPL Version	Example:LS4FHS0	Displays IPL version.	
EFI Driver Version	Example: 11.1.176.0	Displays the EFI driver version.	
PCI Bus:Device:Function	Example:7:0:1	Displays Bus:Device:Function.	
Link Speed	Example: 10 Gbps	Displays link speed or link down.	
Multichannel Mode	Choice : Enable / Disable Default : Disable	Configures the MultiChannel.	
Global SRIOV	Choice : Enable / Disable Default : Disable	Configures the SRIOV.	Not supported
Controller Configuration	Move the cursor to this item, and press [Enter] key.	"Controller Configuration" screen is displayed.	
Port Management	-	-	Not supported
Personality	Move the cursor to this item, and press [Enter] key.	Configures the personality.	
NIC Configuration	-	-	Not supported
Emulex Flash Update Utility	-	-	Not supported
Port Identification	-	-	Not supported
Erase Configuration	Move the cursor to this item, and press [Enter] key.	Initializes the configuration.	

Operation Area

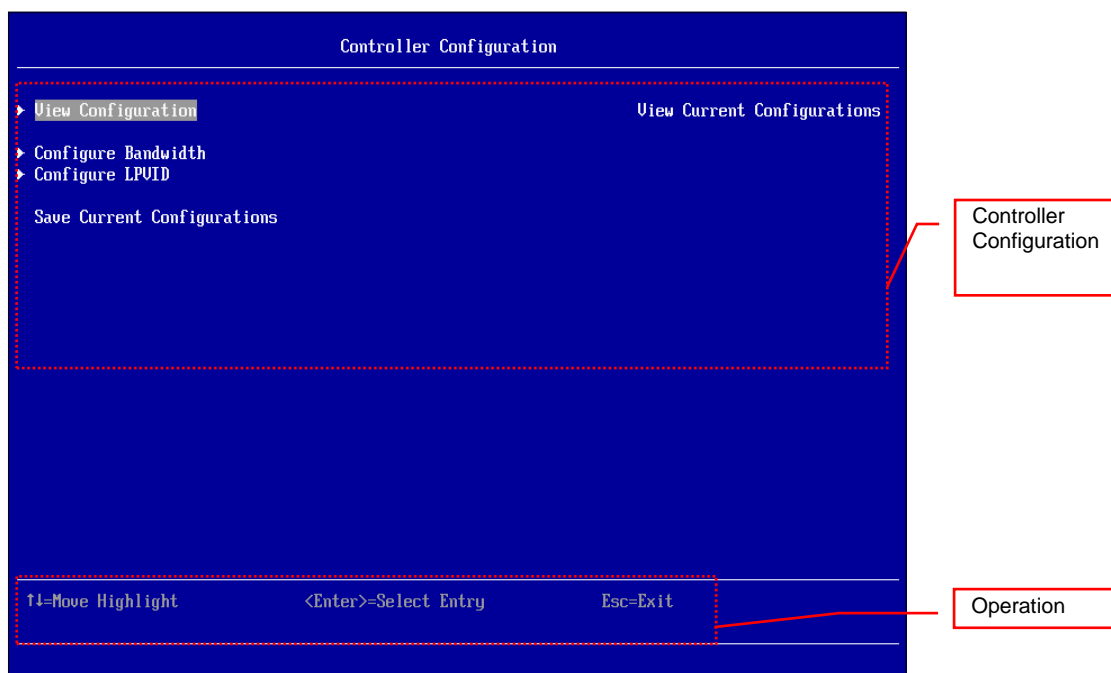
Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	



- See supported environments for SR-IOV on "[4.2.6 SR-IOV configuration \(Hyper-V Environment\)](#)" or "[4.2.7 SR-IOV configuration \(LPAR manager Environment\)](#)"

Controller Configuration

In the case that "Multichannel Mode" value is "Enable" in "Emulex NIC Selection" screen :



Controller Configuration Area

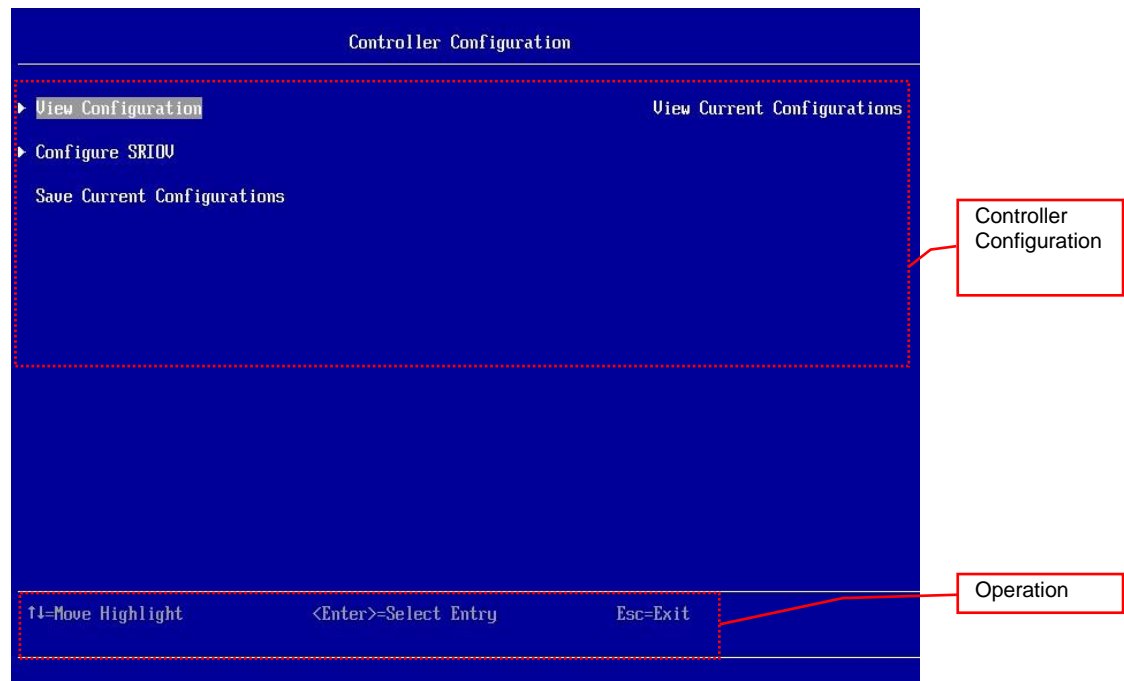
Item	Configuration/ Select menu / Expression	Explanation	Remarks
View Configuration	Move the cursor to this item and press [Enter] key. "View Configuration" screen is displayed.	Displays "View Configuration" screen.	
Configure Bandwidth	Move the cursor to this item and press [Enter] key. "Configure Bandwidth" screen is displayed.	Configures the bandwidth.	
Configure LPVID	Move the cursor to this item and press [Enter] key.	Configures the LPVID.	
Save Current Configurations	Move the cursor to this item and press [Enter] key.	Saves the configuration.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

Controller Configuration (FW10.6.*.* or lower)

In the case that "Multichannel Mode" value is "Disable" in "Emulex NIC Selection" screen :



Controller Configuration Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
View Configuration	Move the cursor to this item and press [Enter] key. "View Configuration" screen is displayed.	Displays "View Configuration" screen.	
Configure SRIOV	Move the cursor to this item and press [Enter] key. "Configure SRIOV" screen is displayed.	Configures the SRIOV.	
Save Current Configurations	Move the cursor to this item and press [Enter] key.	Saves the configuration.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

Controller Configuration (FW11.1.*.* or higher)

In the case that "Multichannel Mode" value is "Disable" in "Emulex NIC Selection" screen :



Controller Configuration Area

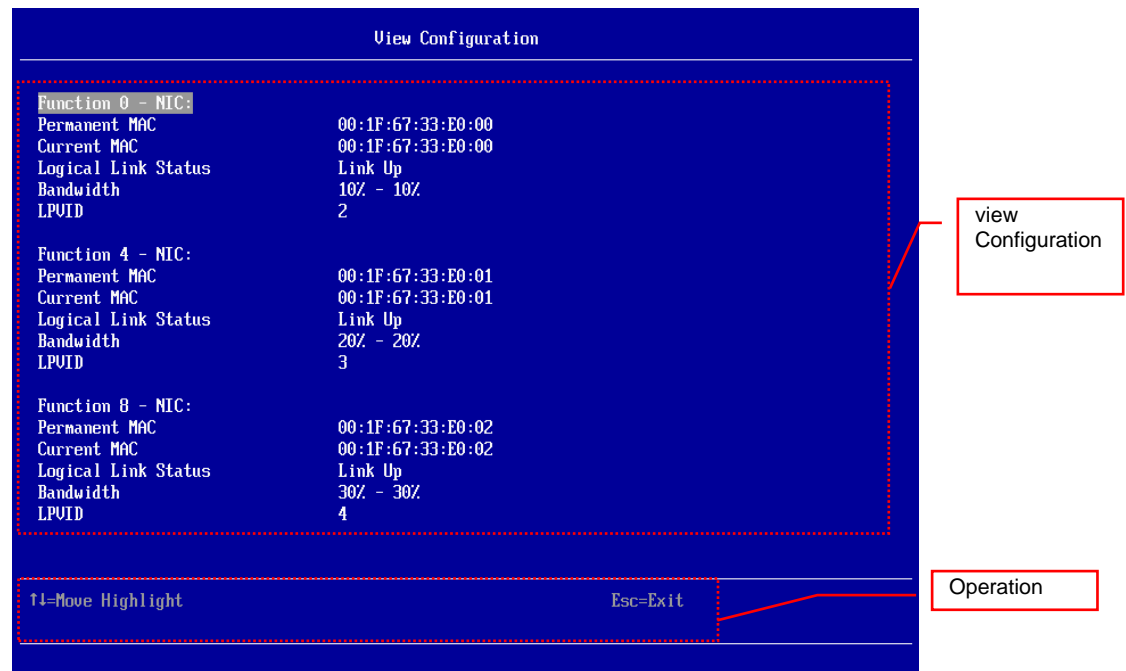
Item	Configuration/ Select menu / Expression	Explanation	Remarks
View Configuration	Move the cursor to this item and press [Enter] key. "View Configuration" screen is displayed.	Displays "View Configuration" screen.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

View Configuration

In the case that "Multichannel Mode" value is "Enable" in "Emulex NIC Selection" screen :



View Configuration Area

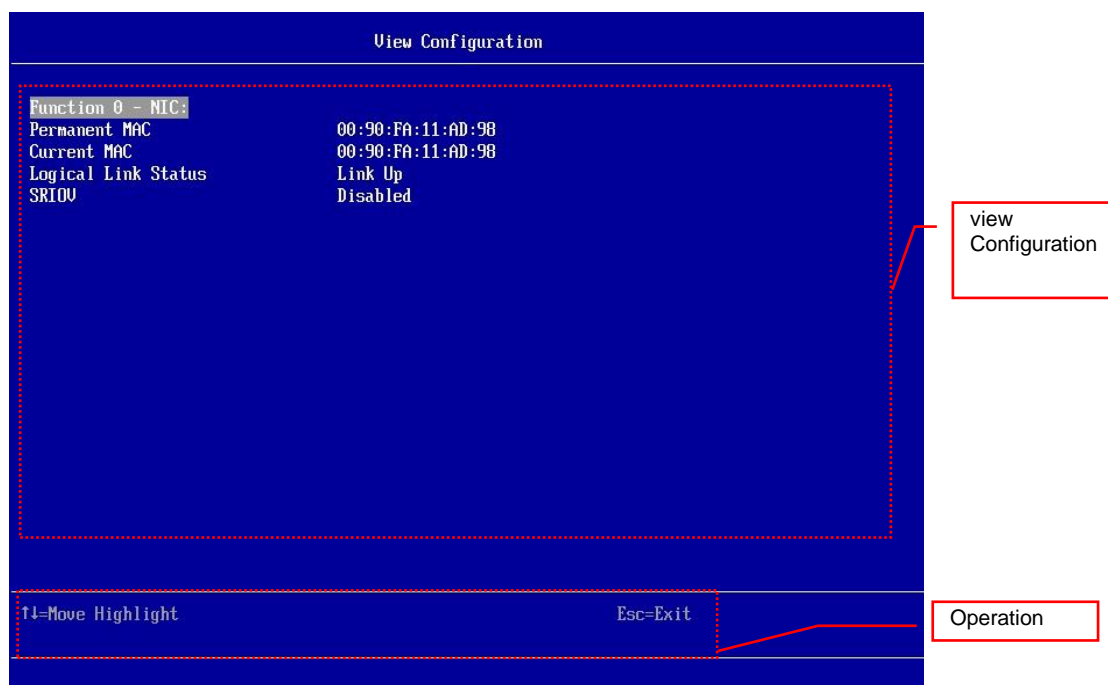
Item	Configuration/ Select menu / Expression	Explanation	Remarks
Permanent MAC	Example: 00:1F:67:33:E0:00	Displays the permanent MAC Address.	
Current MAC	Example: 00:1F:67:33:E0:00	Displays the current MAC Address.	
Logical Link Status	Example: Link Up	Displays the link status.	
Bandwidth	Example: 10%-10%	Displays the bandwidth.	
LPVID	Example: 2	Displays the ID of logical ports.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

View Configuration

In the case that "Multichannel Mode" value is "Disable" in "Emulex NIC Selection" screen :



View Configuration Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Permanent MAC	Example: 5C:F3:FC:5E:97:B1	Displays the permanent MAC Address.	
Current MAC	Example: 5C:F3:FC:5E:97:B1	Displays the current MAC Address.	
Logical Link Status	Example: Link Up	Displays the link status.	
SRIOV	Example: Disabled	Displays the SRIOV setting.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

Configure Bandwidth

Configure Bandwidth

Configure Minimum Bandwidth

Function 0 [25]
 Function 4 [25]
 Function 8 [25]
 Function 12 [25]

Configure Maximum Bandwidth

Function 0 [100]
 Function 4 [100]
 Function 8 [100]
 Function 12 [100]

Configure Minimum Bandwidth Percentage. Setting a channel's Minimum and Maximum Bandwidth to zero disables the channel

↑↓=Move Highlight
<Enter>=Select Entry
Esc=Exit

Configure Bandwidth Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Configure Minimum Bandwidth	Choice : 0-100 Default: 25	Configures the Minimum Bandwidth.	
Configure Maximum Bandwidth	Choice : 0-100 Default: 100	Configures the Maximum Bandwidth.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

3.3 CNA expansion card / LAN expansion card / CNA board (UEFI on CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4)

3.3.1 Emulex UEFI Utility

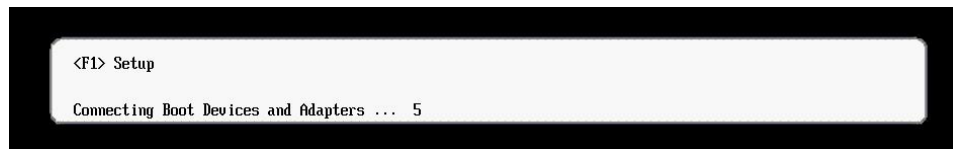
(1) Emulex UEFI Utility functions

The main functions of Emulex UEFI Utility are listed below.

No.	Target	Explanation
1	Storage	Sets initiator name Sets the target name Sets the IP address
2	Network	Configures the enabled/disabled setting for PXE boot function per controller. Configures the enabled/disabled setting for Multichannel function per controller Configures the personality per controller Displays controller No., port No., bus No., device No., port speed, physical link status.

(2) Opening Emulex UEFI Utility

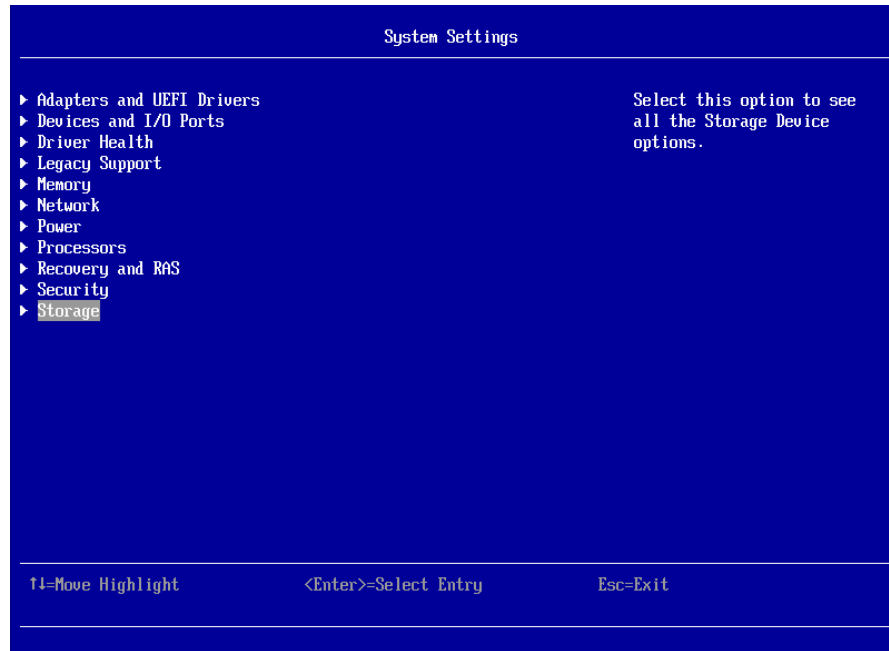
1. Turn on the remote console, then click [Power] - [Power On] in tool bar of the remote console to turn on the system.
2. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



3. "System Configuration and Boot Management" screen opens, and select "System Settings" and press [Enter].



4. When using storage function (iSCSI, FCoE), move the cursor to "Storage" and press [Enter] key.

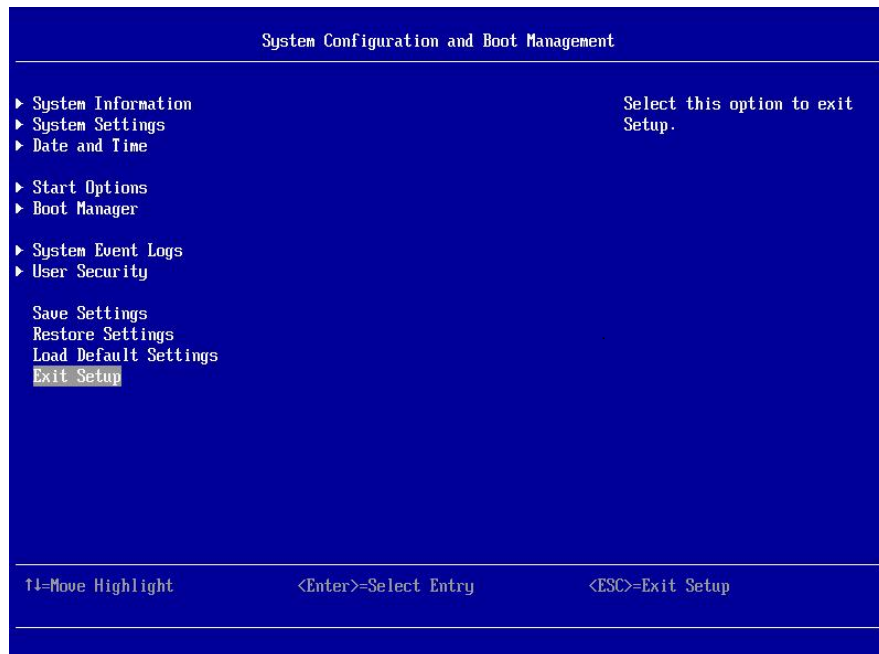


When using network function, move the cursor to "Network" and press [Enter] key.



(3) Exiting Emulex UEFI Utility

1. Select "Exit Setup" in "System Configuration and Boot Management" screen and press [Enter] key.



2. The message "Do you want to exit Setup Utility?" displayed, and press [Y] key.
3. In the case that the configuration is changed, the system reboots. Or in the case that the configuration is not changed, the system continues booting.

(4) Operating the Emulex UEFI Utility menu

The operation and keys to use are displayed on the lower part of the screen for each menu.

The basic keys for operation of the utility are as follows.

- arrow key : used to select an item or value.
- [tab] key : used to select an item.
- [Enter] key : used to decide an item or a value to set.
- number key : used to input a value to set

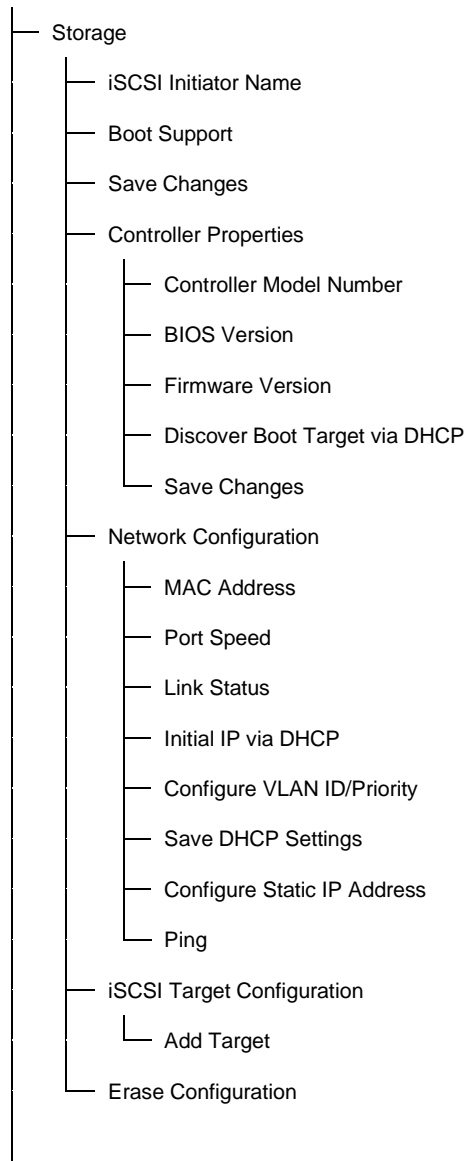
(5) Emulex UEFI Utility menu tree



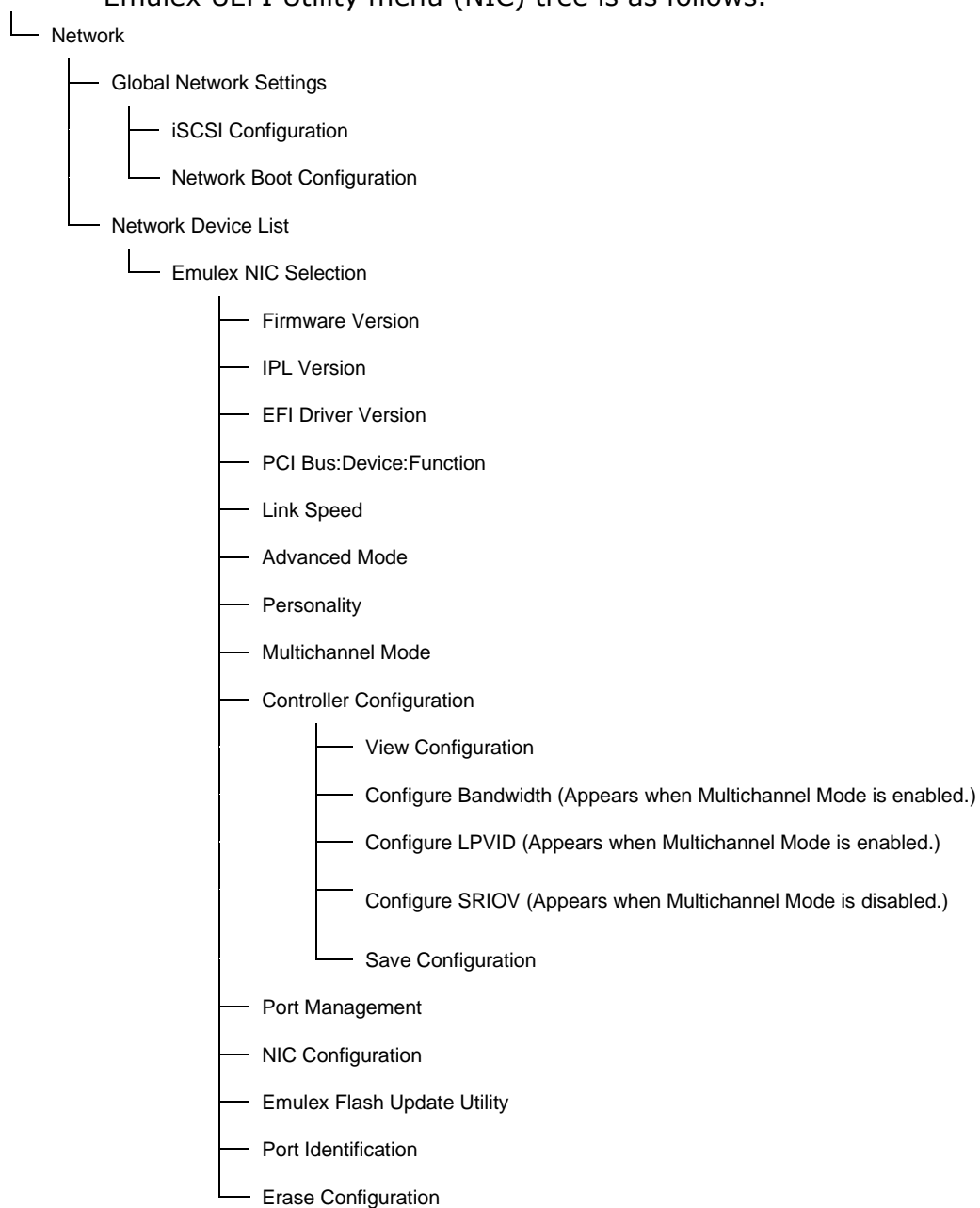
- iSCSI is not supported on RHEL6.7 or later, RHEL7.1 or later, Windows Server 2016 or later, VMware6.0 U3 or later and VMware6.5 or later.
- FCoE is not supported on RHEL6.8 or later, RHEL7.3 or later, Windows Server 2016 or later, VMware6.0 U3 or later and VMware6.5 or later.

Emulex UEFI Utility menu (iSCSI) tree is as follows.

System Settings

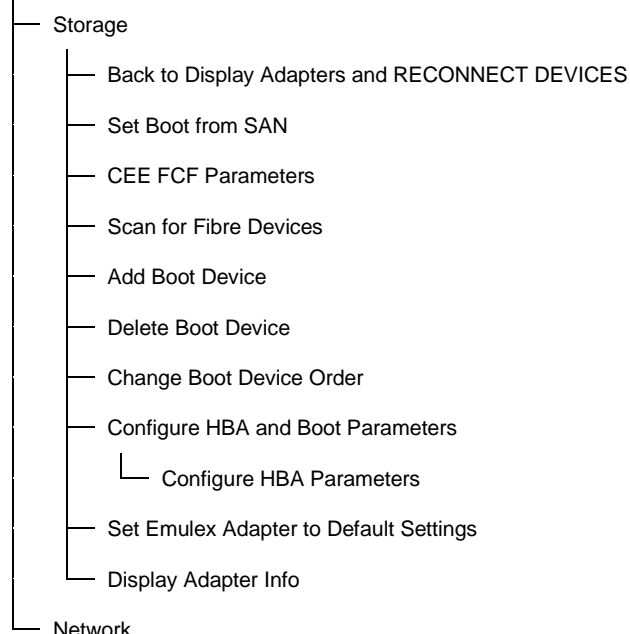


Emulex UEFI Utility menu (NIC) tree is as follows.



Emulex UEFI Utility menu (FCoE) tree is as follows.

System Settings



Each menu item is explained below.

iSCSI menu

Item		Explanation	Remarks
Storage		-	
Controller Configuration Menu	iSCSI Initiator Name	Sets iSCSI initiator name.	
	Boot Support	Configures the boot device.	
	Save Changes	Saves the configuration.	
	Controller Properties	Displays the controller properties.	
	Controller Model Number	Displays the model name.	
	BIOS Version	Displays the BIOS version.	
	Firmware Version	Displays the firmware version.	
	Discover Boot Target via	-	Not supported
	Save Changes	Saves the configuration.	
	Network Configuration	Configures the network.	
	MAC Address	Displays MAC Address.	
	Port Speed	Displays Port speed.	
	Link Status	Displays Link status.	
	Initiator IP via DHCP	-	Not supported
	Configure VLAN ID/Priority	-	Not supported
	Save DHCP Settings	-	Not supported
	Configure Static IP Address	Configures IP Address.	
	Ping	Execute ping.	
	iSCSI Target Configuration	Configures the iSCSI Target.	
	Erase Configuration	Initializes the configuration.	

Network menu

Item		Explanation	Remarks
<u>Network</u>		-	
<u>Global Network Settings</u>	iSCSI Configuration	-	Not supported
	Network Boot Configuration	Configures PXE Mode.	
<u>Network Device List</u>	Emulex NIC Selection	-	
	Firmware Version	Displays the firmware version.	
	IPL Version	Displays the IPL version.	(*1)
	EFI Driver Version	Displays the EFI driver version.	(*2)
	Bus:Device:Function (FW10.*.* or lower) or PCI Bus:Device:Function (FW11.1.*.* or higher)	Displays Bus:Device:Function.	
	Link Speed	Displays the port speed.	
	Advanced Mode	Configures "Enable" or "Disable".	Supported only for : SR-IOV function on Hyper-V or CNA firmware version is 10.6.*.*or higher
	Personality	Sets NIC/iSCSI/FCoE.	
	Multichannel Mode	Configures the multichannel mode.	
	Controller Configuration	Configures the controller.	
	View Configuration	Displays the configuration.	
	Configure Bandwidth	Configures the bandwidth.	
	Configure LPVID	Configures the LPVID.	
	Configure SRIOV	Configures the SRIOV.	
	Save Configuration	Saves the configuration.	
	Port Management	-	Not supported (*2)
	NIC Configuration	-	Not supported (*2)
	Emulex Flash Update Utility	-	Not supported
	Port Identification	-	Not supported
	Erase Configuration	Initializes the configuration.	

(*1) Displayed when using FW10.*.*.* or higher (* is a number.)

(*2) Displayed when using FW11.1.*.* or higher (* is a number.)



In the following cases, set "Enable" to [Advanced Mode]. Otherwise, set "Disable".

- using SR-IOV function in Hyper-V environment.
- bare metal environment with CNA FW version 10.6 or higher (recommend).
- using on LPAR manager with CNA FW version 10.6 or higher



- See supported environments for SR-IOV on "[4.3.6 SR-IOV configuration \(Hyper-V Environment\)](#)" or "[4.3.7 SR-IOV configuration \(LPAR manager Environment\)](#)"

FCoE menu

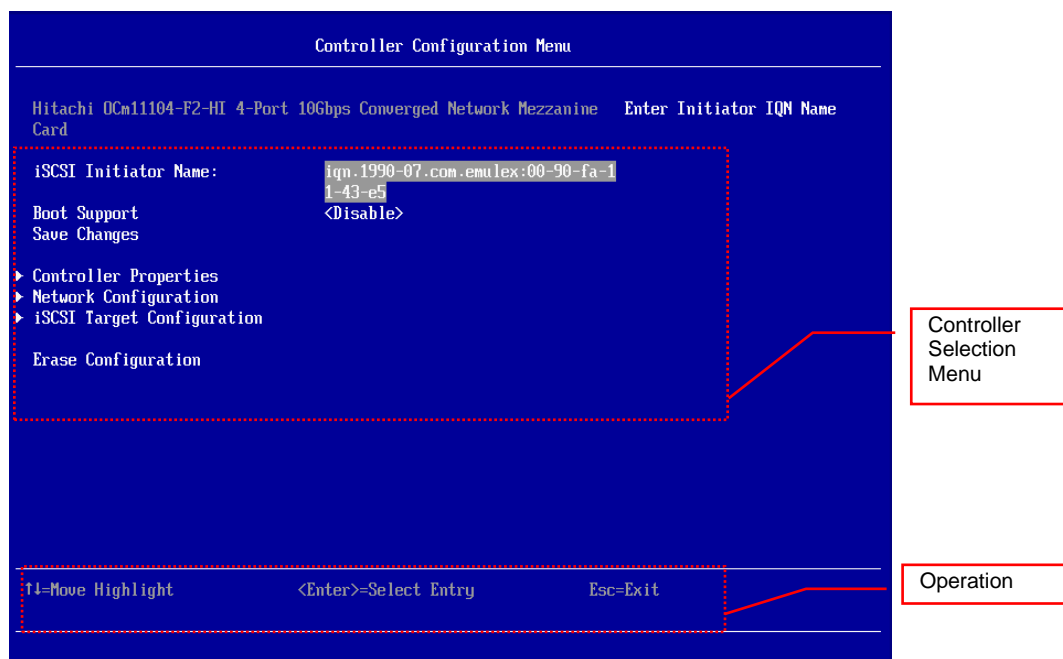
Item		Explanation	Remarks
Storage		-	
Controller Configuration Menu	Back to Display Adapters and RECONNECT DEVICES	Back to display adapters.	
	Set Boot from SAN	Configures the boot device.	
	Configure DCBX Mode	Configures the DCBX Mode.	
	CEE FCF Parameters	Configure CEE FCF.	
	CIN FCF Parameters	Configure CIN FCF.	
	Scan for Fibre Devices	Displays fibre devices.	
	Add Boot Device	Configures the boot device.	
	Delete Boot Device	Deletes the configuration of the boot device.	
	Change Boot Device Order	Changes the configuration of the boot device.	
	Configure HBA and Boot Parameters	Configure HBA and boot parameters.	
	Configure HBA and Boot Parameters	Configure HBA and boot parameters.	
	Set Emulex Adapter to Default Settings	Set Emulex adapter to default settings.	
	Display Adapter Info	Displays adapter Info.	

(6) Emulex UEFI Utility menu screens

This section explains each UEFI Utility screen.

(a) Screens for iSCSI

Controller Configuration Menu



Controller Configuration Menu Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
iSCSI Initiator Name	Move the cursor to this item, and press [Enter] key.	Displays the iSCSI initiator name.	
Boot Support	Choice : Enable / Disable Default : Enable	Configures the boot device.	
Save Changes	Move the cursor to this item, and press [Enter] key.	Saves the configuration.	
Controller Properties	Move the cursor to this item, and press [Enter] key. "Controller Properties" screen is displayed.	Displays the controller properties.	
Network Configuration	Move the cursor to this item, and press [Enter] key. "Network Configuration" screen is displayed.	Configures the network.	
iSCSI Target Configuration	Move the cursor to this item, and press [Enter] key. "iSCSI Target Configuration" screen is displayed.	Configures the iSCSI Target.	
Erase Configuration	Move the cursor to this item, and press [Enter] key.	Initializes the configuration.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

Controller Properties

Controller Properties

Controller Model Number	Hitachi OCm11104-F2-HI 4-Port 10Gbps Converged Network Mezzanine Card	Controller Model Number
Controller Description	Hitachi OCm11104-F2-HI 4-Port 10Gbps Converged Network Mezzanin	
BIOS Version	v100.00a6	
Firmware Version	10.2.340.10	
Discover Boot Target via DHCP	<Disable>	
Save Changes		

↑↓=Move Highlight	Esc=Exit
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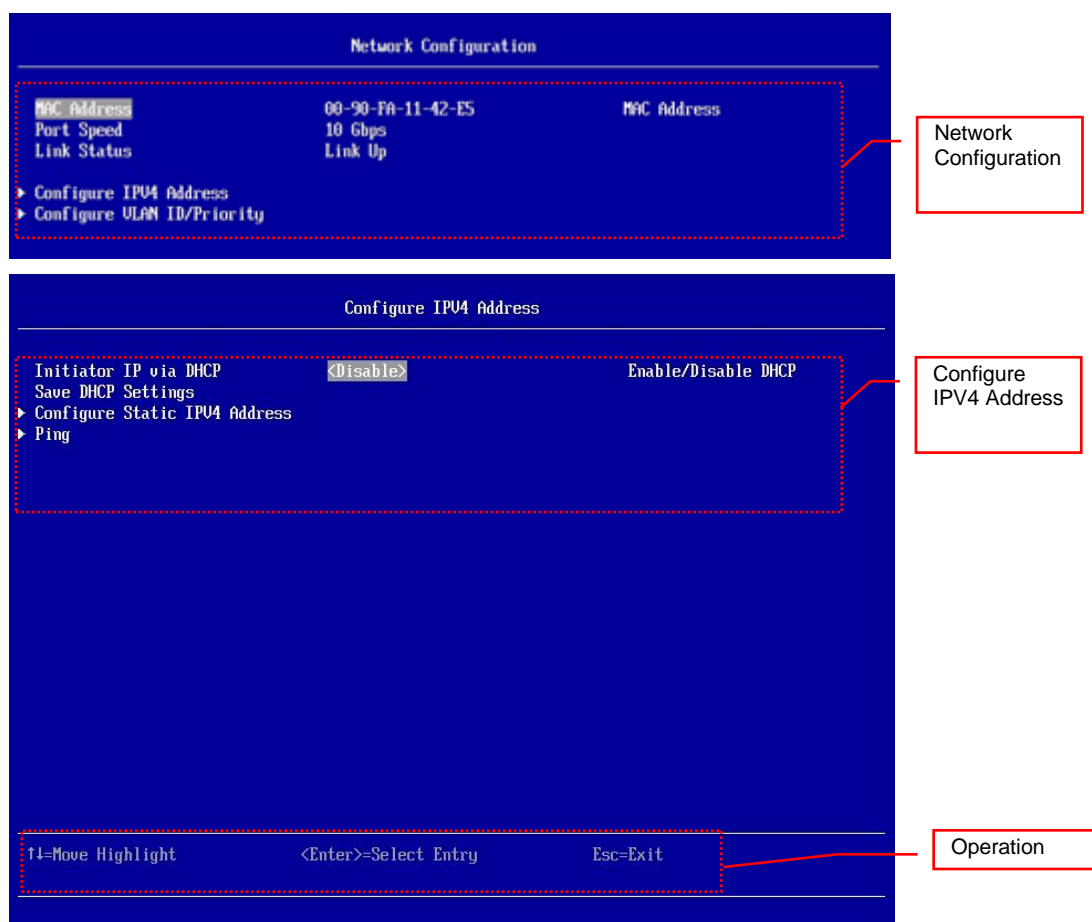
Controller Properties Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Controller Model Number	Example: Emulex OneConnect Oce11102	Displays Emulex adapter name.	
BIOS Version	Example: v46.00a1	Displays BIOS version.	
Firmware Version	Example: 4.6.209.2	Displays the firmware version.	
Discover Boot Target via	-	-	Not supported
Save Changes	Move the cursor to this item and press [Enter] key.	Saves the cofiguration.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

Network Configuration



Network Configuration Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
MAC Address	Example: 00:90:FA:07:D9:A7	Displays the MAC address.	
Port Speed	Example: 10 Gbps	Displays the port speed.	
Link Status	Example: Link up	Displays the link status.	
Configure VLAN ID/Priority	-	-	Not supported
Configure IPV4 Address	Move the cursor to this item and press [Enter] key. "Configure IPV4 Address" screen is displayed.	Configures the IP address.	

Configure IPV4 Address Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Initiator IP via DHCP	-	-	Not supported
Save DHCP Settings	-	-	Not supported
Configure Static IPV4 Address	Move the cursor to this item and press [Enter] key.	Configures the IP address.	
Ping	Move the cursor to this item and press [Enter] key.	Execute pinging.	

Configure Static IP Address

Configure Static IP Address

IP Address 192.168.0.213 Enter the IP Address

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

Save Changes

↑↓=Move Highlight <Enter>=Select Entry Esc=Exit

Configure Static IP Address

Operation

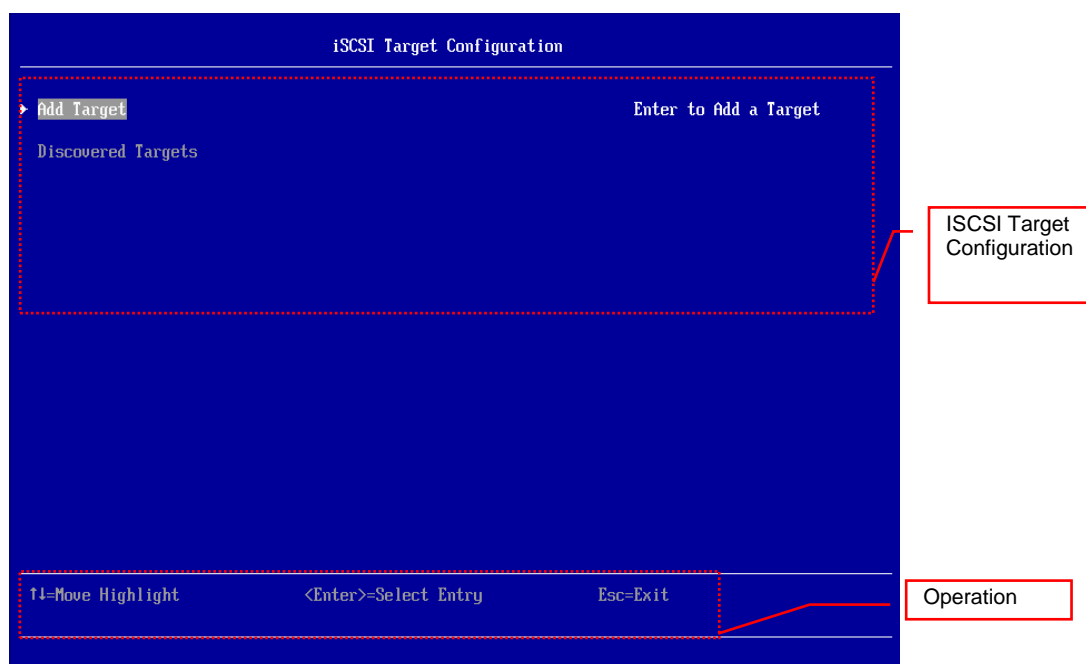
Configure Static IP Address Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
IP Address	Move the cursor to this item and press [Enter] key.	Configures IP Address.	
Subnet Mask		Configures Subnet Mask.	
Default Gateway		-	Not supported
Save Changes		Saves the configuration.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

iSCSI Target Configuration



iSCSI Target Configuration Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Add Target	Move the cursor to this item and press [Enter] key. "Add/Ping iSCSI Target" screen is displayed.	Sets the target name.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	



If the target can not be set, perform the following settings.

- (1) Return to "**System Configuration and Boot Management**" screen with ESC key.
- (2) Select **Save Settings** with arrow keys, and press **Enter** key.
- (3) Configure **iSCSI Initiator Name** again.

Add/Ping iSCSI Target

Add/Ping iSCSI Target

iSCSI Target Name
IP Version
iSCSI Target IP Address
TCP Port Number
BladeEngine Port Number
ISID Qualifier
Boot Target
Header Digest
Data Digest
Authentication Method
Ping
▶ Save/Login

Enter iSCSI Target Name
<IPv4>
-
[3260]
0
[1]
<No>
<No>
<No>
<None>

Enter iSCSI Target Name

↑↓=Move Highlight <Enter>=Select Entry Esc=Exit

Add/Ping iSCSI Target

Operation

Add/Ping iSCSI Target Area

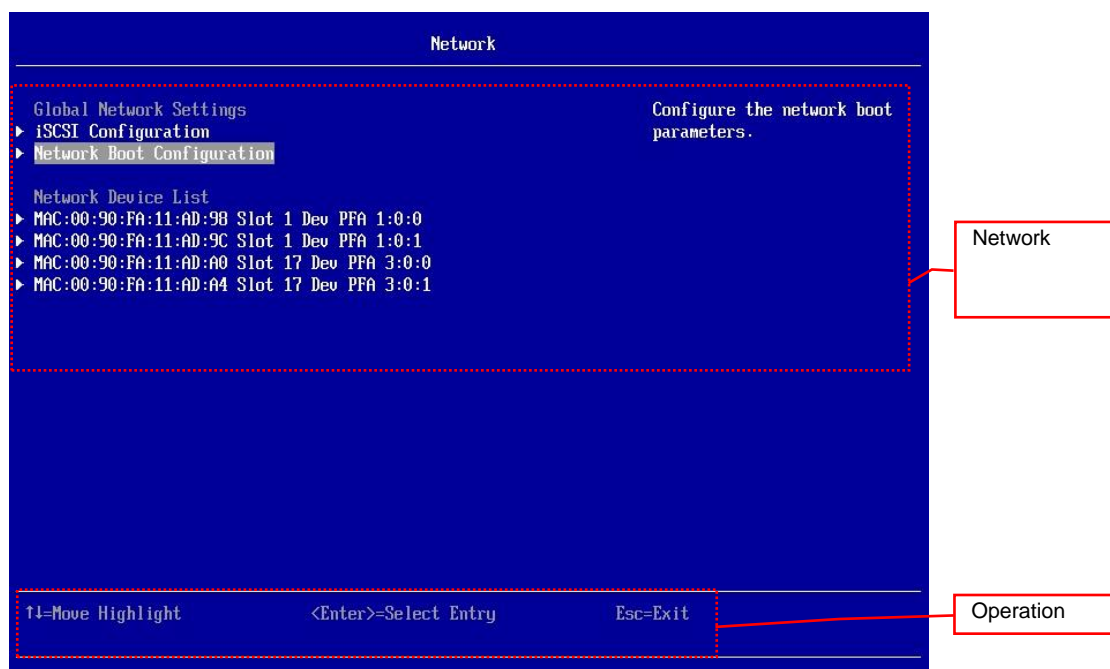
Item	Configuration/ Select menu / Expression	Explanation	Remarks
iSCSI Target Name	Move the cursor to this item and press [Enter] key.	Sets iSCSI Target name.	
IP Version	Choice: IPv4/IPv6	Selects IPV4 or IPV6.	
iSCSI Target IP Address	Move the cursor to this item and press [Enter] key.	Configures IP Address.	
TCP Port Number	Example: 3260	-	
BladeEngine Port Number	Example: 0	-	
ISID Qualifier	-	-	Not supported
Boot Target	Choice : Yes / No Default : No	Configures the boot target.	
Header Digest	-	-	Not supported
Data Digest	-	-	Not supported
Authentication Method	-	-	Not supported
Ping	Move the cursor to this item and press [Enter] key.	Execute ping.	
Save/Login		Saves the configuration and logs in the target.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

(b) Screens for NIC

Network



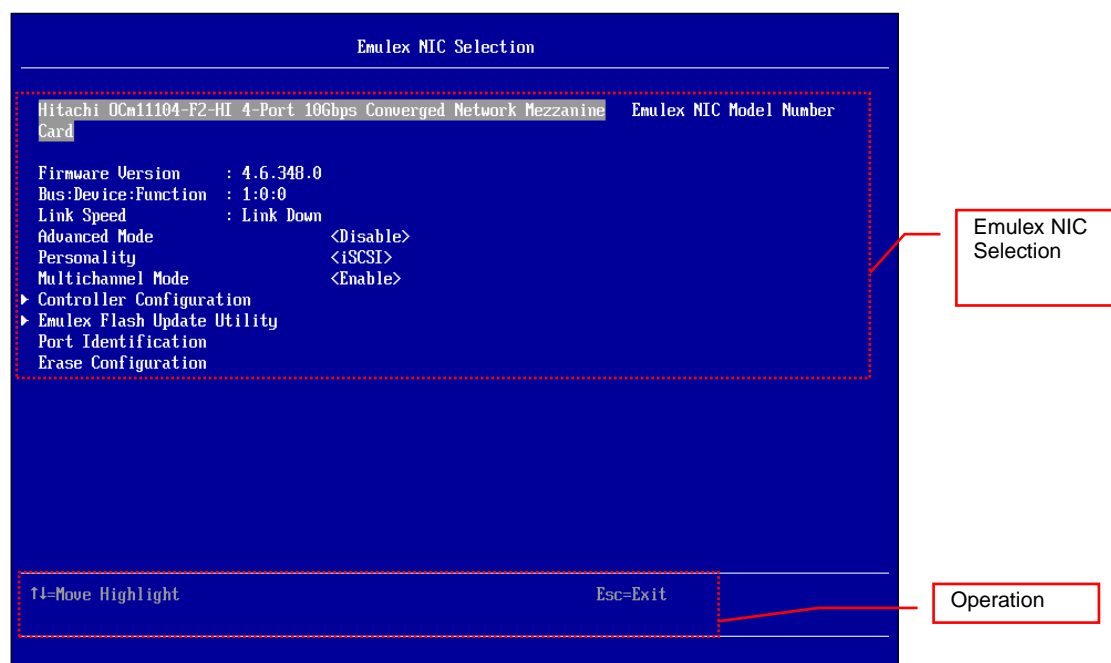
Network Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
iSCSI Configuration	-	-	Not supported
Network Boot Configuration	Move the cursor to this item and press [Enter] key.	Configures the PXE Mode.	
Network Device List	Move the cursor to this item and press [Enter] key. "Emulex NIC Selection" screen is displayed.	Selects the network device.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

Emulex NIC Selection (FW10.6.*.* or lower)



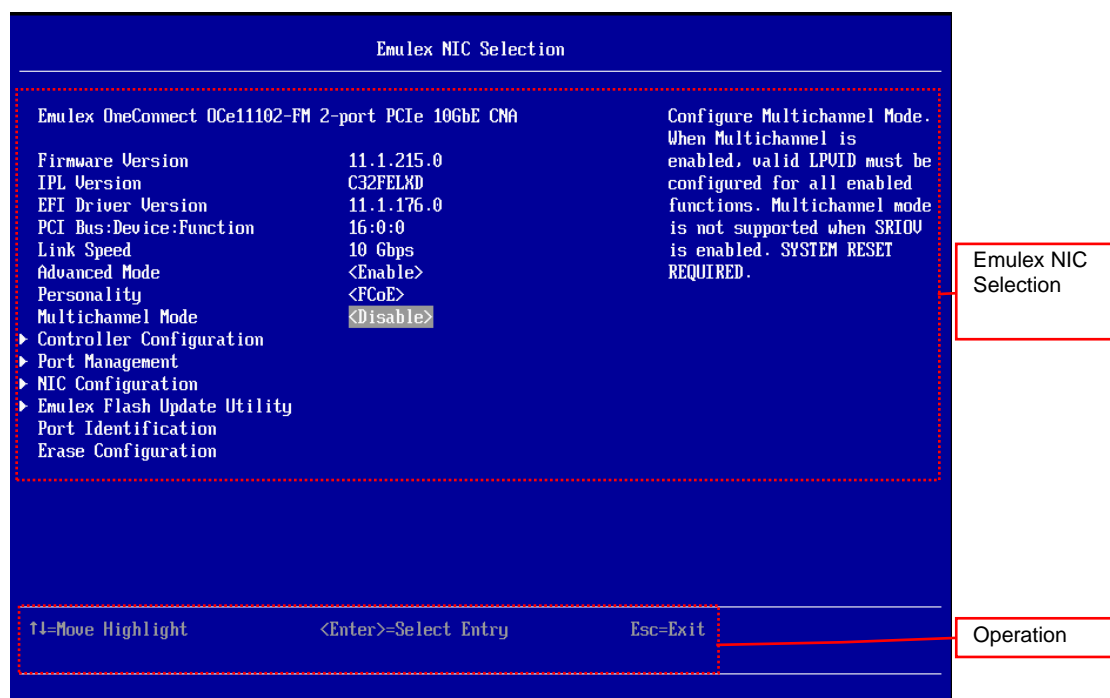
Emulex NIC Selection Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Firmware Version	Example:4.6.209.2	Displays the firmware version.	
Bus:Device:Function	Example:C:0:0	Displays the Bus:Device:Function.	
Link Speed	Example:10Gbps	Displays the port link speed.	
Advanced Mode	Choice: Enable / Disable Default: Disable	-	Supported only for : SR-IOV function on Hyper-V or CNA firmware version is 10.6.*.*
Personality	Choice: NIC / iSCSI / FCoE Default: NIC	Configures the personality.	
Multichannel Mode	Choice: Enable / Disable Default: Disable	Configures the MultiChannel.	
Controller Configuration	Move the cursor to this item and press [Enter] key.	"Controller Configuration" screen is displayed.	
Emulex Flash Update Utility	-	-	Not supported
Port Identification	-	-	Not supported
Erase Configuration	Move the cursor to this item and press [Enter] key.	Initializes the configuration.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

Emulex NIC Selection (FW11.1.*.* or higher)



Emulex NIC Selection Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Firmware Version	Example:11.1.215.0	Displays the firmware version.	
IPL Version	C32FELXD	Displays the IPL version.	
EFI Driver Version	11.1.176.0	Displays the EFI driver version.	
PCI Bus:Device:Function	Example:C:0:0	Displays Bus:Device:Function.	
Link Speed	Example:10Gbps	Displays the port link speed.	
Advanced Mode	Choice: Enable / Disable Default: Disable	-	Recommend to set Enable
Personality	Choice: NIC / iSCSI / FCoE Default: NIC	Configures the personality.	
Multichannel Mode	Choice: Enable / Disable Default: Disable	Configures the MultiChannel.	
Controller Configuration	Move the cursor to this item and press [Enter] key.	"Controller Configuration" screen is displayed.	
Port Management	-	-	Not supported
NIC Configuration	-	-	Not supported
Emulex Flash Update Utility	-	-	Not supported
Port Identification	-	-	Not supported
Erase Configuration	Move the cursor to this item and press [Enter] key.	Initializes the configuration.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	



- In the following cases, set "Enable" to [Advanced Mode]. Otherwise, set "Disable".
- using SR-IOV function in Hyper-V environment.
 - bare metal environment with CNA FW version 10.6 or higher (recommend).
 - using on LPAR manager with CNA FW version 10.6 or higher

Controller Configuration

In the case that "Multichannel Mode" value is "Enable" in "Emulex NIC Selection" screen :



Controller Configuration Area

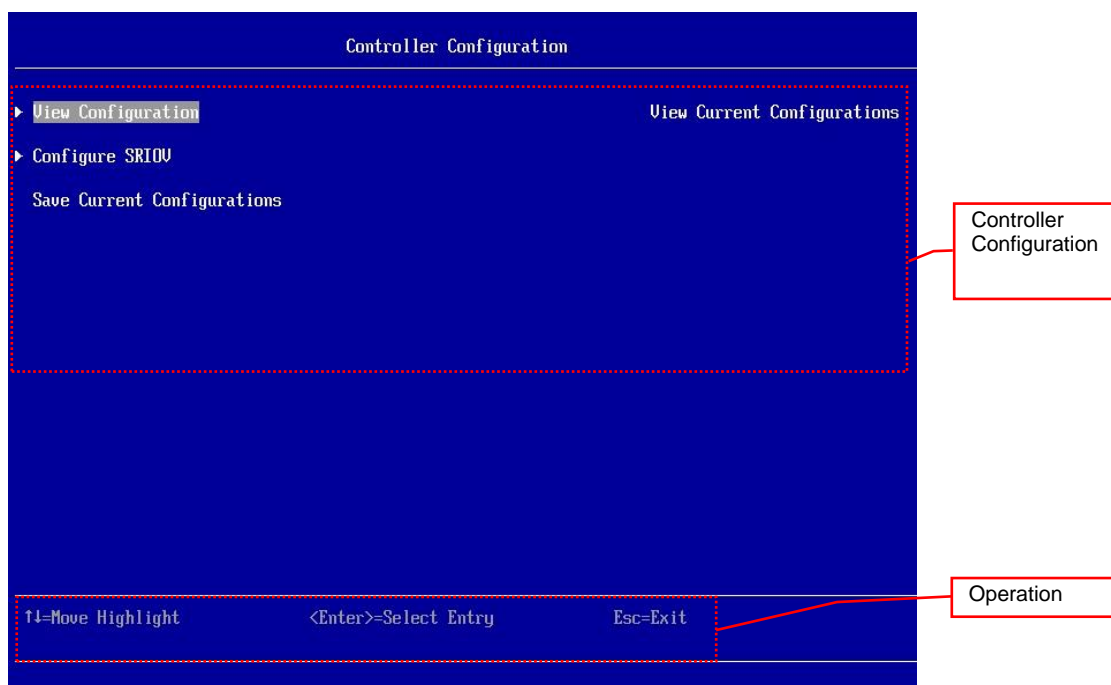
Item	Configuration/ Select menu / Expression	Explanation	Remarks
View Configuration	Move the cursor to this item and press [Enter] key. "View Configuration" screen is displayed.	Displays "View Configuration" screen.	
Configure Bandwidth	Move the cursor to this item and press [Enter] key. "Configure Bandwidth" screen is displayed.	Configures the bandwidth.	
Configure LPVID	Move the cursor to this item and press [Enter] key.	Configures the LPVID.	
Save Current Configurations	Move the cursor to this item and press [Enter] key.	Saves the configuration.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

Controller Configuration

In the case that "Multichannel Mode" value is "Disable" in "Emulex NIC Selection" screen :



Controller Configuration Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
View Configuration	Move the cursor to this item and press [Enter] key. "View Configuration" screen is displayed.	Displays "View Configuration" screen.	
Configure SRIOV	Move the cursor to this item and press [Enter] key. "Configure SRIOV" screen is displayed.	Configures the SRIOV.	
Save Current Configurations	Move the cursor to this item and press [Enter] key.	Saves the configuration.	

Operation Area

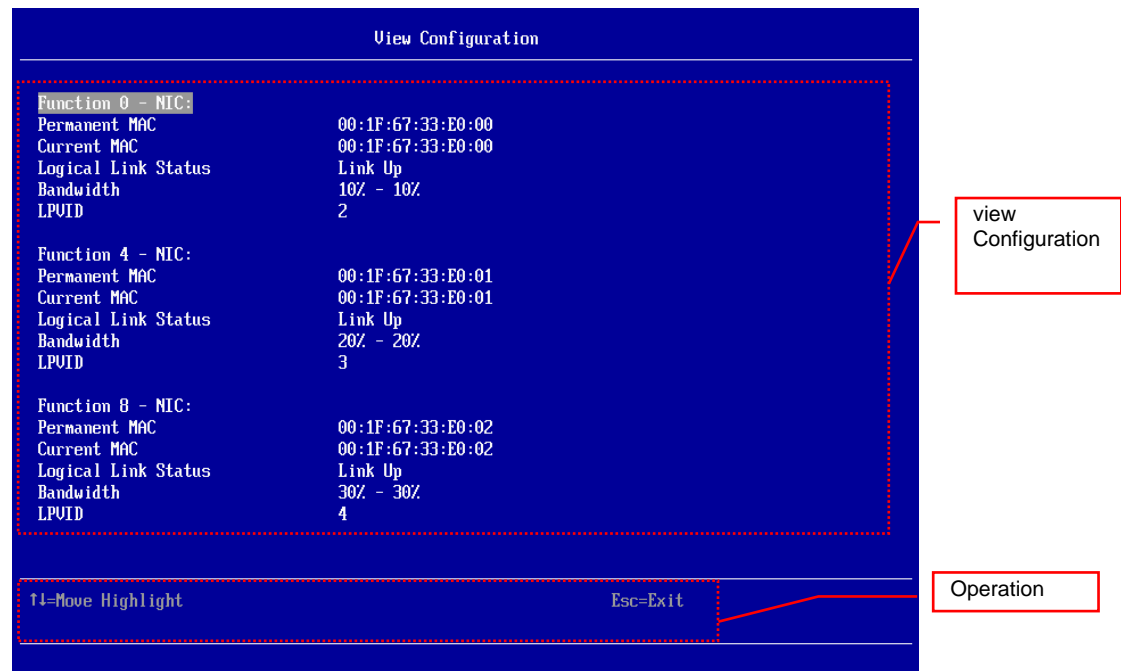
Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	



- See supported environments for SR-IOV on "[4.3.6 SR-IOV configuration \(Hyper-V Environment\)](#)" or "[4.3.7 SR-IOV configuration \(LPAR manager Environment\)](#)"

View Configuration

In the case that "Multichannel Mode" value is "Enable" in "Emulex NIC Selection" screen :



View Configuration Area

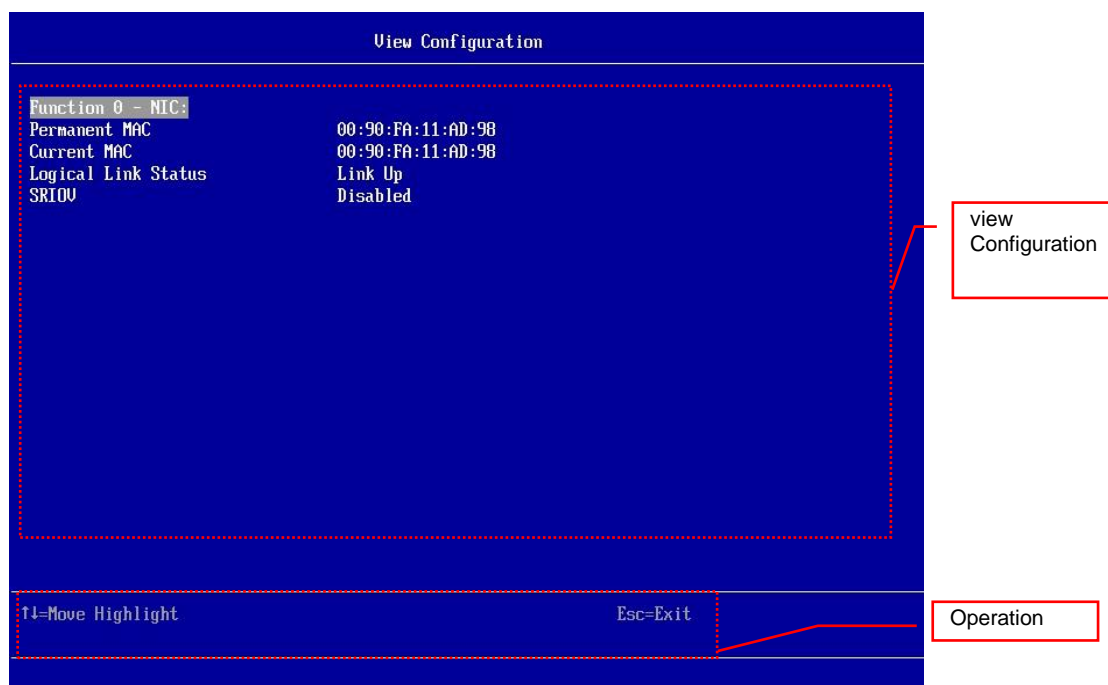
Item	Configuration/ Select menu / Expression	Explanation	Remarks
Permanent MAC	Example: 00:1F:67:33:E0:00	Displays the permanent MAC Address.	
Current MAC	Example: 00:1F:67:33:E0:00	Displays the current MAC Address.	
Logical Link Status	Example: Link Up	Displays the link status.	
Bandwidth	Example: 10%-10%	Displays the bandwidth.	
LPVID	Example: 2	Displays the ID of logical ports.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

View Configuration

In the case that "Multichannel Mode" value is "Disable" in "Emulex NIC Selection" screen :



View Configuration Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Permanent MAC	Example: 5C:F3:FC:5E:97:B1	Displays the permanent MAC Address.	
Current MAC	Example: 5C:F3:FC:5E:97:B1	Displays the current MAC Address.	
Logical Link Status	Example: Link Up	Displays the link status.	
SRIOV	Example: Disabled	Displays the SRIOV setting.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

Configure Bandwidth

Configure Bandwidth

Configure Minimum Bandwidth

Function 0 [0]

Function 2 [0]

Function 4 [0]

Function 6 [0]

Configure Minimum Bandwidth Percentage

Configure Maximum Bandwidth

Function 0 [0]

Function 2 [0]

Function 4 [0]

Function 6 [0]

↑↓=Move Highlight
<Enter>=Select Entry
Esc=Exit

Configure Bandwidth Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Configure Minimum Bandwidth	Choice : 0-100 Default: 0	Configures the Minimum Bandwidth.	
Configure Maximum Bandwidth	Choice : NIC / iSCSI / FCoE Default: NIC	Configures the Maximum Bandwidth.	

Operation Area

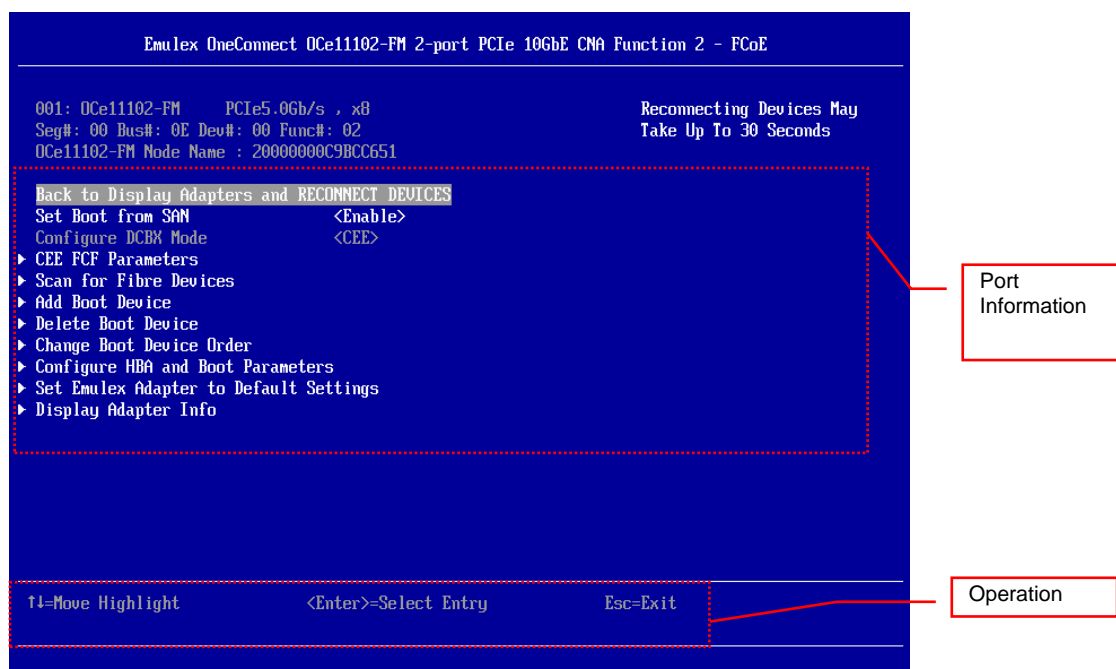
Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	



- Configures the bandwidth of logical port (PF). The sum of the percentage must be 100%
- Set the same value to "Minimum Bandwidth" and "Maximum Bandwidth"
- LPVIDs have to be set as 2-4094 even if the Bandwidth is 0%.

(c) Screens for FCoE menu

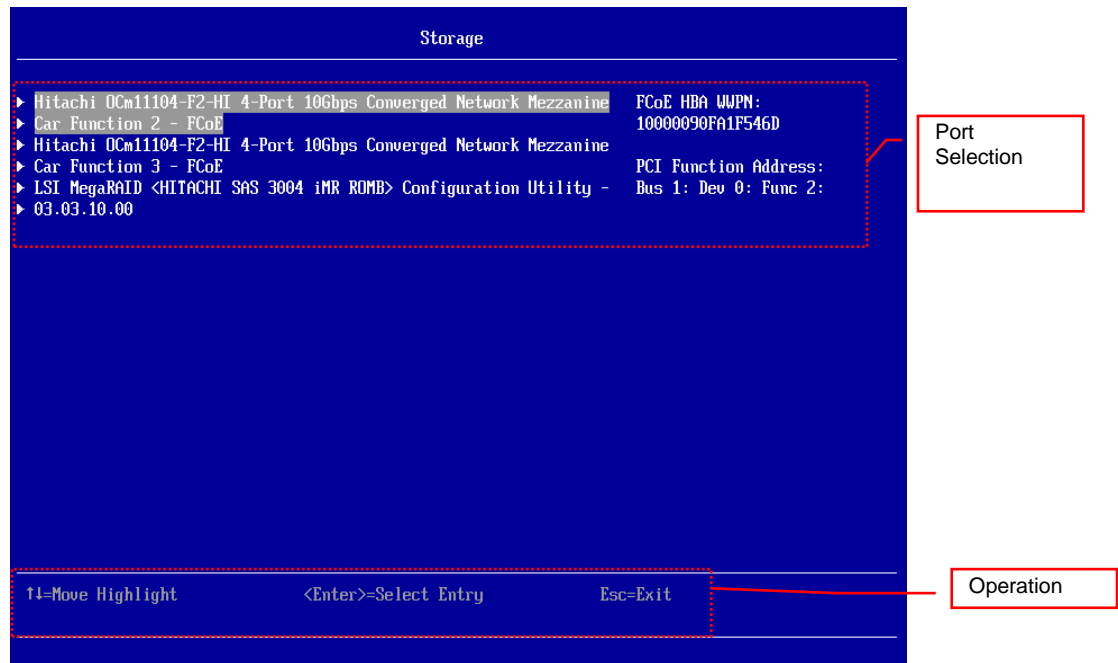
Storage



Port Information Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Back to Display Adapters and RECONNECT DEVICES	Move the cursor to this item, and press [Enter] key.	Back to display adapters.	
Set Boot from SAN	Choice : Enable / Disable Default : Disable	Configures the boot device.	
Configure DCBX Mode	Choice : CEE / CIN Default : CEE	Configures the DCBX Mode.	
CEE FCF Parameters	Move the cursor to this item, and press [Enter] key.	Configure the CEE FCF.	
Scan for Fibre Devices	Move the cursor to this item, and press [Enter] key.	Displays fibre devices.	
Add Boot Device	Move the cursor to this item, and press [Enter] key.	Configures the boot device.	
Delete Boot Device	Move the cursor to this item, and press [Enter] key.	Deletes the configuration of the boot device.	
Change Boot Device Order	Move the cursor to this item, and press [Enter] key.	Changes the configuration of the boot device.	
Configure HBA and Boot Parameters	Move the cursor to this item, and press [Enter] key.	Configure HBA and boot parameters.	
Set Emulex Adapter to Default Settings	Move the cursor to this item, and press [Enter] key.	Set Emulex adapter to default settings.	
Display Adapter Info	Move the cursor to this item, and press [Enter] key.	Displays adapter Info.	

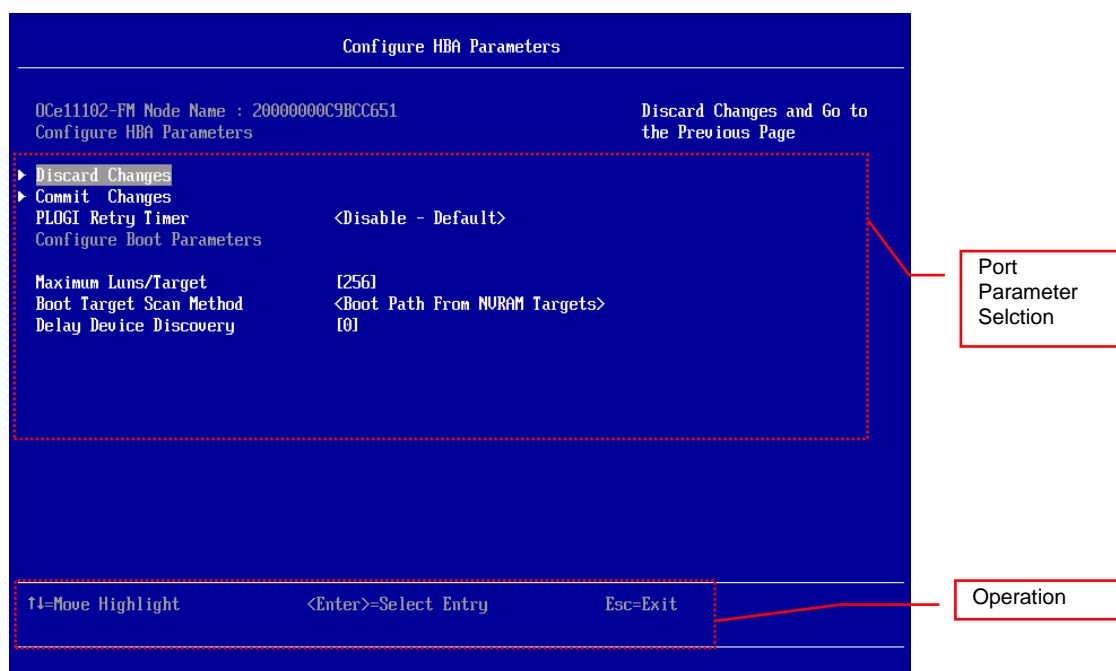
Storage



Port Selection Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Port List	Example: Hitachi OCm11104-Port 10Gbps Converged Network Mezzanine Car Function X -FCoE	Displays the port list.	

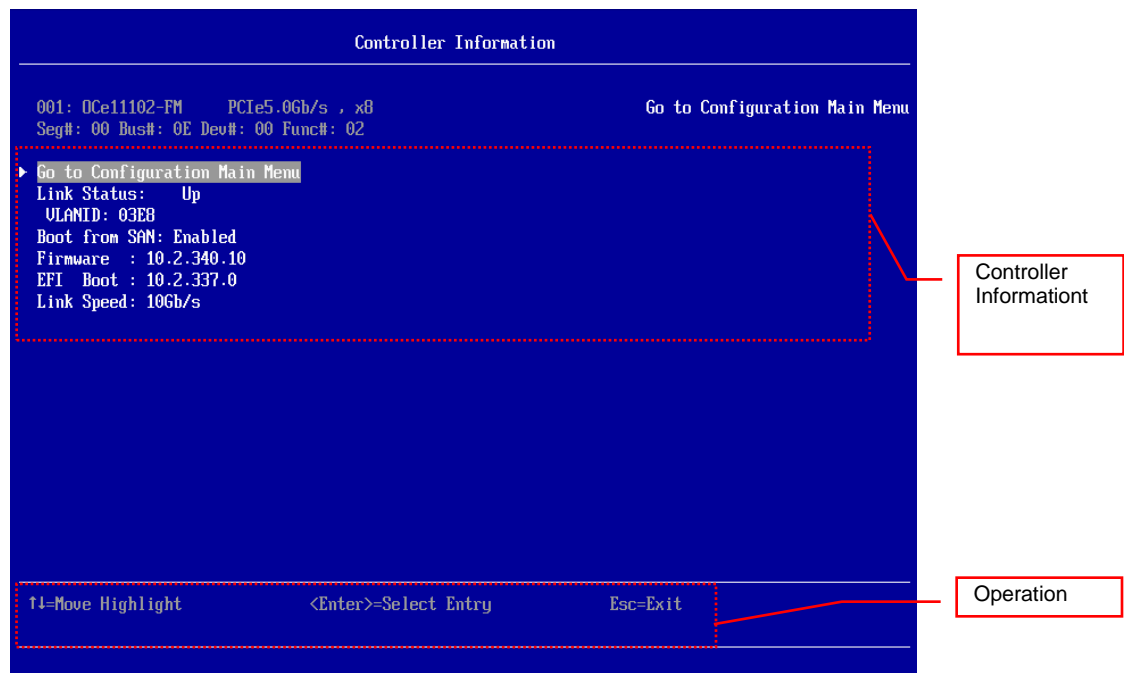
Configure HBA Parameters



Port Parameter Selection Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Commit Changes	Move the cursor to this item, and press [Enter] key.	Saves the configuration.	
PLOGI Retry Timer		Configures the PLOGI Retry Timer.	
Maximum Luns/Target		Configures the Luns/Target.	
Boot Target Scan Method		Configures the Boot Target Scan Method.	
Delay Device Discovery		Configures the Delay Device Discovery.	

Controller Information



Controller Information Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Go to Configuration Main Menu	Move the cursor to this item, and press [Enter] key.	Go to Configuration Main Menu.	
Link Status	Example: Down VLANID:N/A	Displays link Status.	
Boot from SAN	Example:Disabled	Displays Boot from SAN.	
Firmware	Example:10.2.230.16	Displays Firmware.	
EFI Boot	Example:10.2.230.16	Displays EFI Boot.	
Link Speed	Example:NA	Displays Link Speed.	

3.4 FC expansion card / FC board (Legacy BIOS)

3.4.1 Emulex BIOS Utility (8Gb Fibre Channel)

(1) Emulex BIOS Utility functions

The main functions of Emulex BIOS Utility are listed below.

No.	Functions	Explanation
1	Configures the device	Configures the boot device. Configures the device connection.
2	Configures the adapter parameter.	<ul style="list-style-type: none">- Configures- Configures ALPA of the board- Configures Loop mode- Configures Spin up Delay- Configures Auto scan.- Configures EDD function.- Configures Start Unit Command.- Configures Environment Variable.- Configures boot sector.- Configures transfer rate.

(2) Opening Emulex BIOS Utility

1. Turn on the remote console, then click [Power] - [Power On] in tool bar of the remote console to turn on the system.
2. When the following screen appears during startup of the system, press [Ctrl] and [E] simultaneously.

```
Emulex LightPulse FC BIOS, Version 2.12a12
Copyright (c) 1997-2012 Emulex. All rights reserved.

Press <Alt E> or <Ctrl E> to enter Emulex BIOS configuration
utility. Press <s> to skip Emulex BIOS
```

3. When Emulex BIOS Utility opens, the following screen is displayed.

```
Emulex LightPulse BIOS Utility, 082.12a13

This utility displays and saves changes when selected.
You will be prompted to reboot for all changes to take effect.

Emulex Adapters in the System:

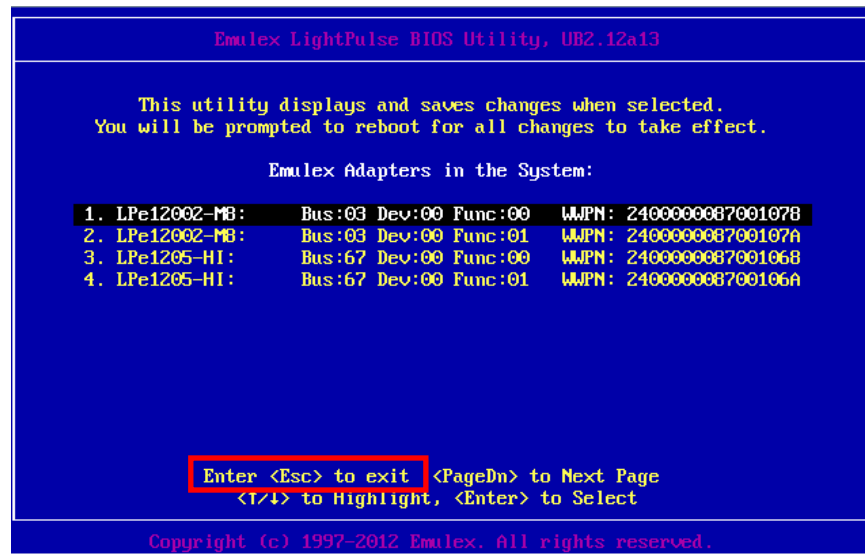
1. LPe12002-MB: Bus:03 Dev:00 Func:00 WWPN: 2400000087001078
2. LPe12002-MB: Bus:03 Dev:00 Func:01 WWPN: 240000008700107A
3. LPe1205-HI: Bus:67 Dev:00 Func:00 WWPN: 2400000087001068
4. LPe1205-HI: Bus:67 Dev:00 Func:01 WWPN: 240000008700106A

Enter <Esc> to exit <PageDn> to Next Page
<↑/↓> to Highlight, <Enter> to Select

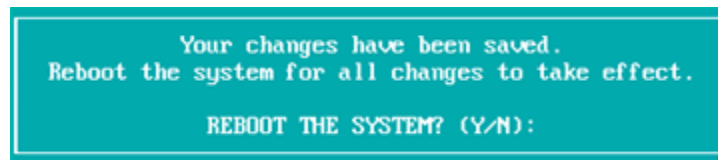
Copyright (c) 1997-2012 Emulex. All rights reserved.
```

(3) Exiting Emulex BIOS Utility

1. Press [Esc] key when "Enter <Esc> to Exit" is displayed on the lower of the screen.



2. The following screen is displayed, and press [Y] key.



3. The system reboots.

(4) Operating the Emulex BIOS Utility menu

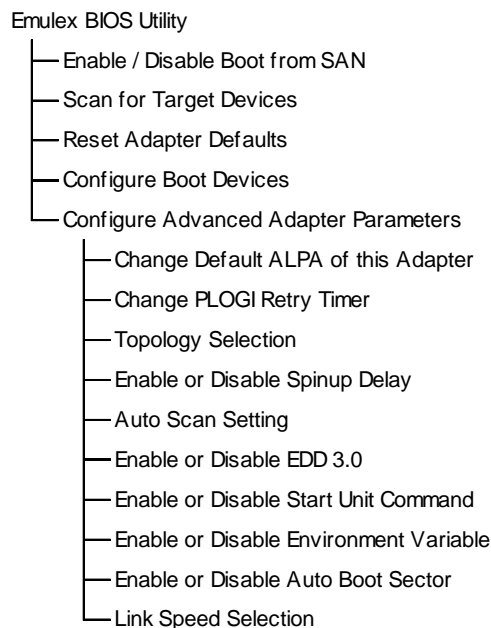
The operation and keys to use are displayed on the lower part of the screen for each menu.

The basic keys for operation of the utility are as follows.

- arrow key : used to select an item or value.
- [tab] key : used to select an item.
- [Enter] key : used to decide an item or a value to set.
- number key : used to input a value to set

(5) Emulex BIOS Utility menu tree

Emulex BIOS Utility menu tree is as follows.

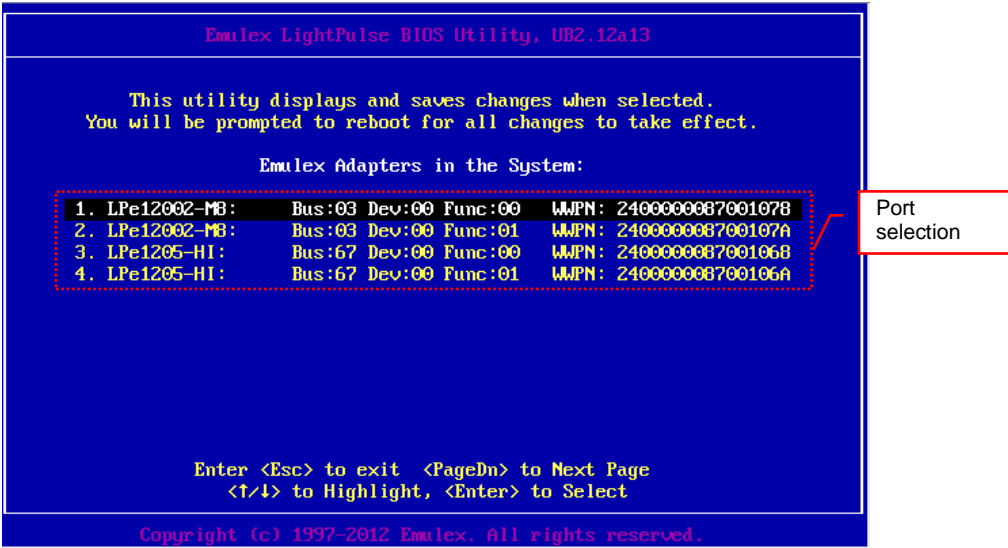


Each menu item is explained below.

Item		Explanation	Remarks
Emulex BIOS Utility	Enable/Disable Boot from SAN	Configures the expansion BIOS.	
	Scan for Target Devices	Scan for Target Devices.	
	Reset Adapter Defaults	Reset Adapter Defaults.	
	Configure Boot Devices	Configures the boot device. Configures the boot method.	
	Configure Advanced Adapter Parameters	Change Default ALPA of this Adapter	Configures ALPA of the adapter.
		Change PLOGI Retry Timer	Configures PLOGI retry timer.
		Topology Selection	Configures the Loop mode.
		Enable or Disable Spinup Delay	Configure the spin up delay of the HDD of the disk array equipment.
		Auto Scan Setting	- Not supported
		Enable or Disable EDD 3.0	- Not supported
		Enable or Disable Start Unit Command	- Not supported
		Enable or Disable Environment Variable	- Not supported
		Enable or Disable Auto Boot Sector	Configures the auto boot sector.
		Link Speed Selection	Selects the link speed.

(6) Emulex BIOS Utility Menu Screens

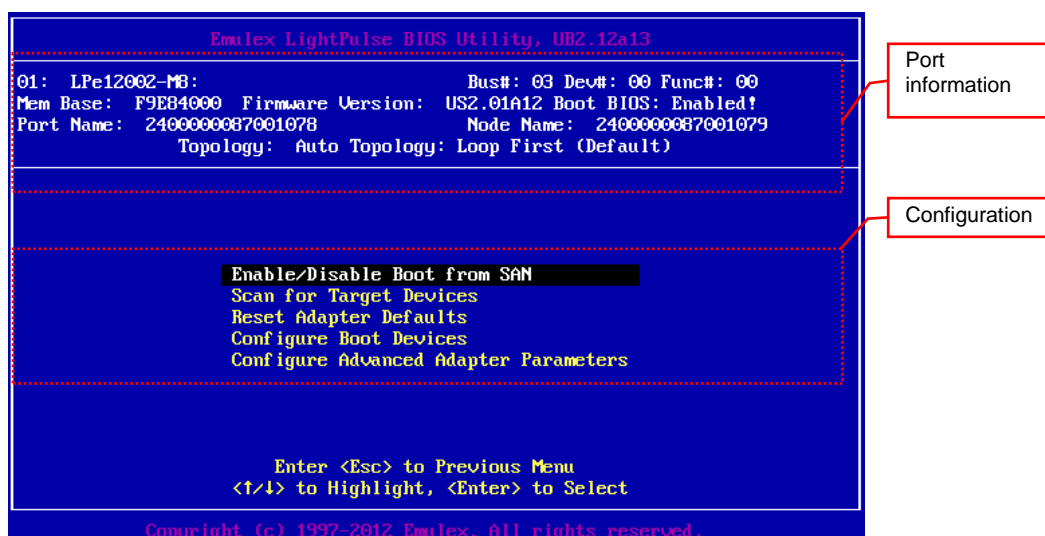
Emulex BIOS Utility



Port Selection Area

Item	Expression	Explanation	Remarks
Port List	Example: 1. LPe12002-MB : Bus:XX Dev : XX , Func :XX WWPN: 2400000087001078	Displays the port list.	

Configuration



Port information Area

Item	Expression	Explanation	Remarks
01:	Example: LPe12002-M8	Displays the adapter name.	
PCI Bus, Device, Function	Example: Bus#: 03 Dev#: 00 Func# 00	Displays the PCI ID.	
Mem Base:	Example:F9E84000	Displays the memory mapping information.	
Firmware Version:	Example: US2.01A12	Displays the firmware version.	
Boot BIOS	Example: Enabled!	Displays the Boot BIOS.	
Port Name:	Example: 2400000087001078	Displays WWPN.	
Node Name:	Example: 2400000087001079	Displays WWNN.	
Topology:	Example: Loop First (Default)	Displays the configuration of loop mode.	

Configuration Area

Item	menu to select	Explanation	Remarks
Enable/Disable Boot from SAN	Configures the expansion BIOS.	-	
Scan for Target Devices	Scan for Target Devices.	-	
Reset Adapter Defaults	Reset Adapter Defaults.	-	
Configure Boot Devices	Configures the boot device Configures the boot method.	-	
Configure Advanced Adapter Parameters	Configure Advanced Adapter Parameters.	-	

Configure Boot Devices

Emulex LightPulse BIOS Utility, U82.12a13

01: LPe12002-M8: Bus#: 03 Dev#: 00 Func#: 00
 Mem Base: F9E84000 Firmware Version: US2.01A12 Boot BIOS: Enabled!
 Port Name: 2400000087001078 Node Name: 2400000087001079
 Topology: Auto Topology: Loop First (Default)

List of Saved Boot Devices:

Entry No.	Registered Status	Boot method	LU No
1. Used	DID:000000 WWP:50060E80 1024ED21	LUN:00	Primary Boot
2. Unused	DID:000000 WWP:00000000 00000000	LUN:00	
3. Unused	DID:000000 WWP:00000000 00000000	LUN:00	
4. Unused	DID:000000 WWP:00000000 00000000	LUN:00	
5. Unused	DID:000000 WWP:00000000 00000000	LUN:00	
6. Unused	DID:000000 WWP:00000000 00000000	LUN:00	
7. Unused	DID:000000 WWP:00000000 00000000	LUN:00	
8. Unused	DID:000000 WWP:00000000 00000000	LUN:00	

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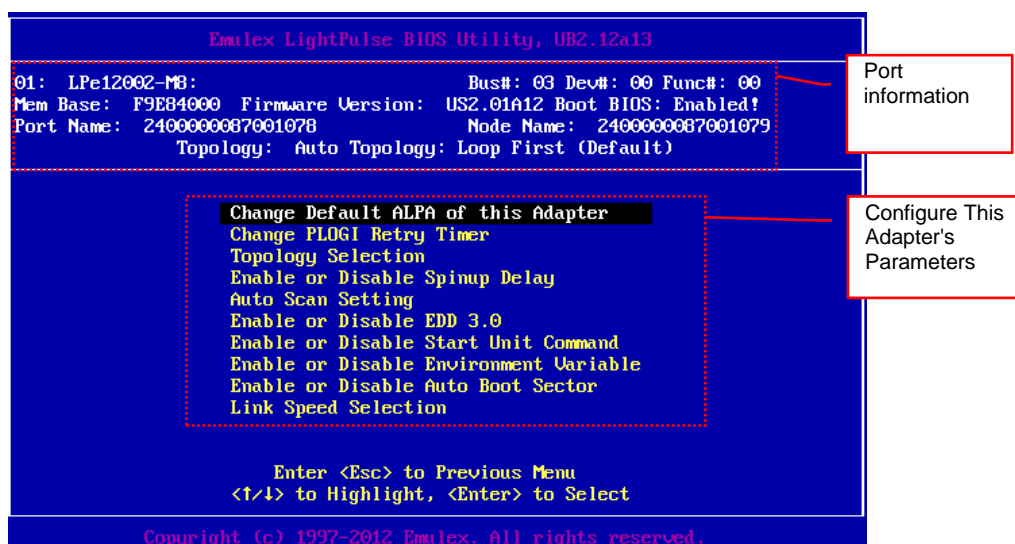
Port information Area

Item	Expression	Explanation	Remarks
01:	Example: LPe12002-M8	Displays the adapter name.	
PCI Bus, Device, Function	Example: Bus#: 03 Dev#: 00 Func# 00	Displays the PCI ID.	
Mem Base:	Example:F9E84000	Displays the memory mapping information.	
Firmware Version:	Example: US2.01A12	Displays the firmware version.	
Boot BIOS	Example: Enabled!	Displays the Boot BIOS.	
Port Name:	Example: 2400000087001078	Displays WWP.	
Node Name:	Example: 2400000087001079	Displays WWNN.	
Topology:	Example: Loop First (Default)	Displays the configuration of loop mode.	

Configure Boot Devices Area

Item	Expression	Explanation	Remarks
Entry No.	Example:1 - 8	Displays LU entry No.	
Registered Status	Example: Used : registered Unused : Unregistered	Displays the registered status of the LU.	
Boot method	Example: All [0] (Unregistered)	Displays DID / WWP.	
LU No	Example: 00	Displays LU No.	

Configure Advanced Adapter Parameters



Port information Area

Item	Expression	Explanation	Remarks
01:	Example: LPe12002-M8	Displays the adapter name.	
PCI Bus, Device, Function	Example: Bus#: 03 Dev#: 00 Func# 00	Displays the PCI ID.	
Mem Base:	Example:F9E84000	Displays the memory mapping information.	
Firmware Version:	Example: US2.01A12	Displays the firmware version.	
Boot BIOS	Example: Enabled!	Displays the Boot BIOS.	
Port Name:	Example: 2400000087001078	Displays WWPN.	
Node Name:	Example: 2400000087001079	Displays WWNN.	
Topology:	Example: Loop First (Default)	Displays the configuration of loop mode.	

Configure Advanced Adapter Parameters Area

Item	Expression	Explanation	Remarks
Change Default ALPA of this Adapter	Choice: 01-EF Default:00	Configures the ALPA of this adapter.	
Change PLOGI Retry Timer	Choice: - 0msec - 50msec - 100msec - 200msec Default: - 0msec	Configures PLOGI Retry timer.	
Topology Selection	Choice: • Auto Topology(Loop First) • Auto Topology(Pt to Pt First) • FC-AL • Fabric Point to Point Default: Auto Topology (Loop First)	Configures the Loop mode.	
Enable or Disable Spinup Delay	Choice: Enable / Disable Default: Disable	Configure the spin up delay of the HDD of the disk array equipment.	
Auto Scan Setting	-	-	Not supported
Enable or Disable EDD 3.0	-	-	Not supported
Enable or Disable Start Unit Command	-	-	Not supported

Enable or Disable Environment Variable	-	-	Not supported
Enable or Disable Auto Boot Sector	Choice: • Enable • Disable Default: Disable	Configures the Auto Boot Sector.	
Link Speed Selection	Choice: • Auto Select • 2 Gigabaud • 4 Gigabaud • 8 Gigabaud Default: Auto Select	Configures the Link Speed.	

3.4.2 Emulex BIOS Utility (16Gb Fibre Channel)

(1) Emulex BIOS Utility functions

The main functions of Emulex BIOS Utility are listed below.

No.	Functions	Explanation
1	Configures the device	Configures the boot device. Configures the device connection.
2	Configures the adapter parameter.	<ul style="list-style-type: none">- Change default ALPA of the adapter- Change PLOGI retry timer- Select a topology- Enable or disable spinup delay- Set autoscan- Enable or disable EDD 3.0- Enable or disable the start unit command- Enable or disable the environment variable- Enable or disable auto boot sector- Select a link speed

(2) Opening Emulex BIOS Utility

1. Turn on the remote console, then click [Power] - [Power On] in tool bar of the remote console to turn on the system.
2. When the following screen appears during startup of the system, press [Ctrl] and [E] simultaneously.

```
!!! Emulex LightPulse x86 BIOS !!!, Version 2.02a1
Copyright (c) 1997-2008 Emulex. All rights reserved.

Press <Alt E> or <Ctrl E> to enter Emulex BIOS configuration
utility. Press <s> to skip Emulex BIOS
```

3. When Emulex BIOS Utility opens, the following screen is displayed.

```
Emulex LightPulse FC BIOS Utility, RA 10.0.766.0

This utility displays and saves changes when selected.
You will be prompted to reboot for all changes to take effect.

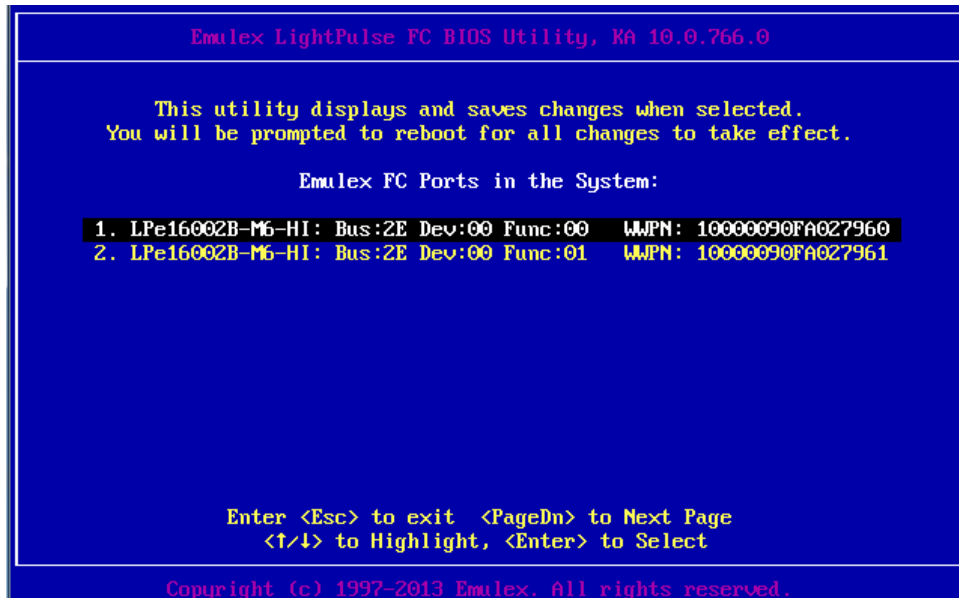
Emulex FC Ports in the System:
1. LPe16002B-M6-HI: Bus:2E Dev:00 Func:00 WWPN: 10000090FA027960
2. LPe16002B-M6-HI: Bus:2E Dev:00 Func:01 WWPN: 10000090FA027961

Enter <Esc> to exit <PageDn> to Next Page
<↑/↓> to Highlight, <Enter> to Select

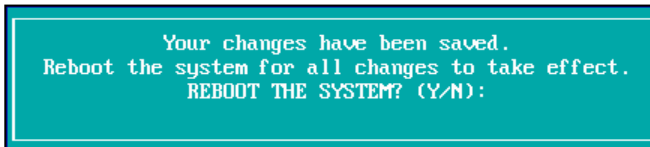
Copyright (c) 1997-2013 Emulex. All rights reserved.
```

(3) Exiting Emulex BIOS Utility

4. Press [ESC] key when the following screen appears.



5. Press [Y] key when the following screen appears.



6. The system reboots.

(4) Operating the Emulex BIOS Utility menu

- arrow key : used to select an item or value.
- [tab] key : used to select an item.
- [Enter] key : used to decide an item or a value to set.
- number key : used to input a value to set

(5) Emulex BIOS Utility menu tree

Emulex BIOS Utility menu tree is as follows.

- Emulex BIOS Utility
 - Enable/Disable Boot from SAN
 - Scan for Target Devices
 - Reset Adapter Defaults
 - Configure Boot Devices
 - Configure Advanced Adapter Parameters
 - Change Default ALPA of this adapter
 - Change PLOGI Retry Timer
 - Topology Selection
 - Enable or Disable Spinup Delay
 - Auto Scan Setting
 - Enable or Disable EDD 3.0
 - Enable or Disable Start Unit Command
 - Enable or Disable Environment Variable
 - Enable or Disable Auto Boot Sector
 - Link Speed Selection

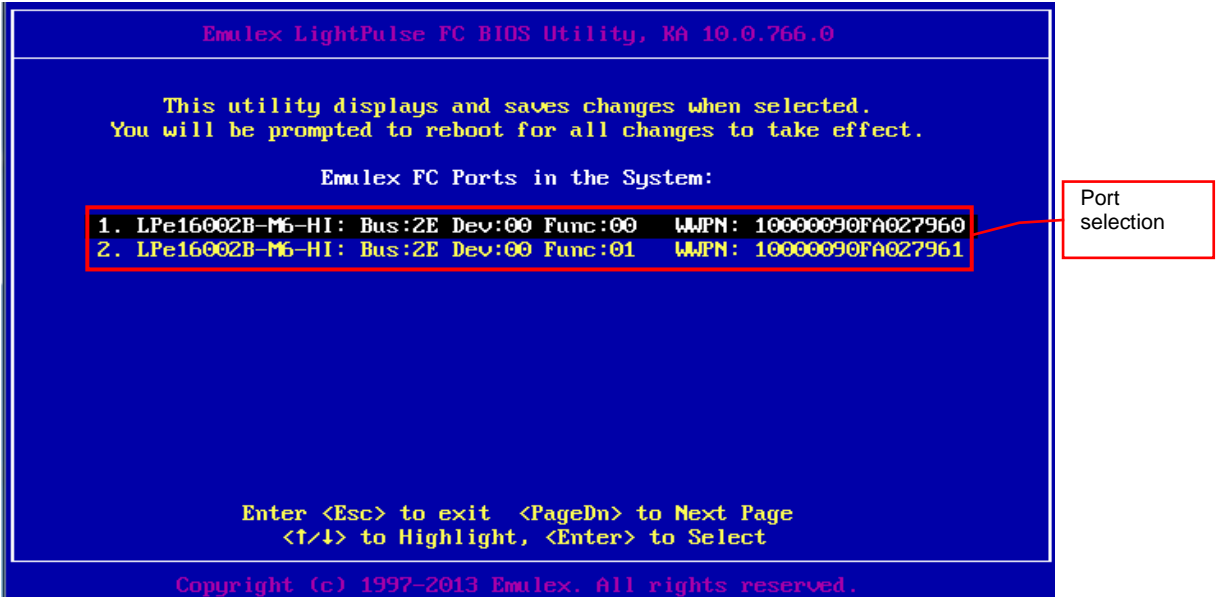
Each menu item is explained below.

Item	Explanation	Remarks
Emulex BIOS Utility	Selects the port to be configured.	
Enable/Disable Boot from SAN	Enables an adapter to boot from SAN.	
Scan for Target Devices	Scans for Target Devices.	
Reset Adapter Defaults	Resets the Adapter.	
Configure Boot Devices	Configures the Boot Device.	
Configure Advanced Adapter Parameters		
(*1)	Change Default ALPA of this adapter	Configures ALPA of the adapter.
	Change PLOGI Retry Timer	Configures PLOGI retry timer.
	Topology Selection	Configures the Loop mode.
	Enable or Disable Spinup Delay	Configure the spin up delay of the HDD of the disk array equipment.
	Auto Scan Setting	- Not supported
	Enable or Disable EDD3.0	- Not supported
	Enable or Disable Start Unit Command	- Not supported
	Enable or Disable Enviroment Varriable	- Not supported
	Enable or Disable Auto Boot Sector	- Not supported
	Link Speed Selection	Selects the link speed.

(*1) See "Configure Advanced Adapter Parameter" for default parameter value of the adapter.

(6) Emulex BIOS Utility Menu Screens

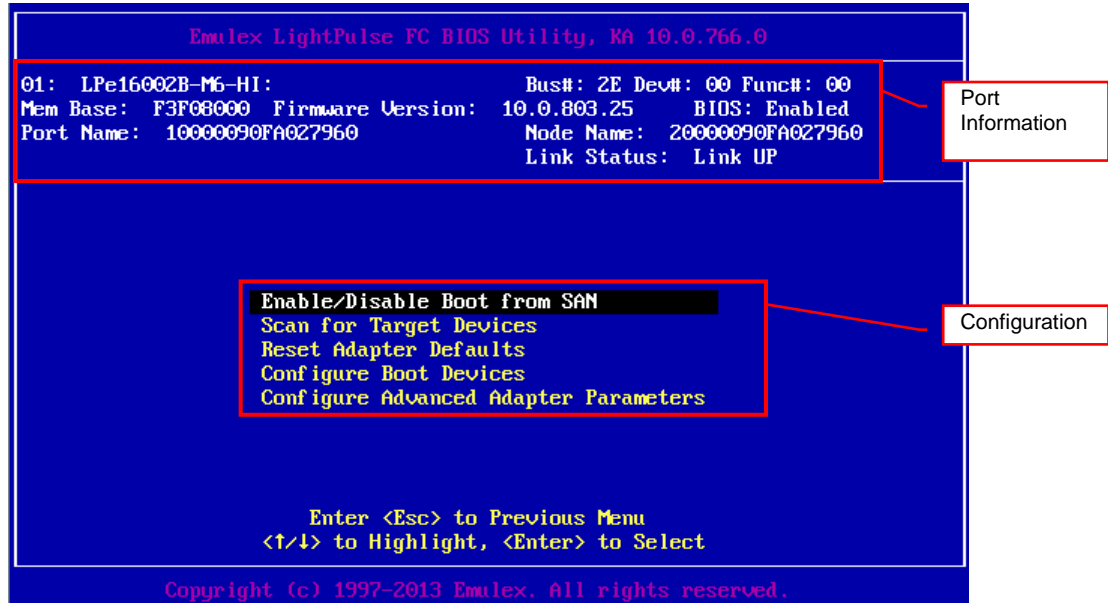
Emulex BIOS Utility



Port Selection Area

Item	Expression	Explanation	Remarks
Port List	Example: 1. LPe16002B-M6-HI : Bus:2E Dev:00 Func:00 WWPN: 10000090FA027960	Displays the port list.	

Configuration



Port Information Area

Item	Expression	Explanation	Remarks
XX: Adapter:	Example: 01: LPe16002B-M6-HI:	Displays Adapter number on the BIOS and the adapter name.	
Bus#: XX Dev#: XX Func#: XX	Example: Bus#: 2E Dev#: 00 Func#: 00	Displays the PCI ID.	
Mem Base:	Example: F3F08000	Displays the memory mapping information.	
Firmware Version:	Example: 10.0.803.25	Displays the firmware version.	
BIOS	Example: Enabled	Displays the SAN Boot configuration.	
Port Name:	Example: 10000090FA027960	Displays WWPN.	
Node Name:	Example: 20000090FA027960	Displays WWNN.	
Link Status	Example: Link UP	Displays the port link status.	

Configuration Area

Item	menu to select	Explanation	Remarks
Enable/Disable Boot from SAN	1: Enable 2: Disable	-	
Scan for Target Devices	-	-	
Reset Adapter Defaults	-	-	
Configure Boot Devices	-	Configures the Boot Devices.	
Configure Advanced Adapter Parameters	-	Configures the Advanced Adapter Parameters.	

Configure Boot Devices

Emulex LightPulse FC BIOS Utility, KA 10.0.766.0

01: LPe16002B-M6-HI: Bus#: 2E Dev#: 00 Func#: 00
 Mem Base: F3F08000 Firmware Version: 10.0.803.25 BIOS: Enabled
 Port Name: 10000090FA027960 Node Name: 20000090FA027960
 Link Status: Link UP

List of Saved Boot Devices:

Entry No.	Registered Status	Boot method	LU No
1.	Used	DID:000000 WWPN:50060E80 1024E9B0	LUN:00 Primary Boot
2.	Unused	DID:000000 WWPN:00000000 00000000	LUN:00
3.	Unused	DID:000000 WWPN:00000000 00000000	LUN:00
4.	Unused	DID:000000 WWPN:00000000 00000000	LUN:00
5.	Unused	DID:000000 WWPN:00000000 00000000	LUN:00
6.	Unused	DID:000000 WWPN:00000000 00000000	LUN:00
7.	Unused	DID:000000 WWPN:00000000 00000000	LUN:00
8.	Unused	DID:000000 WWPN:00000000 00000000	LUN:00

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Configure Boot Devices

Registered Status

Boot method

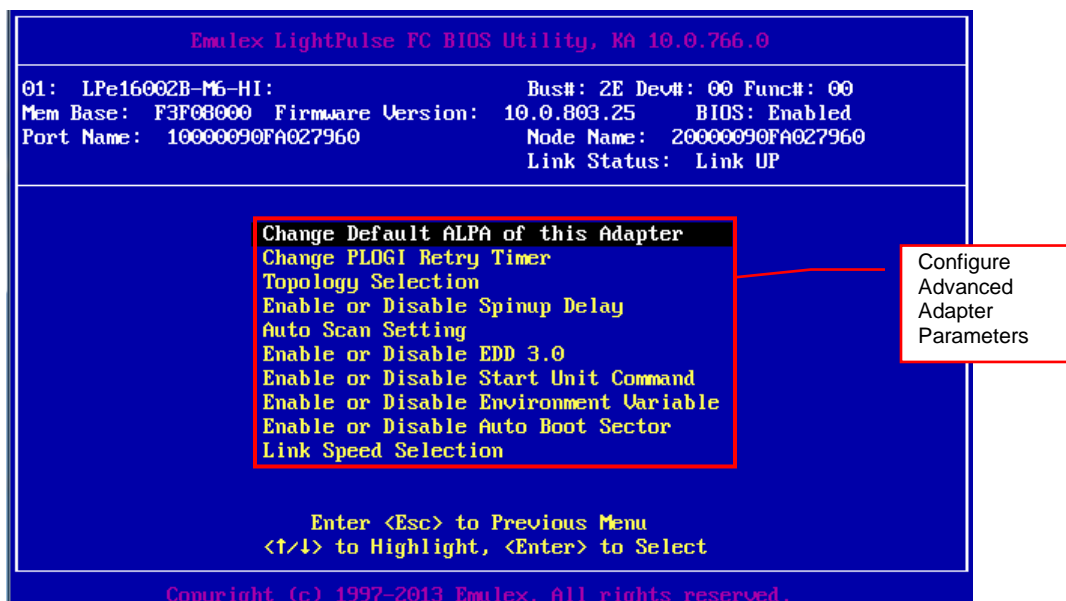
LU No

Entry No. <↑/↓> to Highlight, <Enter> to Select

Configuration Boot Devices Area

Item	Expression	Explanation	Remarks
Entry No.	Example:1 - 8	Displays LU entry No.	
Registered Status	Example: Used : registered Unused : Unregistered	Displays the registered status of the LU.	
Boot method	Example: All [0] (Unregistered)	Displays DID / WWPN.	
LU No	Example: 00	Displays LU No.	

Configure Advanced Adapter Parameters



Configure This Adapter's Parameters Area

Item	Expression	Explanation	Remarks
Change Default ALPA of this Adapter	Choice: 01-EF Default:00	Configures the ALPA of this adapter.	
Change PLOGI Retry Timer	Choice: - 0msec - 50msec - 100msec - 200msec Default: - 0msec	Configures PLOGI Retry timer.	
Topology Selection	Choice: • Auto Topology(Loop First) • Auto Topology(Pt to Pt First) • FC-AL • Fabric Point to Point Default: Auto Topology(Loop First)	Configures the Loop mode.	
Enable or Disable Spinup Delay	Choice: Enable / Disable Default: Disable	Configure the spin up delay of the HDD of the disk array equipment.	
Auto Scan Setting	-	-	Not supported
Enable or Disable EDD3.0	-	-	Not supported
Enable or Disable Start Unit Command	-	-	Not supported
Enable or Disable Enviroment Varriable	-	-	Not supported
Enable or Disable Auto Boot Sector	Choice: Enable / Disable Default: Disable	Configures the boot sector.	
Link Speed Selection	Choice: • Auto Select • 2 Giga baud • 4 Giga baud • 8 Giga baud Default: Auto Select	Configures the link speed.	

3.5 FC expansion card / FC board (UEFI on CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4)

3.5.1 Emulex UEFI Utility (8Gb Fibre Channel)

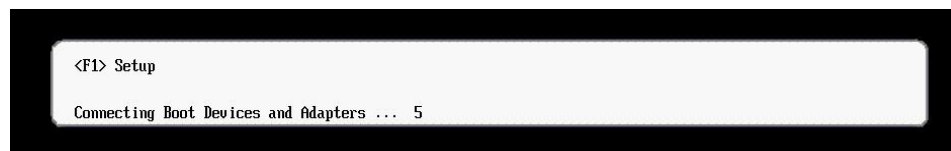
(1) Emulex UEFI Utility functions

The main functions of Emulex UEFI Utility are listed below.

No.	Functions	Explanation
1	Storage	Configures the boot device. Configures the device connection.
2	Configures HBA and Boot parameter.	<ul style="list-style-type: none">- Configures- Configures Topology Selection- Configures PLOGI Retry Timer- Configures Force Link Speed- Configures Maximum Luns/Target- Configures Boot Target Scan Method- Configures Delay Device Discovery

(2) Opening Emulex UEFI Utility

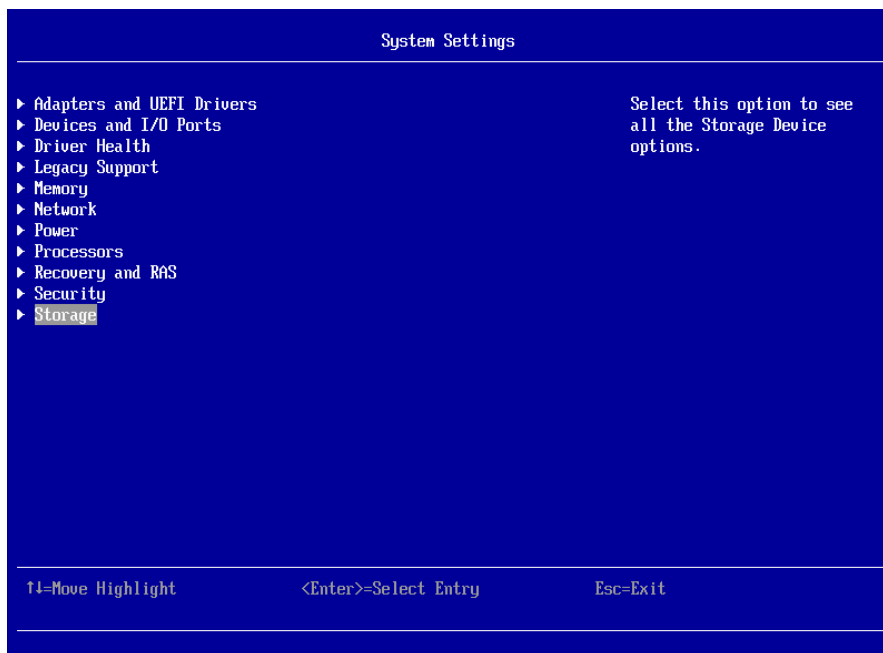
1. Turn on the remote console, then click [Power] - [Power On] in tool bar of the remote console to turn on the system.
2. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



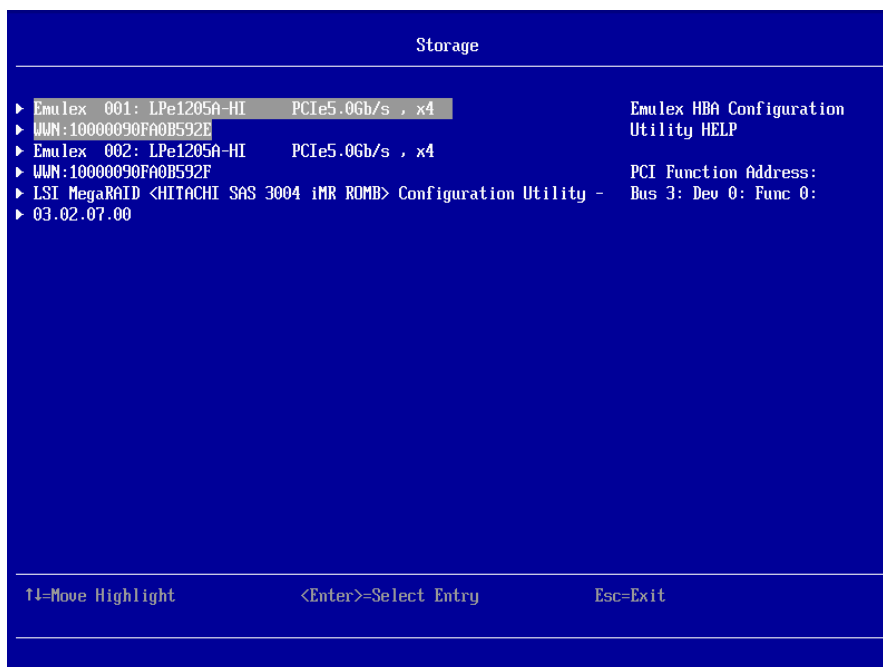
3. "System Configuration and Boot Management" screen opens, and select "System Settings" and press [Enter].



4. Move the cursor to "Storage" and press [Enter] key.

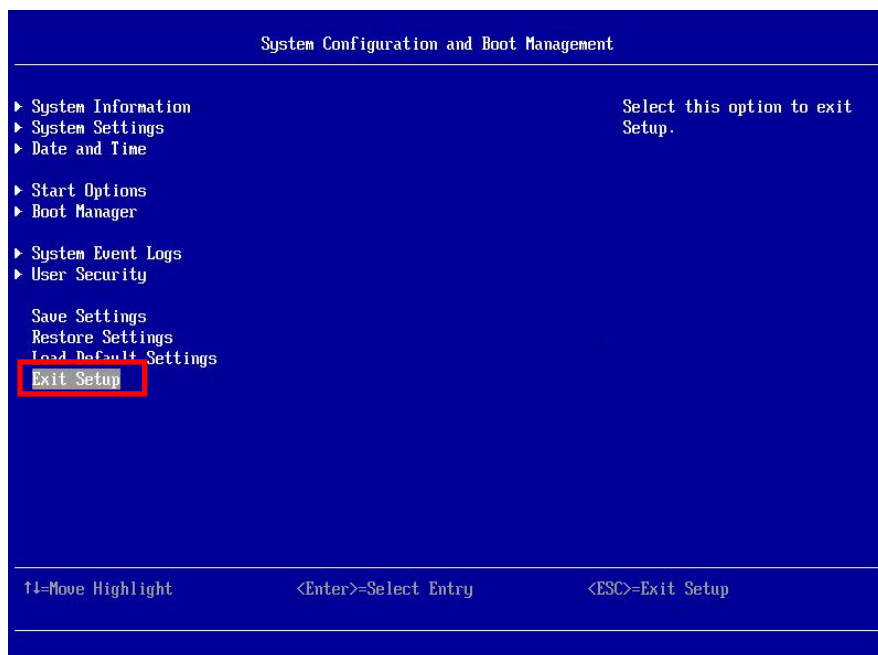


Select the device to be configured.



(3) Exiting Emulex UEFI Utility

1. Press [ESC] key when "Esc=Exit" is displayed on the lower left of the screen, and return to "System Configuration and Boot Management" screen. Select "Exit Setup" and press [Enter] key.



2. The following screen is displayed, and press [Y] key.



3. In the case that the configuration is changed, the system reboots. Or in the case that the configuration is not changed, the system continues booting.

(4) Operating the Emulex UEFI Utility menu

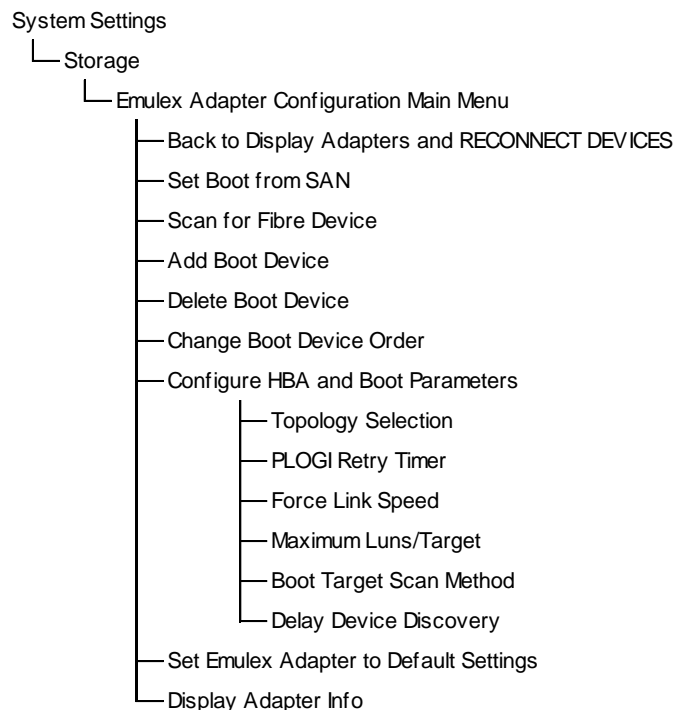
The operation and keys to use are displayed on the lower part of the screen for each menu.

The basic keys for operation of the utility are as follows.

- arrow key : used to select an item or value.
- [tab] key : used to select an item.
- [Enter] key : used to decide an item or a value to set.
- number key : used to input a value to set

(5) Emulex UEFI Utility menu tree

Emulex UEFI Utility menu tree is as follows.

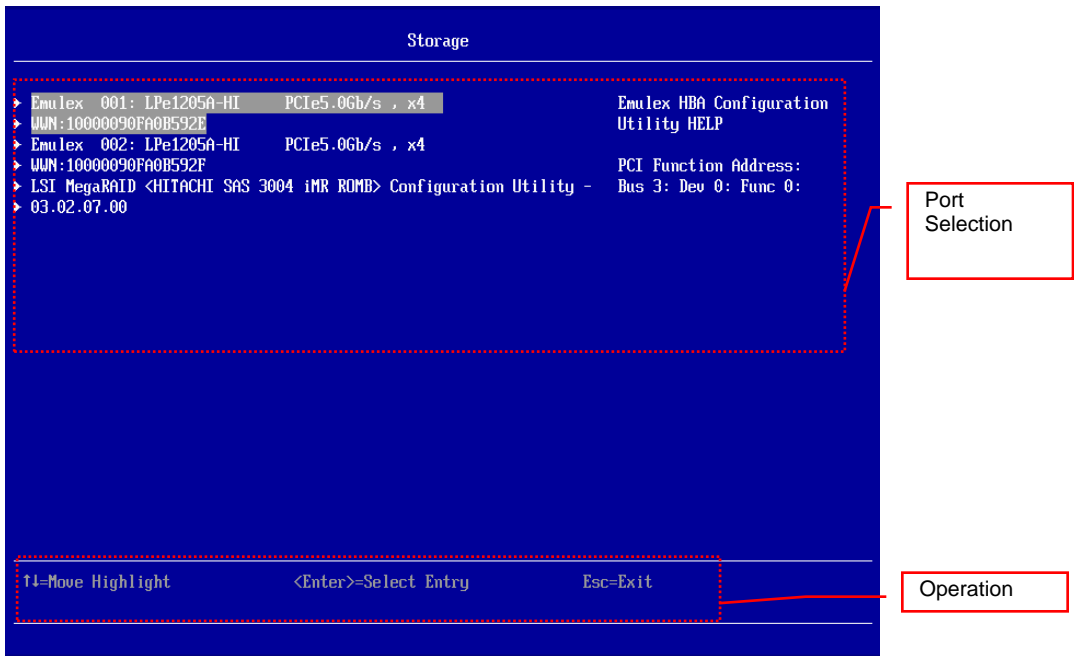


Each menu item is explained below.

Item			Explanation	Remarks
Storage			-	
Emulex Adapter Configuration Main Menu	Back to Display Adapters and RECONNECT DEVICES		Back to Display Adapters.	Not Supported.(Don't select this item.)
	Set Boot from SAN		Configures the expansion BIOS.	
	Scan for Fibre Device		Displays the Boot Device configuration.	
	Add Boot Device		Configures the boot device.	
	Delete Boot Device		Deletes the configuration of the boot device.	
	Change Boot Device Order		Changes the configuration of the boot device.	
	Configure HBA and Boot Parameters	Topology Selection	Configures the Loop mode.	
		PLOGI Retry Timer	Configures PLOGI retry timer.	
		Force Link Speed	Selects the link speed.	
		Maximum Luns/Target	Set the maximum value of Luns/Target.	
		Boot Target Scan Method	Sets the boot target scan method.	
		Delay Device Discovery	Sets the delay of device discovery.	
Set Emulex Adapter to Default Settings		Sets Emulex adapter to default settings.		
Display Adapter Info		Displays the adapter information.		

(6) Emulex UEFI Utility menu screens

Select the device to be configured.



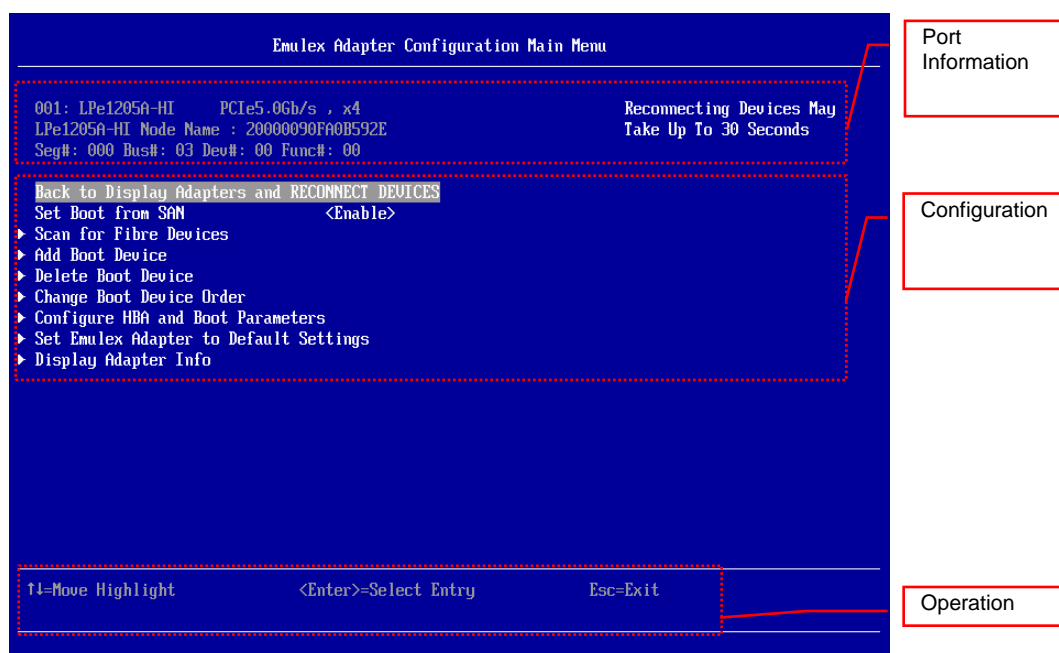
Port Selection Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Port List	Example: Emulex 0001: LPe1205A-H PCIe5.0Gb/s , x4 WWN:10000090FA0B592E	Displays the port list.	

Operation Area

Item	Operation	Explanation	Remarks
↑↓ = Moves Highlight	Press [↑] key or [↓] key.	Moves the cursor.	
<Enter> = Select Entry	Press [Enter] key.	Accepts the selection.	
Esc = Exit	Press [Esc] key.	Exits the utility.	

Emulex Adapter Configuration Main Menu



Port Information Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
XXX: LPe1205A-HI	Example: 001	Displays Adapter number on the BIOS.	
PCIeX.XGb/s,x4	Example: 5.0	Adapter transfer rate.	
LPe1205A-HI	Example: LPe1205A-HI	Displays the adapter name.	
Node Name:	Example:20000090FA0B592E	Displays WWNN.	
Seg#:	Example:000	Displays the Seg ID.	
Bus#:	Example:03	Displays the PCI ID.	
Dev#:	Example:00	Displays the PCI ID.	
Func#:	Example:00	Displays the PCI ID.	

Configuration Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Back to Display Adapters and RECONNECT DEVICES	Move the cursor to this item, and press [Enter] key.	Back to Display Adapters.	Not supported.(Don't select this item.)
Set Boot from SAN	Choice : Enable / Disable Default : Disable	-	
Scan for Fibre Device	Move the cursor to this item, and press [Enter] key.	-	
Add Boot Device	Move the cursor to this item, and press [Enter] key. "SAN Discovery Target List" is displayed.	-	
Delete Boot Device	Move the cursor to this item, and press [Enter] key.	-	
Change Boot Device Order	Move the cursor to this item, and press [Enter] key.	-	
Configure HBA and Boot Parameters	Move the cursor to this item, and press [Enter] key. "Configure HBA Parameters" is displayed.	-	
Set Emulex Adapter to Default Settings	Move the cursor to this item, and press [Enter] key.	-	
Display Adapter Info	Move the cursor to this item, and press [Enter] key.	-	

SAN Discovery Target List

SAN Discovery Target List

LPe1205A-HI Node Name : 20000090FA0B592E WWN: 50060E80 10339460
 Here are the discovered targets: Port ID: 050000

► Go to Configuration Main Menu
 ► 0001: HITACHI DF600F 0000

f1=Move Highlight <Enter>=Select Entry Esc=Exit

Port Information

SAN Discovery Target List

Operation

Port Information Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
LPe1205A-HI:	Example: LPe1205A-HI	Displays the adapter name.	
Node Name:	Example:20000090FA0B592E	Displays WWNN.	
WWN:	Example:50060E80 10339460	Displays WWNN.	
Port ID:	Example: 050000	Displays Port ID.	

SAN Discovery Target List Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
0001	Example: 0001	Displays Adapter number on the BIOS.	
HITACHI	Example: HITACHI	Displays storage vendor ID.	
DF600F	Example: DF600F	Displays storage product ID.	

Configure HBA Parameters

Configure HBA Parameters

LPe1205A-HI Node Name : 20000090FA0B592E

Discard Changes and Go to the Previous Page

► Discard Changes

► Commit Changes

Topology Selection <AUTO Loop First - default>

PLOGI Retry Timer <Disable - Default>

Force Link Speed <Auto negotiate - Default >

Configure Boot Parameters

Maximum Luns/Target [256]

Boot Target Scan Method <Boot Path From NVRAM Targets >

Delay Device Discovery [0]

↑↓=Move Highlight <Enter>=Select Entry Esc=Exit

Port Information

Configure HBA Parameters

Operation

Port Information Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
LPe1205A-HI:	Example: LPe1205A-HI	Displays the adapter name.	
Node Name:	Example:20000090FA0B592E	Displays WWNN.	

Configure HBA Parameters Area

Item	Configuration/ Select menu / Expression	Explanation	Remarks
Topology Selection	Move the cursor to this item, and press [Enter] key. Choice: Auto Topology(Loop First) Auto Topology(Pt to Pt First) FC-AL Fabric Point to Point Default: Auto Topology(Loop First)	Configures the Loop mode.	
PLOGI Retry Timer	Move the cursor to this item, and press [Enter] key. Choice: Auto Topology(Loop First) Auto Topology(Pt to Pt First) FC-AL Fabric Point to Point Default: Auto Topology(Loop First)	Configures PLOGI retry timer.	
Force Link Speed	Move the cursor to this item, and press [Enter] key. Choice: Auto negotiate 1Gb/s link speed 2Gb/s link speed 4Gb/s link speed 8Gb/s link speed Default: Auto negotiate	Selects the link speed.	
Maximum Luns/Target	Move the cursor to this item, and press [Enter] key.	Sets maximum number of Luns/Target.	
Boot Target Scan Method	Move the cursor to this item, and press [Enter] key. Choice: Boot Path From NVRAM Targets Boot Path Discovered Targets Do Not Create Boot Path Boot scan from EFIFCScanLevel	-	

Delay Device Discovery	Move the cursor to this item, and press [Enter] key.	-	
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3.5.2 Emulex UEFI Utility (16Gb Fibre Channel)

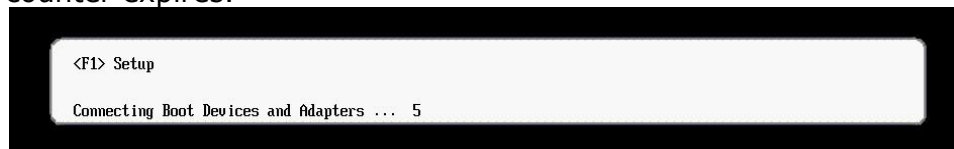
(1) Emulex UEFI Utility functions

The main functions of Emulex UEFI Utility are listed below.

No.	Functions	Explanation
1	Storage	Configures the boot device. Configures the device connection.
2	Configures HBA and Boot parameter.	- Configures Default ALPA. - Configures Topology. - Configures PLOGI (Port login) Retry Timer. - Configures Force Link Speed.

(2) Opening Emulex UEFI Utility

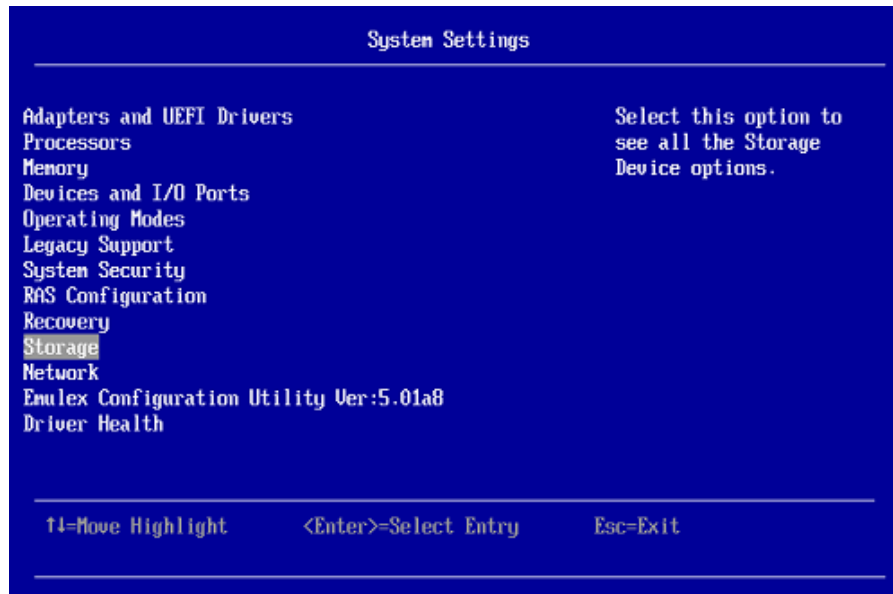
1. Turn on the remote console, then click [Power] - [Power On] in tool bar of the remote console to turn on the system.
2. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



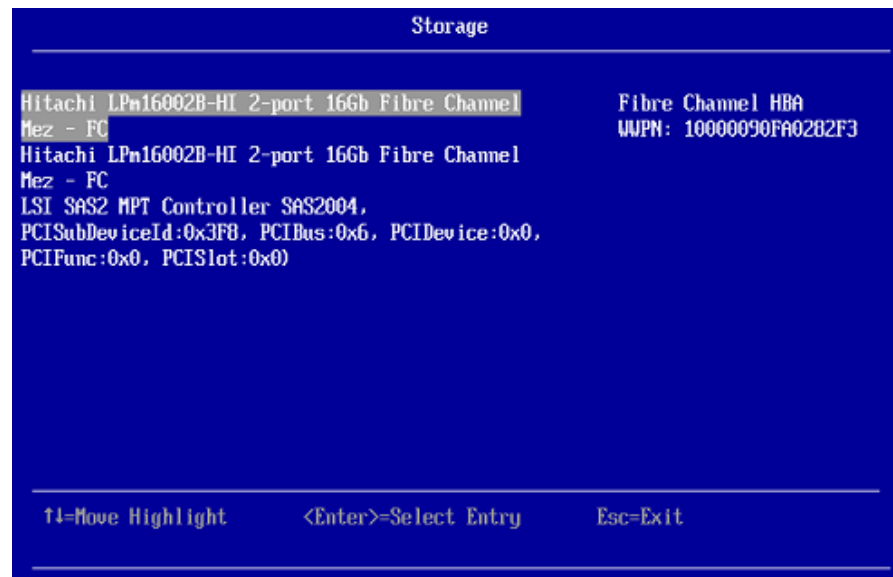
3. "System Configuration and Boot Management" screen opens, and select "System Settings" and press [Enter].



4. Move the cursor to "Storage" and press [Enter] key.

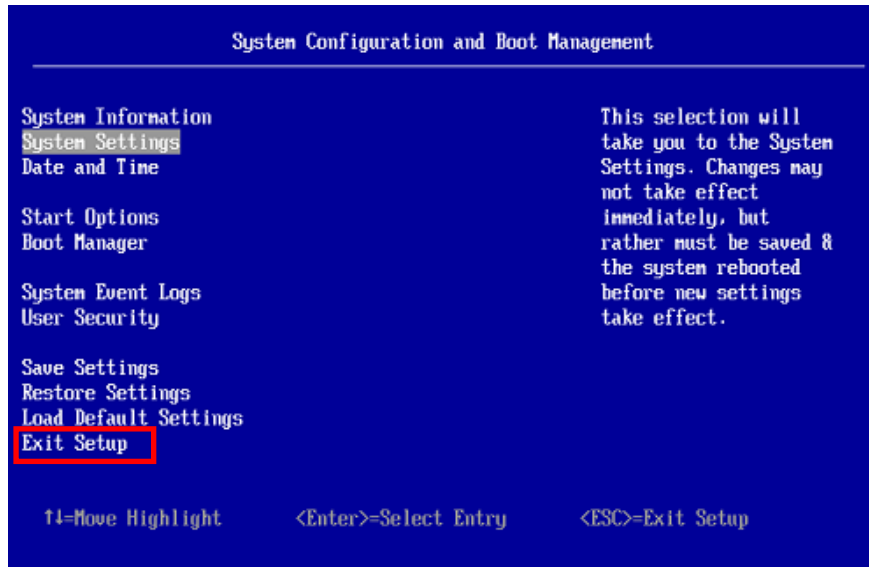


5. Select the device to be configured.

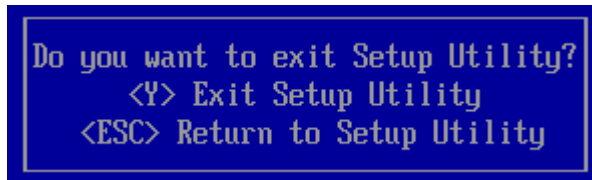


(3) Exiting Emulex UEFI Utility

1. Press [ESC] key when "Esc=Exit" is displayed on the lower left of the screen, and return to "System Configuration and Boot Management" screen. Select "Exit Setup" and press [Enter] key.



2. The following screen is displayed, and press [Y] key.



3. In the case that the configuration is changed, the system reboots. Or in the case that the configuration is not changed, the system continues booting.

(4) Operating the Emulex UEFI Utility menu

The operation and keys to use are displayed on the lower part of the screen for each menu.

The basic keys for operation of the utility are as follows.

- arrow key : used to select an item or value.
- [tab] key : used to select an item.
- [Enter] key : used to decide an item or a value to set.
- number key : used to input a value to set

(5) Emulex UEFI Utility menu tree

Emulex UEFI Utility menu tree is as follows.

Emulex BIOS Utility

- Set Boot from SAN
- Scan for Fibre Devices
- Add Boot Device
- Delete Boot Device
- Change Boot Device Order
- Configure HBA and Boot Parameters
 - Discard Changes
 - Commit Changes
 - Topology
 - PLOGI Retry Timer
 - Force Link Speed
 - Maximum Luns/Target
 - Boot Target Scan Method
 - Delay Device Discovery
- Set Emulex Adapter to Default Settings
- Display Adapter Info
- Legacy Only Configuration Settings
- Request RESET or RECONNECT to Make Changes Active
- Back to UEFI Device Manager

Each menu item is explained below.

Item	Explanation	Remarks
Back to UEFI Device Manager and RECONNECT DEVICES	Configures the port to connect.	Not Supported(*2)
Set Boot from SAN	Enables an adapter to boot from SAN.	
Scan for Fibre Devices	Scans for Target Devices.	
Add Boot Device	Adds Boot Devices.	
Delete Boot Device	Deletes Boot Devices.	
Change Boot Device Order	Change Boot Device order.	
Configure HBA and Boot Parameters (*1)	-	
Discard Changes	-	
Commit Changes	-	
Topology Selection (FW10.6.*.* or lower) or Topology (FW11.1.*.* or higher)	-	
PLOGI Retry Timer	-	
Force Link Speed	-	
Maximum Luns/Target	-	Not Supported
Boot Target Scan Method	-	Not Supported
Delay Device Discovery	-	Not Supported (*3)
Set Emulex Adapter to Default Settings	Loads the default settings of the adapter.	
Display Adapter Info	-	
Legacy Only Configuration Settings	-	Not Supported(*3)
Request RESET or RECONNECT to Make Changes Active	-	Not Supported(*3)
Back to UEFI Device Manager	-	(*3)

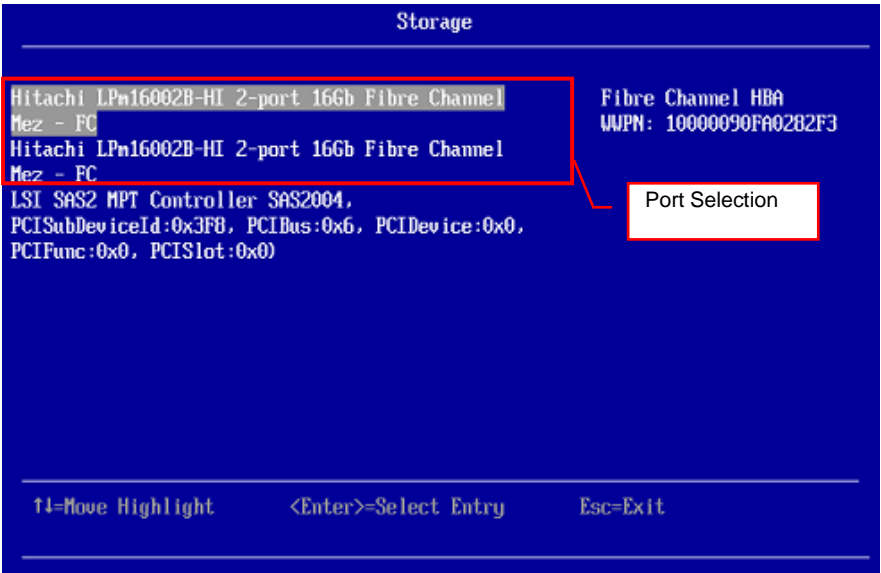
(*1) See "Configure HBA and Boot Parameters" for default parameter value of the adapter.

(*2) Displayed when using FW10.6.*.* or lower

(*3) Displayed when using FW11.1.*.* or higher

(6) Emulex UEFI Utility Menu Screens

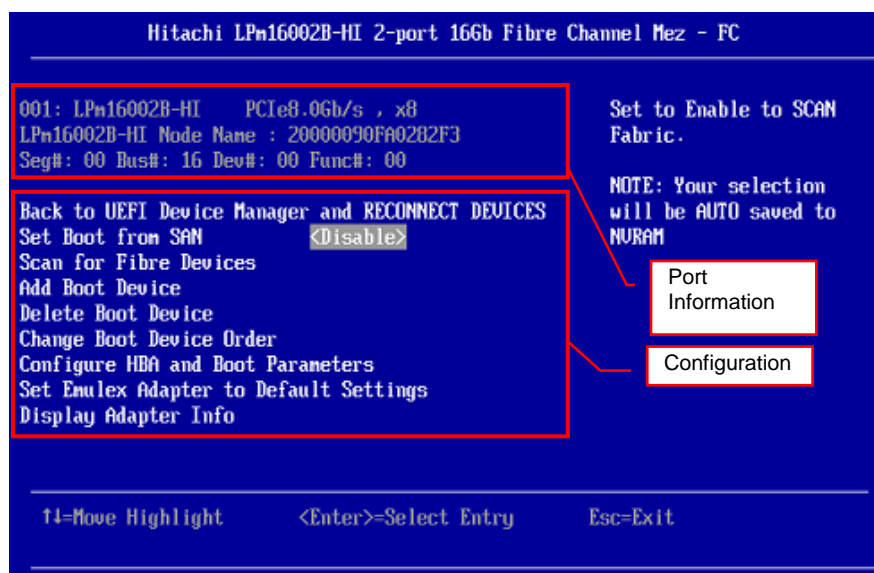
Storage



Port Selection Area

Item	Expression	Explanation	Remarks
Port List	Example: Hitachi LPm16002B-HI 2-port 16Gb Fibre Channel Mez - FC	Displays the port list.	

Configuration (FW10.6.*.* or lower)



Port Information Area

Item	Expression	Explanation	Remarks
XXX: Adapter:	Example: 01: LPe16002B-M6-HI:	Displays Adapter number on the BIOS and the adapter name.	
Node Name:	Example: 20000090FA0282F3	Displays WWNN.	
Bus#: XX Dev#: XX Func#: XX	Example: Bus#: 2E Dev#: 00 Func#: 00	Displays the PCI ID.	

Configuration Area

Item	menu to select	Explanation	Remarks
Back to UEFI Device Manager and RECONNECT DEVICES	-	Ensure you select Back to Display Adapters and RECONNECT DEVICES from the Main menu when you are finished configuring an adapter. You are returned to the adapter list.	Not Supported
Set Boot from SAN	1: Enable 2: Disable	-	
Scan for Fibre Devices	-	-	
Add Boot Device	-	-	
Delete Boot Device	-	-	
Change Boot Device Order	-	-	
Configure HBA and Boot Parameters	-	-	
Set Emulex Adapter to Default Settings	-	-	
Display Adapter Info	-	-	

Configuration (FW11.1.*.* or higher)

Hitachi LPm16002B-HI 2-port 16Gb Fibre Channel Mez - FC

001: LPm16002B-HI PCIe8.0Gb/s , x8
 LPm16002B-HI Node Name : 24000000087AA0009
 Seg#: 00 Bus#: 0B Dev#: 00 Func#: 00

Set to Enable to SCAN Fabric.
NOTE: Your selection will be
AUTO saved to NVRAM

Set Boot from SAN <Enable>
 ▶ Scan for Fibre Devices
 ▶ Add Boot Device
 ▶ Delete Boot Device
 ▶ Change Boot Device Order
 ▶ Configure HBA and Boot Parameters
 ▶ Set Emulex Adapter to Default Settings
 ▶ Display Adapter Info
 ▶ Legacy Only Configuration Settings
 ▶ Request RESET or RECONNECT to Make Changes Active
 Back to UEFI Device Manager

Port
Information

Configuration

↑↓=Move Highlight <Enter>=Select Entry Esc=Exit

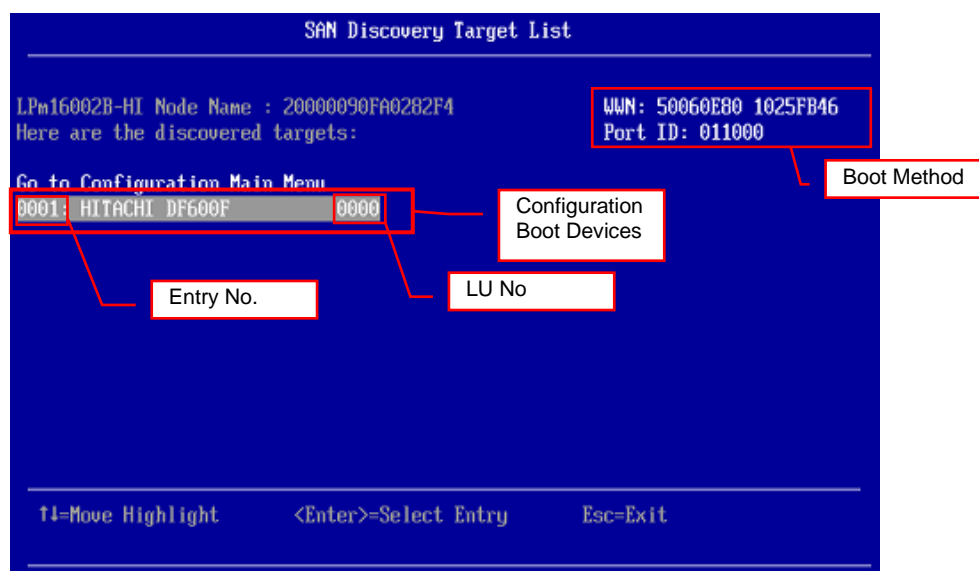
Port Information Area

Item	Expression	Explanation	Remarks
XXX: Adapter:	Example: 01: LPe16002B-M6-HI:	Displays Adapter number on the BIOS and the adapter name.	
Node Name:	Example: 20000090FA0282F3	Displays WWNN.	
Bus#: XX Dev#: XX Func#: XX	Example: Bus#: 2E Dev#: 00 Func#: 00	Displays the PCI ID.	

Configuration Area

Item	menu to select	Explanation	Remarks
Set Boot from SAN	1: Enable 2: Disable	-	
Scan for Fibre Devices	-	-	
Add Boot Device	-	-	
Delete Boot Device	-	-	
Change Boot Device Order	-	-	
Configure HBA and Boot Parameters	-	-	
Set Emulex Adapter to Default Settings	-	-	
Display Adapter Info	-	-	
Legacy Only Configuration Settings	-	-	Not Supported
Request RESET or RECONNECT to Make Changes Active	-	-	Not Supported
Back to UEFI Device Manager	-	Exit from this menu.	

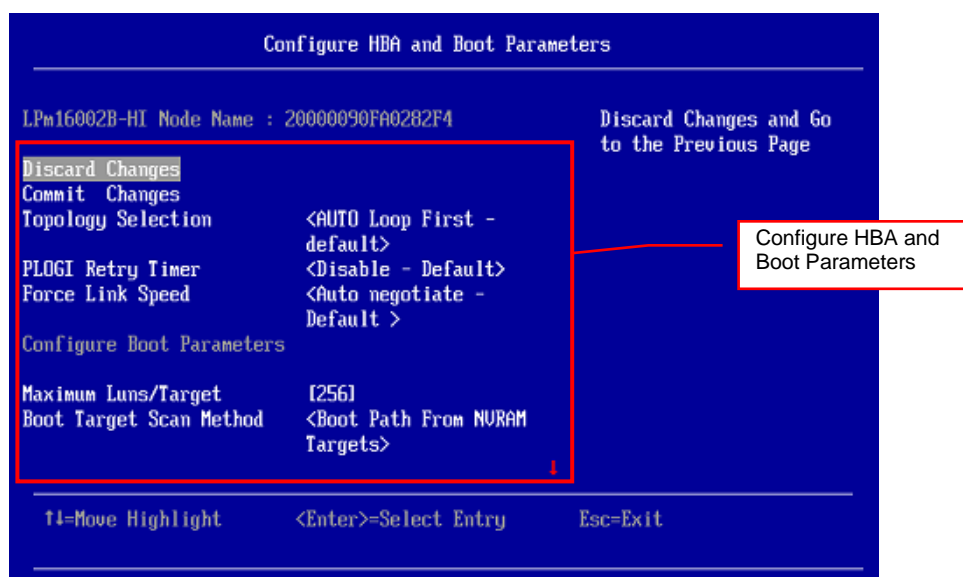
Add Boot Device



Configuration Boot Devices

Item	Expression	Explanation	Remarks
Entry No.	Example : 1 - 8	LU entry No.	
Boot Method	Example :	DID / WWPN.	
LU No,	Example : 0000	LU No.	

Configure HBA and Boot Parameters (FW10.6.*.* or lower)



Configure HBA and Boot Parameters Area

Item	menu to select	Explanation	Remarks
Discard Changes	-	-	
Commit Changes	-	-	
Topology Selection	Selection : AUTO Loop First AUTO Point to Point first Fabric Point to Point FCAL Default : AUTO Loop First	-	
PLOGI Retry Timer	Selection : Disabled 50msec 100msec 150msec Default : Disabled	-	
Force Link Speed	Selection : Auto negotiate 4 Gb/s link speed 8 Gb/s link speed 8 Gb/s or 4Gb/s link speed 16 Gb/s link speed 16 Gb/s or 8Gb/s or 4Gb/s link speed 16 Gb/s or 8Gb/s link speed Default : Auto negotiate	-	
Maximum Luns/Target	Default : 256	-	Not supported
Boot Target Scan Method	Default : Boot Path From NVRAM Target	-	Not supported

Configure HBA and Boot Parameters (FW11.1.*.* or higher)

Configure HBA and Boot Parameters

LPm16002B-HI Mode Name : 2400000087AA0009

Discard Changes and Go to the Previous Page

► Discard Changes

► Commit Changes

Topology <AUTO Point to Point first>

PLOGI Retry Timer <Disable - Default>

Force Link Speed <Auto negotiate - Default >

Configure Boot Parameters

Maximum Luns/Target [256]

Boot Target Scan Method <Boot Path From NVRAM Targets>

Delay Device Discovery [0]

↑↓=Move Highlight <Enter>=Select Entry Esc=Exit

Configure HBA and Boot Parameters Area

Item	menu to select	Explanation	Remarks
Discard Changes	-	-	
Commit Changes	-	-	
Topology	Selection : AUTO Loop First AUTO Point to Point First FCAL Point to Point Default : AUTO Loop First	-	"Point to Point" is not supported
PLOGI Retry Timer	Selection : Disable 50msec 100msec 150msec Default : Disable	-	
Force Link Speed	Selection : Auto negotiate 2 Gb/s link speed 4 Gb/s link speed 8 Gb/s link speed 16 Gb/s link speed 8 Gb/s or 4Gb/s link speed 16 Gb/s or 8Gb/s or 4Gb/s link speed 16 Gb/s or 8Gb/s link speed Default : Auto negotiate	-	
Maximum Luns/Target	Default : 256	-	Not supported
Boot Target Scan Method	Default : Boot Path From NVRAM Target	-	Not supported
Delay Device Discovery	Default: 0	-	Not supported

Procedure of the Adapter Configuration

This chapter describes the procedure of the Emulex adapters configuration..

- [4.1 Procedure of configuration for onboard CNA / CNA expansion card / LAN expansion card / CNA board \(Legacy BIOS\)](#)
- [4.2 Procedure of configuration for onboard CNA \(UEFI on CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4\)](#)
- [4.3 Procedure of configuration for CNA expansion card / LAN expansion card / CNA board \(UEFI on CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4\)](#)
- [4.4 FC expansion card / FC board \(Legacy BIOS\)](#)
- [4.5 FC expansion card / FC board \(UEFI on CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4\)](#)

4.1 Procedure of configuration for onboard CNA / CNA expansion card / LAN expansion card / CNA board (Legacy BIOS)

4.1.1 PXE configuration (Legacy BIOS)

The PXE boot function is supported by onboard CNA, CNA/LAN expansion card and CNA board with NIC personality.

(1) Enabling the PXE function

1. Turn on the remote console, then click [Power] - [Power On] in tool bar of the remote console to turn on the system.
2. When the following screen appears during startup of the system, press [Ctrl] and [P] simultaneously.

```
Emulex 10Gb UNDI, PXE-2.0 BIOS v4.1.334.2801
Copyright (C) 2006-2012 Emulex Corporation

<<< Press <Ctrl><P> for PXESelect(TM) Utility >>>

<Ctrl><P> Pressed-Utility will be invoked after BIOS initialization.
```

3. Select the controller to be configured in "Controller Selection Menu" screen, and press [Enter] key. If only one controller is installed to the system, this "Controller Selection Menu" screen is not displayed. In this case, go to step 4.

```
Controller Selection Menu
Controller #0: Bus 11 Dev 00
Controller #1: Bus 16 Dev 00
```

4. Select [Continue] in "Controller Configuration" area, press [Enter] key.

```
Controller Configuration
MultiChannel Mode : Disabled
Advanced Mode Support : Disabled
Personality : NIC

[Save] [Continue]
```

5. Select the port for PXE booting in "Port Selection menu" area, press [Enter] key.

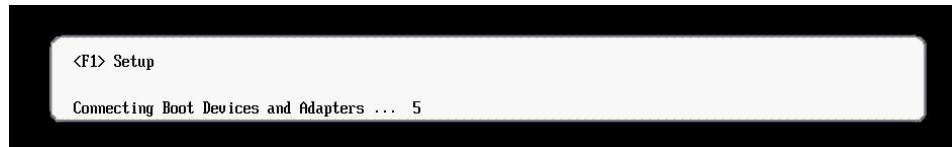
```
Port Selection Menu
Controller #0 - Port #0: Bus 0c Dev 00
Controller #0 - Port #1: Bus 0c Dev 00
```

6. Select [Enabled] in [Port Configuration] - [PXE Boot Support] screen, and press [Enter].
7. Select [Save] and press [Enter] key.

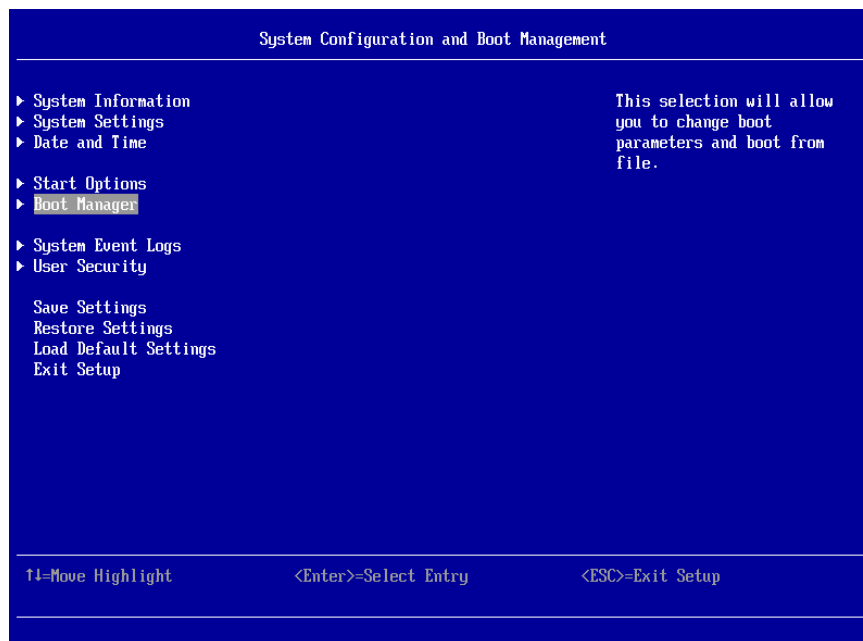


- Configure PXE VLAN ID/Priority function is not supported.
- SR-IOV function in Hyper-V environment is not supported by CB500x1 (except CB520X B1) and CB2000 models.
- The number of the port whose configuration of the PXE boot is Enabled is limited one per system.

8. Exit the utility. Press [ESC] key several times, and when the message "Do you want to exit from the utility [Y/N]? " is displayed, press [Y].
9. Reboot the system. When the following screen appears during the startup of the system, press <F1> key before **Connecting Boot Devices and Adapters ...** counter expires.



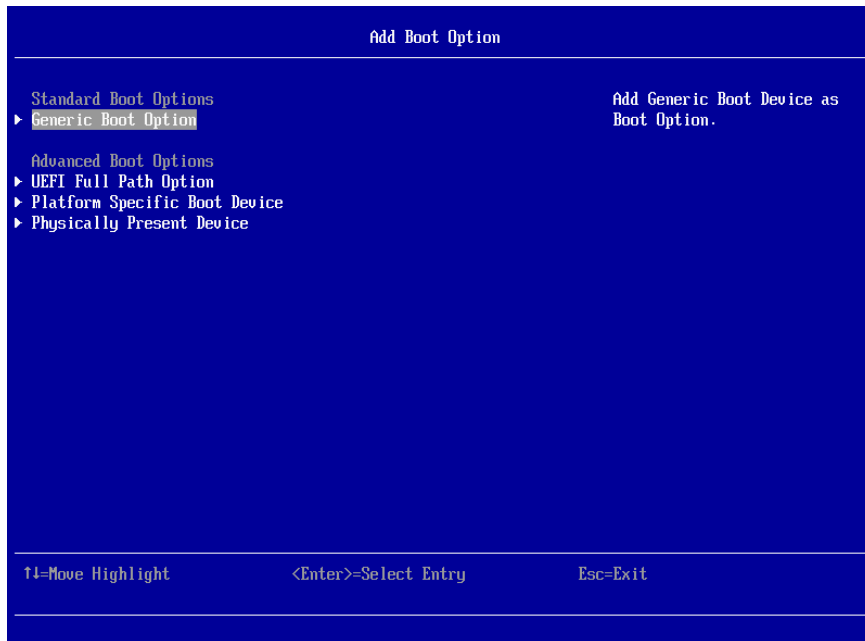
10. Select **Boot Manager** in **System Configuration and Boot Management** screen.



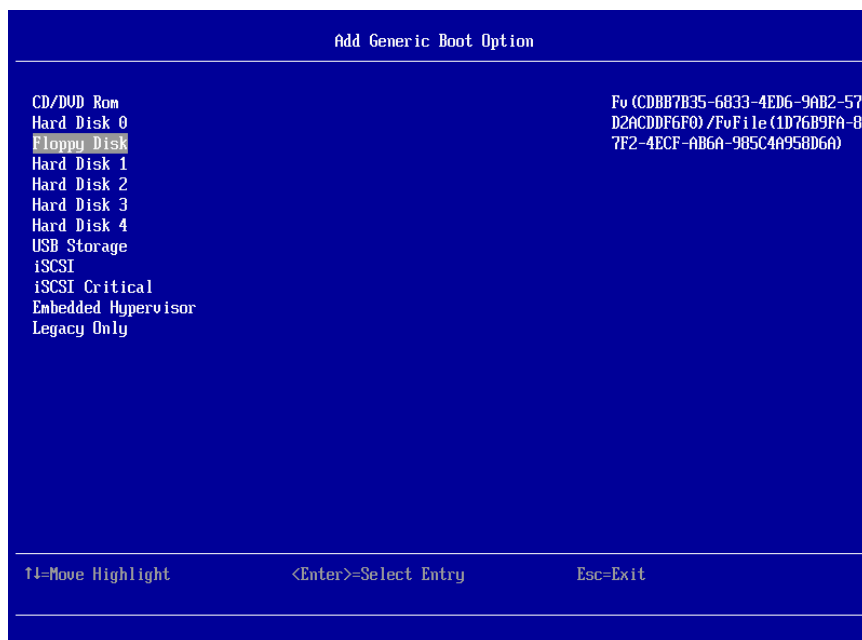
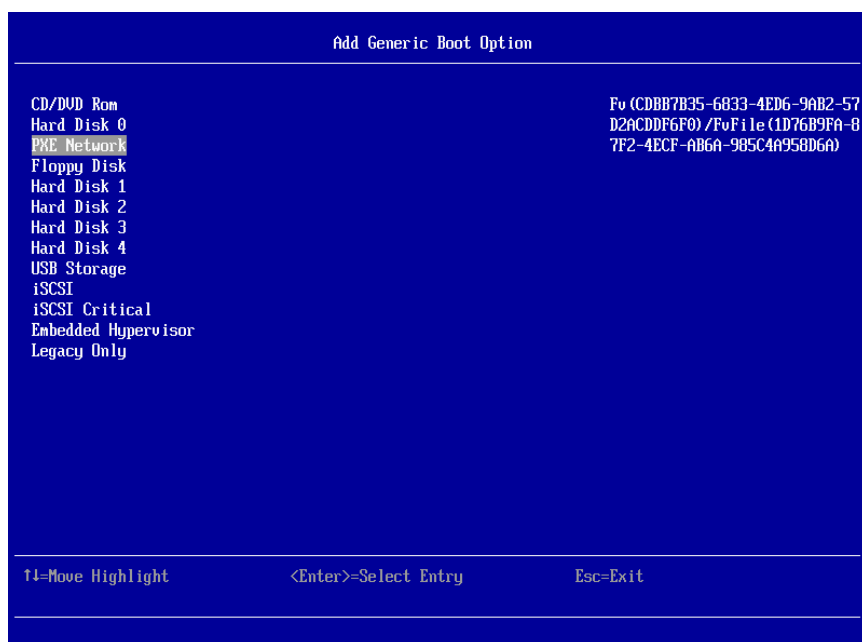
11. Select **Add Boot Option** in **Boot Manager** screen.



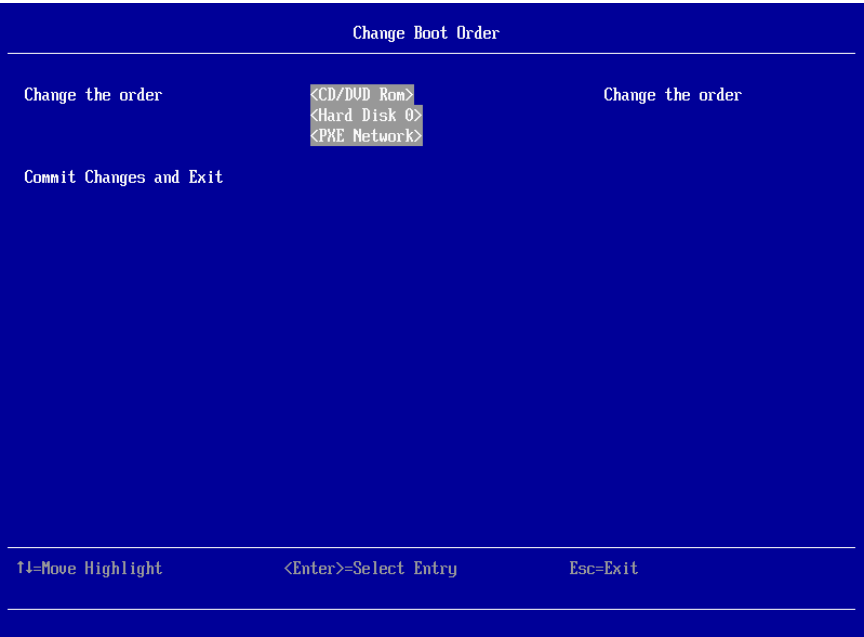
12. Select **Generic Boot Option** in **Add Boot Option** screen.



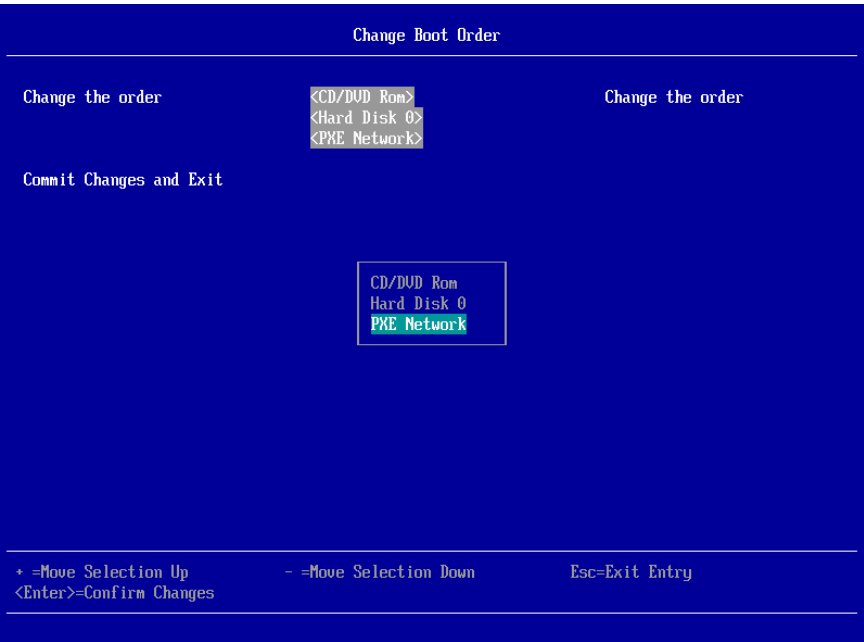
13. Select **PXE Network** in **Add Generic Boot Option** screen and press <Enter>. And **PXE Network** disappears.



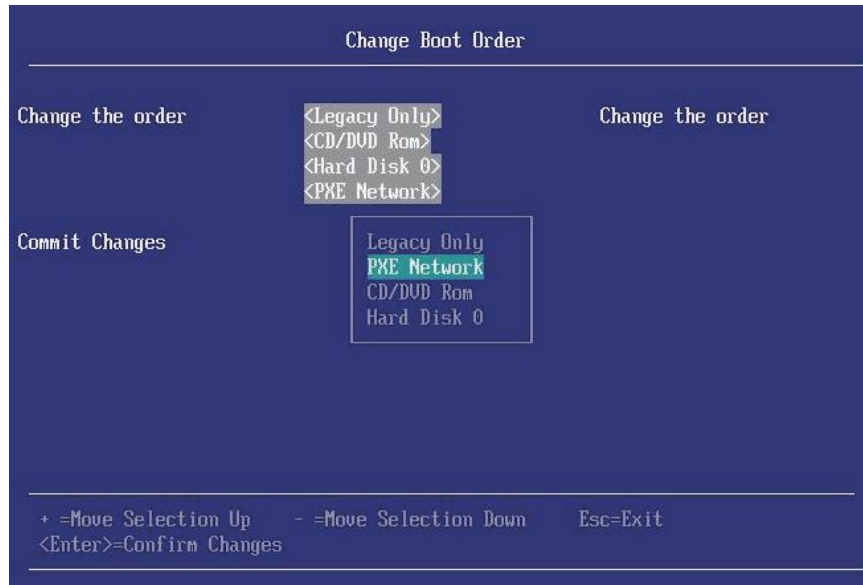
14. Return to **Boot Manager** screen with ESC key. Select **Change Boot Order**.



15. Press <Enter> key and select **PXE Network** with arrow keys.



16. Move **PXE Network** to the next to **Legacy Only** of the list with **+** key and press **<Enter>**.



- Do not move **Legacy Only** from the top of the list.

17. Select **Commit Changes and Exit**.
18. Return to **System Configuration and Boot Management** screen with **ESC** key.
19. Select **Save Settings**.
20. Select **Exit Setup**.

(2) Disabling the PXE function

1. Turn on the remote console, then click [Power] - [Power On] in tool bar of the remote console to turn on the system.
2. When the following screen appears during startup of the system, press [Ctrl] and [P] simultaneously.

```
Emulex 10Gb UNDI, PXE-2.0 BIOS v4.1.334.2801
Copyright (C) 2006-2012 Emulex Corporation

<<< Press <Ctrl><P> for PXESelect(TM) Utility >>>

<Ctrl><P> Pressed-Utility will be invoked after BIOS initialization.
```

3. Select the controller to be configured in "Controller Selection Menu" screen, and press [Enter] key. If only one controller is installed to the system, this "Controller Selection Menu" screen is not displayed. In this case, go to step 4.

```
Controller Selection Menu
Controller #0: Bus 11 Dev 00
Controller #1: Bus 16 Dev 00
```

4. Select [Continue] in "Controller Configuration" area, press [Enter] key.

```
Controller Configuration
MultiChannel Mode : Disabled
Advanced Mode Support : Disabled
Personality : NIC

[Save] [Continue]
```

5. Select the port that has been configured for PXE boot in "Port Selection menu" area, press [Enter] key.

```
Port Selection Menu
Controller #0 - Port #0: Bus 0c Dev 00
Controller #0 - Port #1: Bus 0c Dev 00
```

6. Select [Disabled] in [Port Configuration] - [PXE Boot Support] screen, and press [Enter].

7. Select [Save] and press [Enter] key.



- Configure PXE VLAN ID/Priority function is not supported.
- SR-IOV function in Hyper-V environment is not supported by CB500x1 (except CB520X B1) and CB2000 models.
- The number of the port whose configuration of the PXE boot is Enabled is limited one per system.

8. Exit the utility. Press [ESC] key several times, and when the message "Do you want to exit from the utility [Y/N]? " is displayed, press [Y].

4.1.2 Personality configuration (Legacy BIOS)

CNA adapters (onboard CNA, CNA expansion card and CNA board) can be used as NIC only or NIC+Storage(iSCSI or FCoE) adapter by changing the personality. In the explanation below, the personality is iSCSI for example.

1. Turn on the remote console, then click [Power] - [Power On] in tool bar of the remote console to turn on the system.
2. When the following screen appears during startup of the system, press [Ctrl] and [P] simultaneously.

```
Emulex 10Gb UNDI, PXE-2.0 BIOS v4.1.334.2801
Copyright (C) 2006-2012 Emulex Corporation

<<< Press <Ctrl><P> for PXESelect(TM) Utility >>>

<Ctrl><P> Pressed-Utility will be invoked after BIOS initialization.
```

3. Select the controller to be configured in "Controller Selection Menu" screen, and press [Enter] key. If only one controller is installed to the system, this "Controller Selection Menu" screen is not displayed. In this case, go to step 4.

```
Controller Selection Menu
Controller #0: Bus 11 Dev 00
Controller #1: Bus 16 Dev 00
```

4. Select [Personality] with [Tab] key and select [iSCSI] with arrow key in "Controller Configuration" area, press [Enter] key.

```
Controller Configuration
MultiChannel Mode : Disabled
Advanced Mode Support : Disabled
Personality       :
[Save] [Continue]  NIC
                   iSCSI
                   FCoE
```



In the following cases, set "Enabled" to [Advanced Mode Support]. Otherwise, set "Disabled".

- using SR-IOV function in Hyper-V environment.
- bare metal environment with CNA FW version 10.6 or higher (recommend).
- using on LPAR manager with CNA FW version 10.6 or higher

5. Select [Save] in "Controller Configuration" area, and press [Enter].

```
Controller Configuration
MultiChannel Mode : Disabled
Advanced Mode Support : Disabled
Personality       : iSCSI
[Save] [Continue]
```


6. Press [Y] key when the following message is displayed.

- Firmware version : 4.1.334.28 or 4.1.334.2801 :

The system must reset immediately if changing
Personality, continue?

Press [Y] key and go to step 7.

- Firmware version : 4.2.433.604 or later.

If changing Personality, no further configurations can
be done on this Controller until a system reset, continue?

Press [Y] key and go to step 8.

7. The system reboots. If the other controller should be configured, go to step 2. If all controllers have been configured, the procedure is complete.

8. "Controller Configuration" screen is displayed.

9. If the other controller should be configured, press [ESC] key several times for "Controller Selection Menu" screen in step 3, repeat from step 3 to step 6. If exiting the utility, go to step 10.

10. Exit the utility. Press [ESC] key several times until the message "Do you want to exit from the utility [Y/N]?" is displayed. Press [Y] to exit the utility.

11. The system reboots.

4.1.3 MultiChannel configuration (Legacy BIOS)

This section describes multichannel function of CNA controller (BE3), and how to configure it. multichannel function provides port partitioning and traffic management capabilities to optimize bandwidth allocation.

(1) Enabling the multichannel function

1. Turn on the remote console, then click [Power] - [Power On] in tool bar of the remote console to turn on the system.
2. When the following screen appears during startup of the system, press [Ctrl] and [P] simultaneously.

```
Emulex 10Gb UNDI, PXE-2.0 BIOS v4.1.334.2801
Copyright (C) 2006-2012 Emulex Corporation

<<< Press <Ctrl><P> for PXESelect(TM) Utility >>>

<Ctrl><P> Pressed-Utility will be invoked after BIOS initialization.
```

3. Select the controller to be configured in "Controller Selection Menu" screen, and press [Enter] key. If only one controller is installed to the system, this "Controller Selection Menu" screen is not displayed. In this case, go to step 4.

```
Controller Selection Menu
Controller #0: Bus 11 Dev 00
Controller #1: Bus 16 Dev 00
```

4. Select [Multichannel Mode] with [Tab] key and select [Enabled] with arrow key in "Controller Configuration" area, press [Enter] key.

```
Controller Configuration
MultiChannel Mode : Enabled
Advanced Mode Support : Disabled
Personality : iSCSI

[Save] [Continue]
```



In the following cases, set "Enabled" to [Advanced Mode Support]. Otherwise, set "Disabled".

- using SR-IOV function in Hyper-V environment.
- bare metal environment with CNA FW version 10.6 or higher (recommend).
- using on LPAR manager with CNA FW version 10.6 or higher

5. Select [Save] in "Controller Configuration" area, and press [Enter].

```
Controller Configuration
MultiChannel Mode : Enabled
Advanced Mode Support : Disabled
Personality : iSCSI

[Save] [Continue]
```

6. Press [Y] key when the following message is displayed.

- Firmware version : 4.1.334.28 or 4.1.334.2801 :

The system must reset immediately if changing
MultiChannel Support, continue?

The system reboots when [Y] key is pressed. If configuring multiple controllers, repeat from step 2 to step 6. When all multichannel configurations have been configured, go to step 8.

- Firmware version : 4.2.433.604 or later.

If changing MultiChannel Support, no further configurations can
be done on this Controller until a system reset, continue?

Previous screen is displayed when [Y] key is pressed. If configuring multiple controllers, press [ESC] key to display the screen in step 3, repeat the step from 3 to 6. If exiting, go to step 7.

7. Exit the utility and reboot the system. Press [ESC] key several times until the message "Do you want to exit from the utility [Y/N]?" is displayed. Press [Y] key.

8. When the following screen appears during startup of the system, press [Ctrl] and [P] simultaneously to open Emulex PXESelect Utility.

```
Emulex 10Gb UNDI, PXE-2.0 BIOS v4.1.334.2801
Copyright (C) 2006-2012 Emulex Corporation

<<< Press <Ctrl><P> for PXESelect(TM) Utility >>>

<Ctrl><P> Pressed-Utility will be invoked after BIOS initialization.
```

9. Select the controller to be configured in "Controller Selection Menu" screen, and press [Enter] key. If only one controller is installed to the system, this "Controller Selection Menu" screen is not displayed. In this case, go to step 10.

```
Controller Selection Menu
Controller #0: Bus 11 Dev 00
Controller #1: Bus 16 Dev 00
```

10. Select [Continue] in "Controller Configuration" screen, Press [Enter].

```
Controller Configuration
MultiChannel Mode      : Enabled
Advanced Mode Support  : Disabled
Personality             : iSCSI

[Save] [Continue]
```

11. Select [Port] to be configured in "Port Select Menu" screen, press [Enter].



The following error message may be displayed when configuring the multichannel function first, because no configurations are set. Then the procedure from step 11 must be carried out. The error message can be closed by pressing any key.

Error: The total Bandwidth must be 100 %. Please use the following screen to set the Bandwidth.

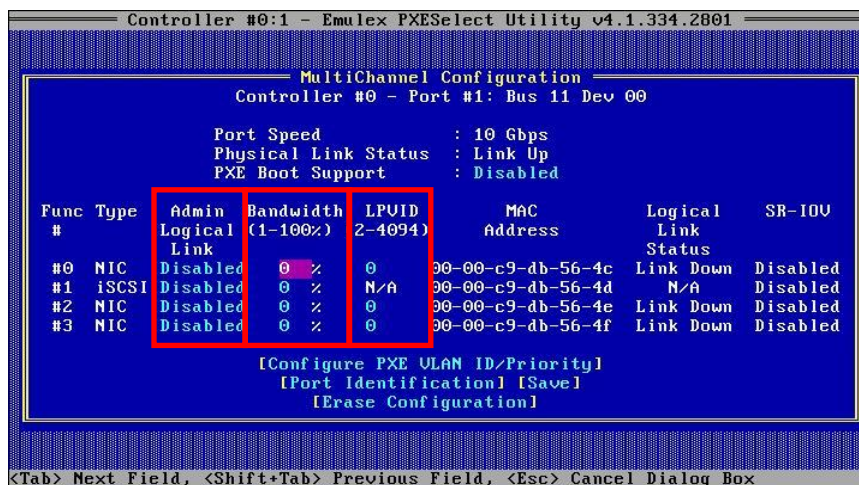
Error: Logical Port VLAN ID (LPVID) must be set to a valid value and must be unique for all functions on this port. Please use the following screen to set the LPVID.

12. Configure "MultiChannel Configuration". The way to configure is different by the equipment environment.

Configure [Admin Logical Link], [Bandwidth], [LPVID] of each Func#. In the following explanation, the personality is iSCSI for example. The cursor moves in the order of [Admin Logical Link], [Bandwidth] and [LPVID] with [Tab] key.

(1) CNA firmware version : 4.1.*.* or 4.2.*.* (* is a number.) :

- (a) Input to [Admin Logical Link]. Set "Enabled/Disabled" to each "Func#".
- (b) Input to [Bandwidth]. The sum of each bandwidth of PF must be 100%.
- (c) Input to [LPVID]. LPVID values must differ each other. If the value of "Type" column is "iSCSI", it is not necessary to input the LPVID value. (N/A is displayed.)

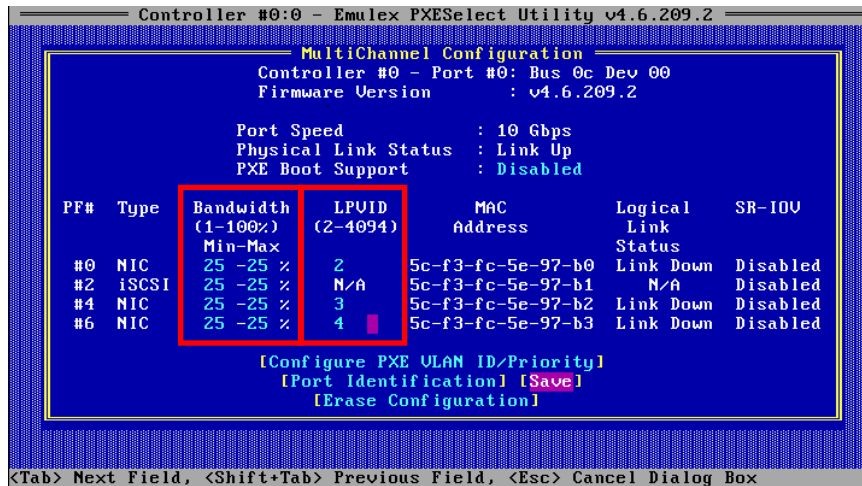




- [Configure PXE VLAN ID /Priority] function is not supported.
- LPVIDs have to be set as 2-4094 even if the Bandwidth is 0%.

(2) CNA firmware version 4.6.*.* or 10.*.*.* (* is a number.) :

- Input to [Bandwidth] (version 4.6.*.*) or [BW] (version 10.*.*.*). The sum of each bandwidth of PF must be 100%. The values of "Min" and "Max" must be the same.
- Input to [LPVID]. LPVID values must differ from each other. If the value of "Type" column (version 4.6.*.*) or "Protocol" column (version 10.*.*.*) is "iSCSI", it is not necessary to input the LPVID value. (N/A is displayed.)



- [Configure PXE VLAN ID /Priority] function is not supported.
- "Min" and "Max" values of bandwidth have to be the same.
- To disable the transfer of PF#, the values of Min and Max have to be set as 0%. Even if these values are 0%, the driver on the OS still recognizes the logical port.
- LPVIDs have to be set as 2-4094 even if the Bandwidth is 0%.

13. Move the cursor to [Save], and press [Enter]. If the error message is displayed, check the configured value and save again. The error message can be disappeared by pressing any key.

- If the sum of Bandwidth of Func#'s is not 100%, the error message is displayed.
- If the LPVID is not set or is multiple, the error message is displayed.
- If the LPVID is not in the range of 2-4094, the error message is displayed.

14. Repeat the step from 9 to 13, if multiple controllers will be configured.

15. Exit the utility. Press [ESC] key several times until the message "Do you want to exit from the utility [Y/N]?" is displayed. Press [Y].
16. The system reboots.

(2) Disabling the multichannel function

In this section, the personality is iSCSI for example.

1. Turn on the remote console, then click [Power] - [Power On] in tool bar of the remote console to turn on the system.
2. When the following screen appears during startup of the system, press [Ctrl] and [P] simultaneously.

```
Emulex 10Gb UNDI, PXE-2.0 BIOS v4.1.334.2801
Copyright (C) 2006-2012 Emulex Corporation

<<< Press <Ctrl><P> for PXESelect(TM) Utility >>>

<Ctrl><P> Pressed-Utility will be invoked after BIOS initialization.
```

3. Select the controller to be configured in "Controller Selection Menu" screen, and press [Enter] key. If only one controller is installed to the system, this "Controller Selection Menu" screen is not displayed. In this case, go to step 4.

```
Controller Selection Menu
Controller #0: Bus 11 Dev 00
Controller #1: Bus 16 Dev 00
```

4. Select [Multichannel Mode] with [Tab] key and select [Disabled] with arrow key in "Controller Configuration" area, press [Enter] key.

```
Controller Configuration
MultiChannel Mode :
Advanced Mode Support : Enabled
Personality : Disabled

[Save] [Continue]
```



In the following cases, set "Enabled" to [Advanced Mode Support]. Otherwise, set "Disabled".

- using SR-IOV function in Hyper-V environment.
- bare metal environment with CNA FW version 10.6 or higher (recommend).
- using on LPAR manager with CNA FW version 10.6 or higher

5. Select [Save] in "Controller Configuration" area, and press [Enter].



6. Press [Y] key when the following message is displayed.

- Firmware version : 4.1.334.28 or 4.1.334.2801 :

The system must reset immediately if changing
MultiChannel Support, continue?

The system reboots when [Y] key is pressed. If configuring multiple controllers, repeat from step 2 to step 6.

- Firmware version : 4.2.433.604 or later.

If changing MultiChannel Support, no further configurations can
be done on this Controller until a system reset, continue?

Previous screen is displayed when [Y] key is pressed. If configuring multiple controllers, press [ESC] key to display the screen in step 3, repeat the step from 3 to 6. If exiting, go to step 7.

7. Exit the utility. Press [ESC] key several times until the message "Do you want to exit from the utility [Y/N]?" is displayed. Press [Y] key.

4.1.4 iSCSI configuration (Legacy BIOS)



- iSCSI is not supported on RHEL6.7 or later, RHEL7.1 or later, Windows Server 2016 or later, VMware6.0 U3 or later and VMware6.5 or later.

(1) iSCSI initiator configuration

1. Turn on the remote console, then click [Power] - [Power On] in tool bar of the remote console to turn on the system.
2. When the message "Press <Ctrl><S> for iSCSISelect(TM) Utility" is displayed during startup of the system, press [Ctrl] and [S] simultaneously.
3. "Emulex iSCSISelect Utility" opens.

4. Move the cursor to [iSCSI Initiator Name] in "iSCSI Initiator Configuration" screen with [Tab] key, press [Enter] key to input iSCSI Initiator name.



The initial value of [iSCSI Initiator Name] is[iqn.1990-07.com.emulex:xx-xx-xx-xx-xx-xx].
(xx-xx-xx-xx-xx-xx is MAC address.)

5. Move the cursor to [Save] in "iSCSI Initiator Configuration" screen with [Tab] key, press [Enter] key to save the configuration.



In the case that multiple controllers are installed to the system, each controller may have own iSCSI initiator name, and POST error message that indicates disagreement of each iSCSI initiator name. Then, exit the utility and reboot. Then log in to all controllers.

6. Move the cursor to [Controller Configuration] in "iSCSI Initiator Configuration" screen with [Tab] key, press [Enter] key.
7. Select a controller in "Controller Selection Menu" screen, and press [Enter].



In the case that there are multiple iSCSI ports, all of the ports are displayed in this menu.
The PCI ID's (Bus#, Dev#) of each controller changes depending on the I/O device installed in the system. Confirm the I/O device installed in the system before the selection.

8. "Controller Configuration" screen is displayed. Select the option in the menu, and configure the iSCSI Initiator and iSCSI Target. Select "Controller Properties" and press [Enter].
9. Confirm that [Boot Support] in "Controller Properties" screen is [Enabled], select [Save] and press [Enter] key.



If [Boot Support] is [Disabled], change the value to [Enabled] and save.
[Discover Boot Target via DHCP] function is not supported.

10. Press [ESC] key to return to "Controller Configuration" screen.

11. Select [Network Configuration] (CNA firmware 10.2.*.* or lower) or [Network Properties] (CNA firmware 10.6.*.*) in "Controller Configuration" screen, and press [Enter] key.
12. Confirm that [Link Status] in "Network Configuration" screen is [Link Up].
13. Move the cursor to [Configure Static IP Address] with [Tab] key, press [Enter] (CNA firmware 10.2.*.* or lower). Or move the cursor to [Configure IPv4 Address] with [Up] key or [Down] key, press [Enter] (CNA firmware 10.6.*.*).



- [Configure VLAN ID/Priority] function is not supported.
- [DHCP] function is not supported.



If [Link Status] value is [Link Down], the connection between the port of CNA and the port of the switch module is not linked. Confirm the settings of the switch module or the configuration.

14. Input values to [IP Address] and [Subnet Mask]. Select [Save] and press [Enter] key.



- Do not configure [Default Gateway].
-

15. The message "Save the Changes[Y/N]?" is displayed, press [Y] key.
16. Return to "Controller Configuration" screen with [ESC] key.

(2) iSCSI target (Boot device) configuration

1. Select [iSCSI Target Configuration] in "Controller Configuration" screen, and press [Enter] key.
2. Select [Add New iSCSI Target] (CNA firmware 10.2.*.* or lower) or [Add New iSCSI IPv4 Target] (CNA firmware 10.6.*.*) in "iSCSI Target Configuration" screen, and press [Enter] key.
3. Configure the target information in "Add/Ping iSCSI Target" screen (CNA firmware 10.2.*.* or lower) or "Add iSCSI IPv4 Target" screen (CNA firmware 10.6.*.*). Input [iSCSI Target IP Address] of the iSCSI target to be connected, select [Save/Login] and press [Enter].



- [ISID Qualifier] function is not supported.
 - [Header Digest] function is not supported.
 - [Data Digest] function is not supported.
 - [Authentication Method] function is not supported.
 - [Target CHAP Name] function is not supported.
 - [Target Secret] function is not supported.
 - [Initiator CHAP Name] function is not supported.
 - [Initiator Secret] function is not supported.
-

4. If the following message is displayed, press [Y] key.

You have not specified the target name. This Target will be used as No-Name target to discover targets using SendTargets mechanism in iSCSI. Do you want to continue [Y/N]? _



If the IP address of [iSCSI Target IP Address] does not exist or can not be accessed, the message "Loginto portal xxx.xxx.xxx.xxx:xxxx failed." is displayed.

5. Select the target to be connected in "Targets Discovered Via Send Targets" screen, press [F3] to change [Add Target] value to [Yes].
6. Confirm that the value of [Add Target] is [Yes], then select [Add Selected iSCSI Targets] and press [Enter] key.
7. Confirm that [Connection Status] in "iSCSI Target Configuration" screen is [Connected]. Then, select the iSCSI Target to have been connected and press [Enter].



When adding the iSCSI target, select [Add New iSCSI Target] (CNA firmware 10.2.*.* or lower) or [Add New iSCSI IPv4 Target] (CNA firmware 10.6.*.*) in "iSCSI Target Configuration" screen, and repeat this procedure from step 2.

8. Change [Boot Target] value in "Edit/Ping iSCSI Target #xxx" screen (CNA firmware 10.2.*.* or lower) or "Edit iSCSI IPv4 Target" screen (CNA firmware 10.6.*.*) to [Yes], select [Save/Login] and press [Enter].



- [ISID Qualifier] function is not supported.
- [Header Digest] function is not supported.
- [Data Digest] function is not supported.
- [Authentication Method] function is not supported.
- [Target CHAP Name] function is not supported.
- [Target Secret] function is not supported.
- [Initiator CHAP Name] function is not supported.
- [Initiator Secret] function is not supported.

9. Confirm that [Boot Target] value in "iSCSI Target Configuration" screen is [Yes].
10. Press [ESC] key several times to display "iSCSI Initiator Configuration" screen. Select [Save] and press [Enter] key.
11. Press [ESC] key, the message "Do you want to exit from the utility [Y/N]?" is displayed and press [Y] key. The system reboots.



If the boot OS is Windows Server 2012 R2 or 2012 or 2008 R2, and the iSCSI driver be2iscsi.sys version is 10.2.254.0, make sure to configure a setting to produce a page file to the internal HDD. If not, the memory dump cannot be collected. See Appendix, A.3 Memory dump settings for the procedure of the configuration.

(3) iSCSI target (Data device) configuration

1. Select [iSCSI Target Configuration] in "Controller Configuration" screen, and press [Enter] key.
2. Select [Add New iSCSI Target] (CNA firmware 10.2.*.* or lower) or [Add New iSCSI IPv4 Target] (CNA firmware 10.6.*.*) in "iSCSI Target Configuration" screen, and press [Enter] key.
3. Configure the target information in "Add/Ping iSCSI Target" screen (CNA firmware 10.2.*.* or lower) or "Add iSCSI IPv4 Target" screen (CNA firmware 10.6.*.*). Input [iSCSI Target IP Address] of the iSCSI target to be connected, select [Save/Login] and press [Enter].



- [ISID Qualifier] function is not supported.
- [Header Digest] function is not supported.
- [Data Digest] function is not supported.
- [Authentication Method] function is not supported.
- [Target CHAP Name] function is not supported.
- [Target Secret] function is not supported.
- [Initiator CHAP Name] function is not supported.
- [Initiator Secret] function is not supported.

4. If the following message is displayed, press [Y] key.

You have not specified the target name. This Target will be used as No-Name target to discover targets using SendTargets mechanism in iSCSI. Do you want to continue [Y/N]? _



If the IP address of [iSCSI Target IP Address] does not exist or can not be accessed, the message "Loginto portal xxx.xxx.xxx.xxx:xxxx failed." is displayed.

5. Select the target to be connected in "Targets Discovered Via Send Targets" screen, press [F3] to change [Add Target] value to [Yes].
6. Confirm that the value of [Add Target] is [Yes], then select [Add Selected iSCSI Targets] and press [Enter] key.
7. Confirm that [Connection Status] in "iSCSI Target Configuration" screen is [Connected]. Then, select the iSCSI Target to have been connected and press [Enter].



When adding the iSCSI target, select [Add New iSCSI Target] (CNA firmware 10.2.*.* or lower) or [Add New iSCSI IPv4 Target] (CNA firmware 10.6.*.*) in "iSCSI Target Configuration" screen, and repeat this procedure from step 2.

8. Confirm the value of [iSCSI Target Name] and [iSCSI Target IP Address] in "Edit/Ping iSCSI Target #xxx" screen (CNA firmware 10.2.*.* or lower) or "Edit iSCSI IPv4 Target" screen (CNA firmware 10.6.*.*), and press [ESC] key.



- [ISID Qualifier] function is not supported.
- [Header Digest] function is not supported.
- [Data Digest] function is not supported.
- [Authentication Method] function is not supported.
- [Target CHAP Name] function is not supported.
- [Target Secret] function is not supported.
- [Initiator CHAP Name] function is not supported.
- [Initiator Secret] function is not supported.

9. Press [ESC] key several times to display "iSCSI Initiator Configuration" screen. Select [Save] and press [Enter] key.
10. Press [ESC] key, the message "Do you want to exit from the utility [Y/N]?" is displayed and press [Y] key. The system reboots.

(4) Disconnecting iSCSI Boot Device



Although the iSCSI configuration in Emulex iSCSISelect Utility is deleted, the configuration is enabled by the utility of "OneCommand Manger" settings. To disable the configuration, OneCommand Manager configuration must be disabled. See "Hitachi Compute Blade Emulex Adapter Use's Guide for Utility", chapter 3 - "Configuring by OCM" - "iSCSI Target Setting" - "(2) Disconnecting the iSCSI target".

1. In the screen "Edit/Ping iSCSI Target #XXX" (CNA firmware 10.2.*.* or lower) or "Edit iSCSI IPv4 Target" (CNA firmware 10.6.*.*) of step 8 in "4.1.4 iSCSI configuration (Legacy BIOS)" - "(2) iSCSI target (Boot device) configuration", change the value of [Boot Target] from [Yes] to [No].



- [ISID Qualifier] function is not supported.
- [Header Digest] function is not supported.
- [Data Digest] function is not supported.
- [Authentication Method] function is not supported.
- [Target CHAP Name] function is not supported.
- [Target Secret] function is not supported.
- [Initiator CHAP Name] function is not supported.
- [Initiator Secret] function is not supported.



If [Boot Target] value is [Yes], the iSCSI target can not be deleted, and the following message is displayed.

Operation Failed: An iSCSI target configured for boot cannot be deleted. If you wish to delete this target, please remove the boot attribute.

2. In the screen "iSCSI Target Configuration" of step 9 in "4.1.4 iSCSI configuration (Legacy BIOS)" - "(2) iSCSI target (Boot device) configuration", press [F6] key to change [Connection Status] value to [Disconnected].



iSCSI target is deleted by [DEL] key.



[Connection Status] value returns to [Connected] by [F5] key.

3. Refer to step 10~11 in "4.1.4 iSCSI configuration (Legacy BIOS)" - "(2) iSCSI target (Boot device) configuration", select [Save] and reboot the system.

(5) Disconnecting iSCSI Data Device



Although the iSCSI configuration in Emulex iSCSISelect Utility is deleted, the configuration is enabled by the utility of "OneCommand Manger" settings. To disable the configuration, OneCommand Manager configuration must be disabled. See "Hitachi Compute Blade Emulex Adapter Use's Guide for Utility", chapter 3 - "Configuring by OCM" - "iSCSI Target Setting" - "(2) Disconnecting the iSCSI target".

1. In the screen "iSCSI Target Configuration" of step 7 in "4.1.4 iSCSI configuration (Legacy BIOS)" - "(3) iSCSI target (Data device) configuration", change the value of [Connection Status] to [Disconnected] by pressing [F6] key..



iSCSI target is deleted by [DEL] key.



[Connection Status] value returns to [Connected] by [F5] key.

2. Refer to step 9~11 in "4.1.4 iSCSI configuration (Legacy BIOS)" - "(2) iSCSI target (Data device) configuration", select [Save] and reboot the system.

4.1.5 FCoE configuration (Legacy BIOS)



- FCoE is not supported on RHEL6.8 or later, RHEL7.3 or later, Windows Server 2016 or later, VMware6.0 U3 or later and VMware6.5 or later.

(1) FCoE Configuration

1. Turn on the remote console, then click **Power - Power On** in tool bar of the remote console to turn on the system.
2. When the following screen appears during startup of the system, press **<Ctrl>** and **<P>** simultaneously.

```
Emulex 10Gb UNDI, PXE-2.0 BIOS v4.1.334.2801
Copyright (C) 2006-2012 Emulex Corporation

<<< Press <Ctrl><P> for PXESelect(TM) Utility >>>

<Ctrl><P> Pressed-Utility will be invoked after BIOS initialization.
```

3. Select the controller #0 in "Controller Selection Menu" screen, and press **<Enter>** key. If only one controller is installed to the system, this "Controller Selection Menu" screen is not displayed. In this case, go to step 4.

```
Controller Selection Menu
Controller #0: Bus 11 Dev 00
Controller #1: Bus 16 Dev 00
```

4. Select Personality with **<Tab>** key and select FCoE with arrow key in Controller Configuration area, press **<Enter>** key.

```
Controller Configuration
MultiChannel Mode      : Disabled
Advanced Mode Support  : Disabled
Personality             :
[Save] [Continue]      NIC
                        iSCSI
                        FCoE
```

5. Select Save with **<Tab>** key and press **<Enter>** key.

```
Controller Configuration
MultiChannel Mode      : Disabled
Advanced Mode Support  : Disabled
Personality            : FCoE
[Save] [Continue]
```

6. Select the controller #1 "Controller Selection Menu" screen, and perform the same step as step 4 to 5.

7. Press Y when the following message is displayed.

Do you want to exit from the utility [Y/N]?_

8. When the following screen appears during startup of the system, press <Ctrl> and <E> simultaneously.

```
Emulex OneConnect FCoE BIOS, Version 4.03a10
Copyright (c) 1997-2013 Emulex. All rights reserved.

Press <Alt E> or <Ctrl E> to enter Emulex BIOS configuration
utility. Press <s> to skip Emulex BIOS
```

9. **Emulex OneConnect FCoE BIOS Utility** screen opens. Select the port to be configured with arrow keys and press <Enter> key.

```
Emulex OneConnect FCoE BIOS Utility, Xa 4.03a10

This utility displays and saves changes when selected.
You will be prompted to reboot for all changes to take effect.

Emulex Adapters in the System:

1. OCm11104-F2-HI: Bus:11 Dev:00 Func:02 WWPN: 10000090FA1F54C5
2. OCm11104-F2-HI: Bus:11 Dev:00 Func:03 WWPN: 10000090FA1F54C9
3. OCm11104-F2-HI: Bus:16 Dev:00 Func:02 WWPN: 10000090FA1F54CD
4. OCm11104-F2-HI: Bus:16 Dev:00 Func:03 WWPN: 10000090FA1F54D1

Enter <Esc> to exit <PageDn> to Next Page
<↑/↓> to Highlight, <Enter> to Select

Copyright (c) 1997-2013 Emulex. All rights reserved.
```

10. Select **Configure Boot Devices** and press <Enter> key.

```
Emulex OneConnect FCoE BIOS Utility, Xa 4.03a10

01: OCm11104-F2-HI: Bus#: 11 Dev#: 00 Func#: 02
Mem Base: C8D60000 Firmware Version: 4.6.348.0 BIOS: Enabled
Port Name: 10000090FA1F54C5 Node Name: 20000090FA1F54C5
Ulan ID: 1000 DCBX mode: CEE mode

Enable/Disable Boot from SAN
Scan for Target Devices
Reset Adapter Defaults
Configure Boot Devices
Configure FCF CEE Parameters
Configure FCF CIM Parameters
Configure Advanced Adapter Parameters

Enter <Esc> to Previous Menu
<↑/↓> to Highlight, <Enter> to Select

Copyright (c) 1997-2013 Emulex. All rights reserved.
```


11. Select the top entry of the list (Primary Boot entry) and press <Enter> key.

```

List of Saved Boot Devices:

1. Unused DID:000000 WWP:00000000 00000000 LUN:00 Primary Boot
2. Unused DID:000000 WWP:00000000 00000000 LUN:00
3. Unused DID:000000 WWP:00000000 00000000 LUN:00
4. Unused DID:000000 WWP:00000000 00000000 LUN:00
5. Unused DID:000000 WWP:00000000 00000000 LUN:00
6. Unused DID:000000 WWP:00000000 00000000 LUN:00
7. Unused DID:000000 WWP:00000000 00000000 LUN:00
8. Unused DID:000000 WWP:00000000 00000000 LUN:00

```

12. Select boot entry and press <Enter> key..

```

00. Clear selected boot entry!!
01. DID:010000 WWP:50060E80 10339463 LUN:00 HITACHI DF600F 0000

```

13. A pop-up message is displayed. Input "00", press <Enter> key.

```

DID:010000 WWP:50060E80 10339463
Use <↑/↓> to select starting LUN (Hex): 00
<ESC> to Previous Menu

```

14. The LU list is displayed. Select the boot device, and press <Enter> key.

```

DID:010000 WWP:50060E80 10339463
01. LUN:00 HITACHI DF600F 0000

```

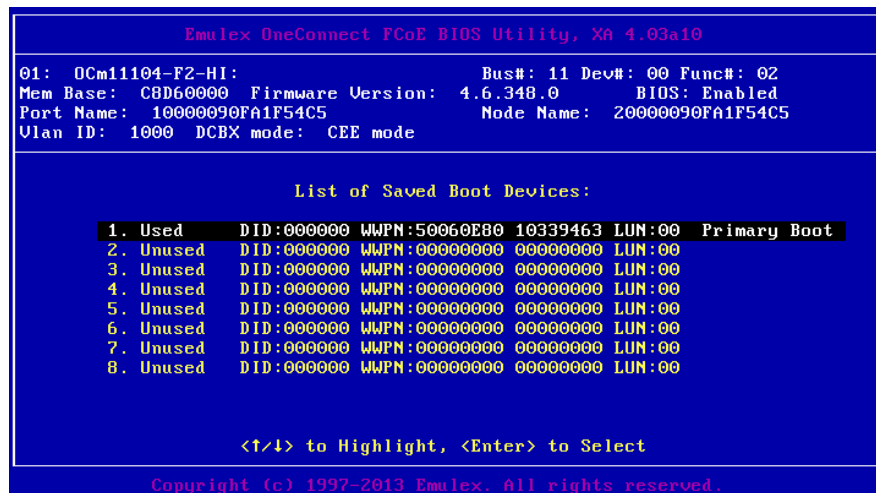
15. The following is popped-up. Select the choice, press <Enter> key. In this explanation, WWP is used.

```

DID:010000 WWP:50060E80 10339463 LUN:00
Boot this device via WWP
Boot this device via DID
<ESC> to Previous Menu
<↑/↓> to Highlight, <Enter> to Select

```

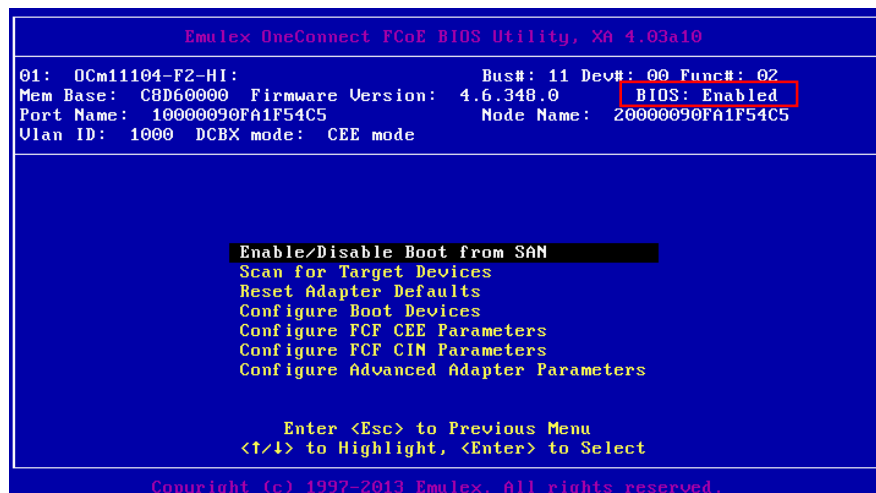
16. Confirm that the boot device is registered.



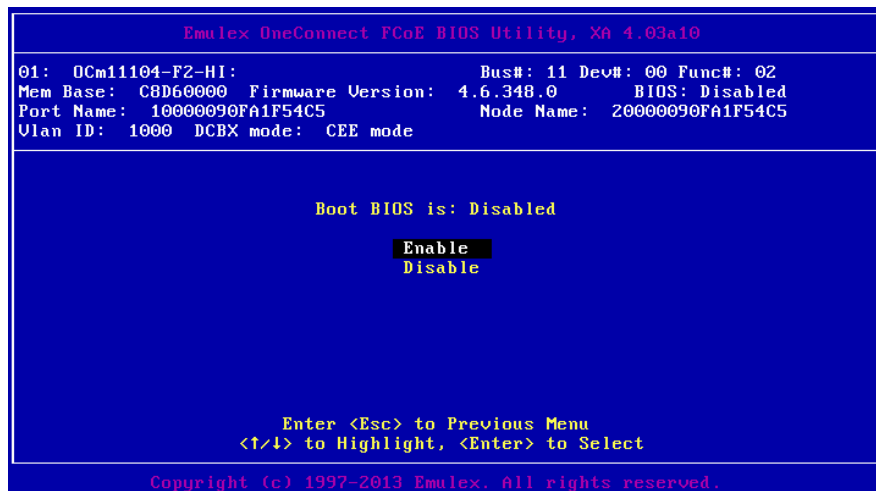
17. If configuring multiple devices, repeat the steps from 11 to 16.

(2) Configuration for FCoE boot

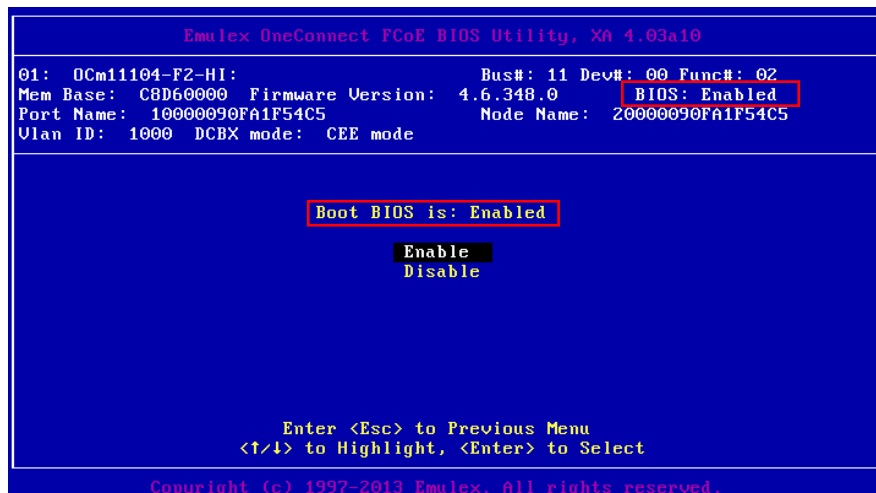
1. Confirm the message **BIOS : XXXXXXXX** in the screen. If the target device is used for boot device, the message must be **BIOS: Enabled**. If the target device is not used for boot device, the message should be **BIOS: Disabled**. To change the message, select **Enable/Disable Boot from SAN** with arrow keys and press <Enter> key.



2. Select **Enable** with arrow keys and press <Enter> key.



3. Confirm that **Boot BIOS is: Enabled** is displayed.



4. Reboot the system, and the procedure is complete.

4.1.6 SR-IOV configuration (Hyper-V Environment)

This section describes the procedure to configure the SR-IOV function in Hyper-V environment.

For CB520H x2, SR-IOV (Single Root I/O Virtualization) function can be set on Windows Server 2012 R2 Hyper-V environment. (CB2000, CB520A A1, CB540A x1 and CB520 Hx1 models do not support the SR-IOV function in Hyper-V environment.) For the guest OS, Windows Server 2012 or Windows Server 2012 R2 can be used.

To use SR-IOV function in Hyper-V environment, the NIC driver for SR-IOV has to be installed to the host OS and guest OS. For the NIC driver and CNA firmware, see "Hitachi Compute Blade Emulex Adapter User's Guide for Driver (MK-99COM103) (rev.14 or higher), 4.1 Driver Installation (Onboard CNA / CNA expansion card / LAN expansion card / CNA board)".



- When changing the SR-IOV configuration or installing the LAN driver, the virtual network switch made by Emulex CNA or LAN device has to be removed by Hyper-V manager. If the virtual network switch is not removed, the LAN driver may not be installed normally.
- The 1Gb LAN connection is forbidden when using the SR-IOV function. Before setting the SR-IOV function as "Enabled", the network switch has to be configured for 10Gb connection.
- SR-IOV is not supported on CNA firmware 11.1.*.* or later.

(1)UEFI configuration



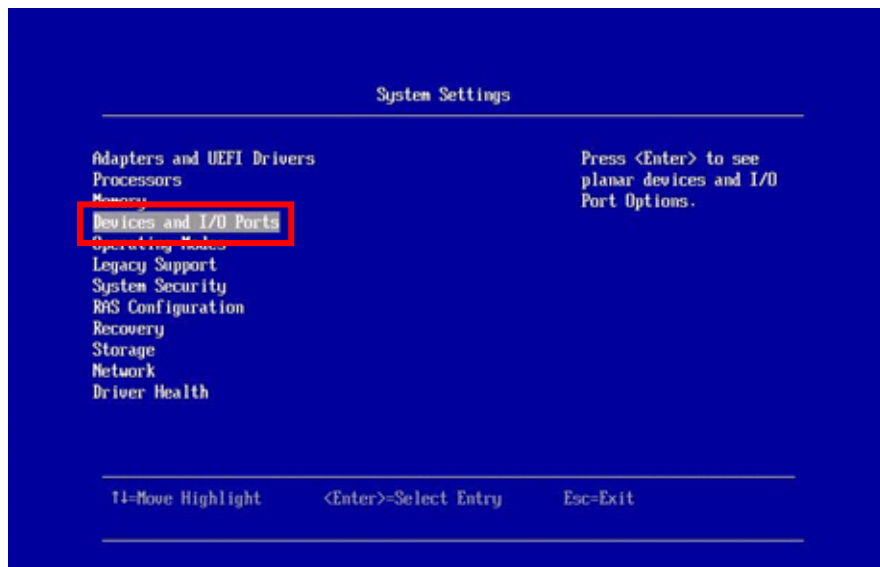
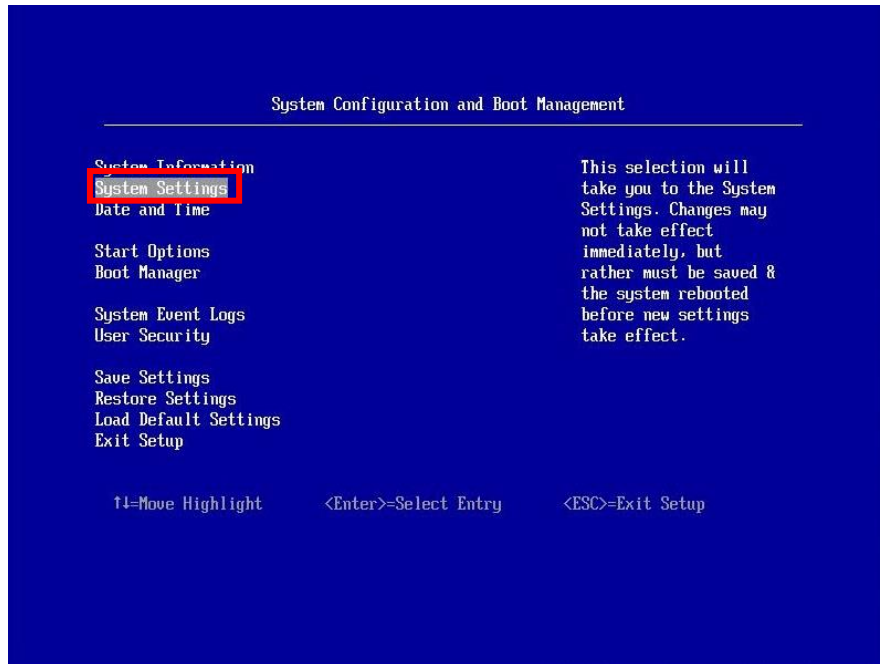
- If configuring SR-IOV, SR-IOV function have to be configured to all ports of the controller.
- The personality of a port whose SR-IOV function is enabled supports NIC only.
- When configuring SR-IOV, Multichannel mode has to be disabled.

Set **PCI Express Native Control** enabled by the following procedure..

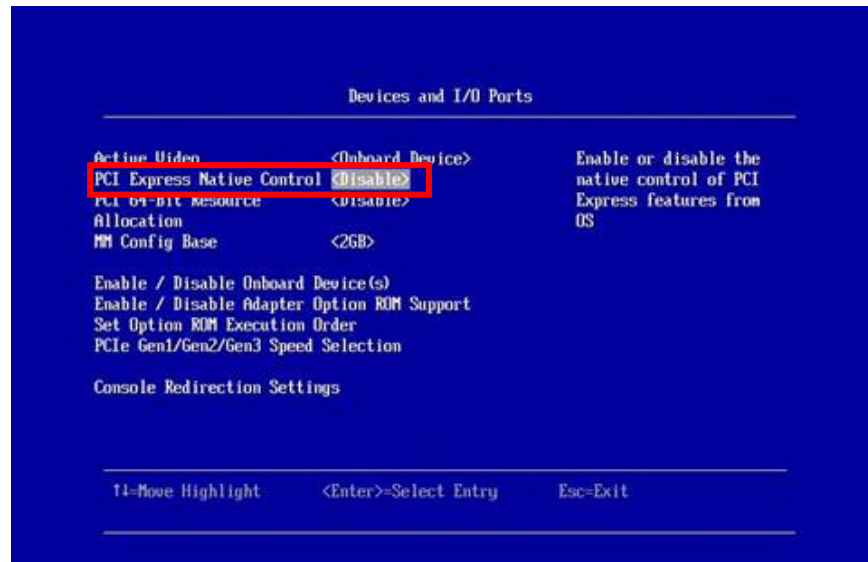
1. Turn on the remote console, then click Power - Power On in tool bar of the remote console to turn on the system. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



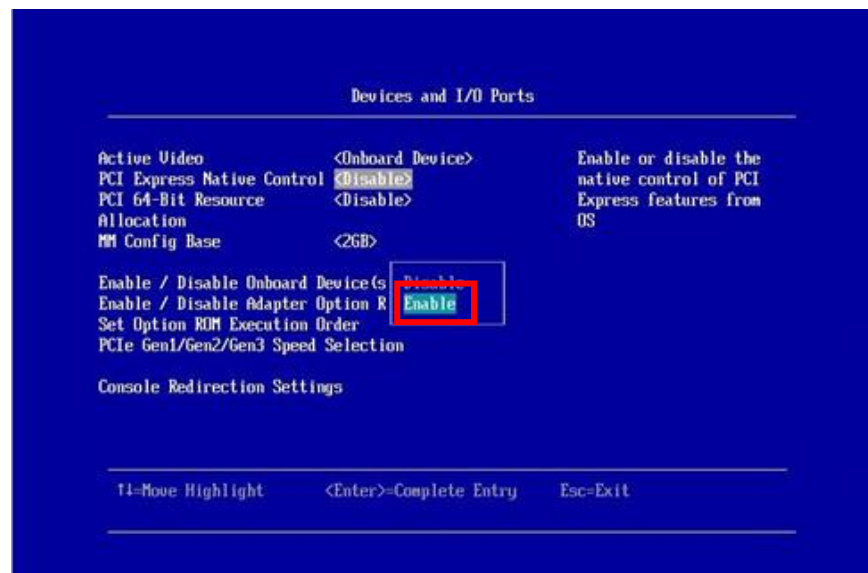
System Configuration and BootManagement screen opens. Then select **System Settings - Device and I/O Ports**.



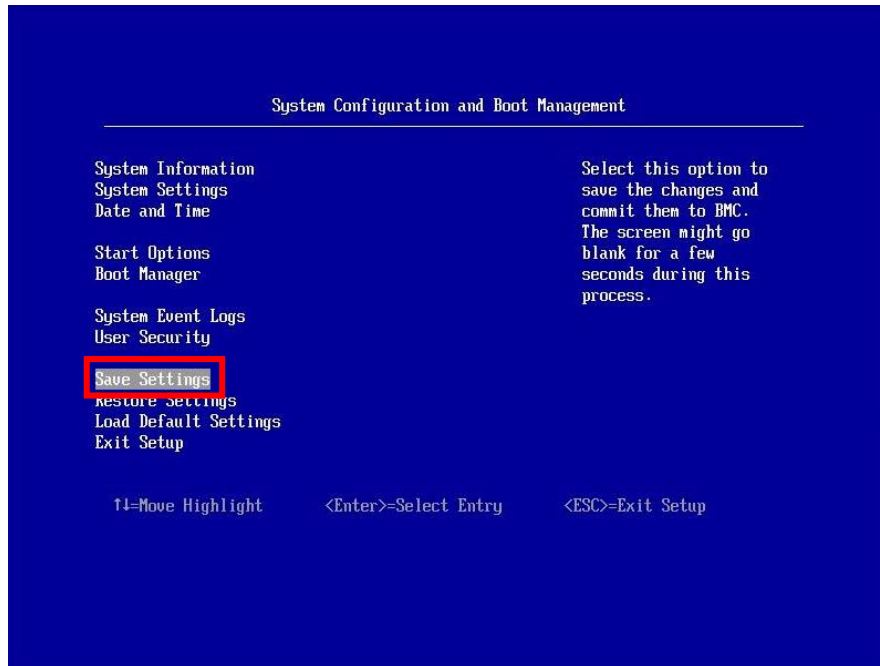
2. Confirm that the value of **PCI Express Native Control** is **<Enable>** in **Devices and I/O Ports** screen.



If the value is **<Disable>**, move the cursor to **<Disable>** and press Enter key and select Enable.



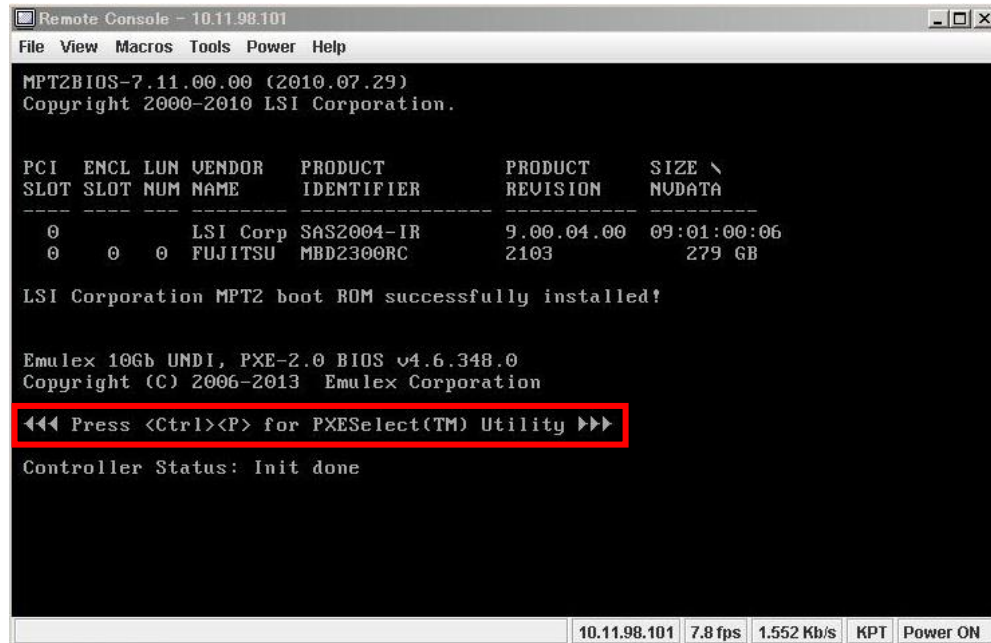
3. Return to the top menu (System Configuration and Boot Management). Move the cursor to **Save Settings** and press **Enter** key.



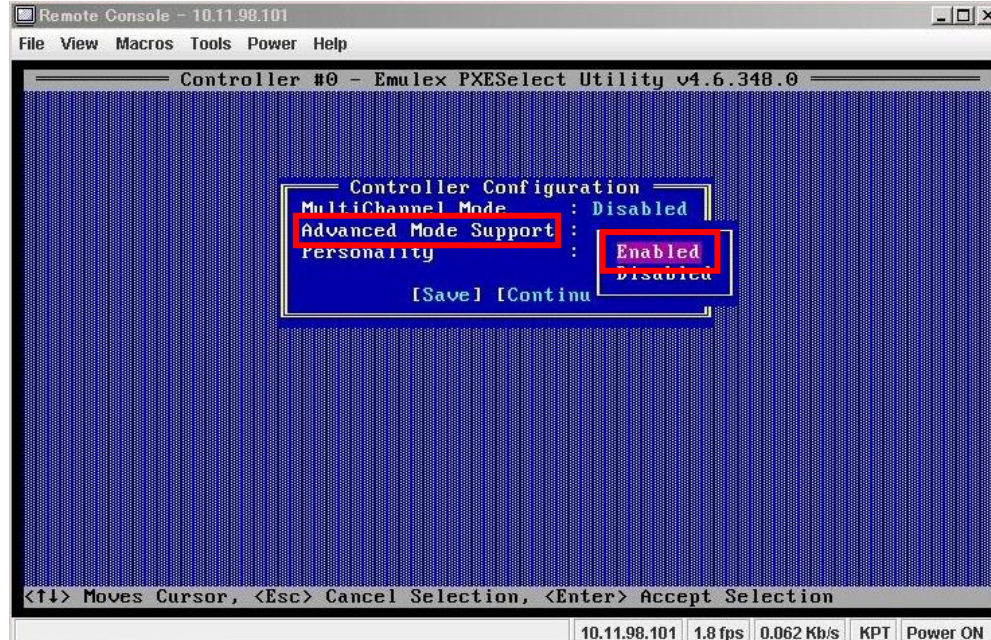
4. Select **Exit Setup** and press **Y** in **Exit Setup Utility** screen.

(2) Emulex PXE BIOS settings

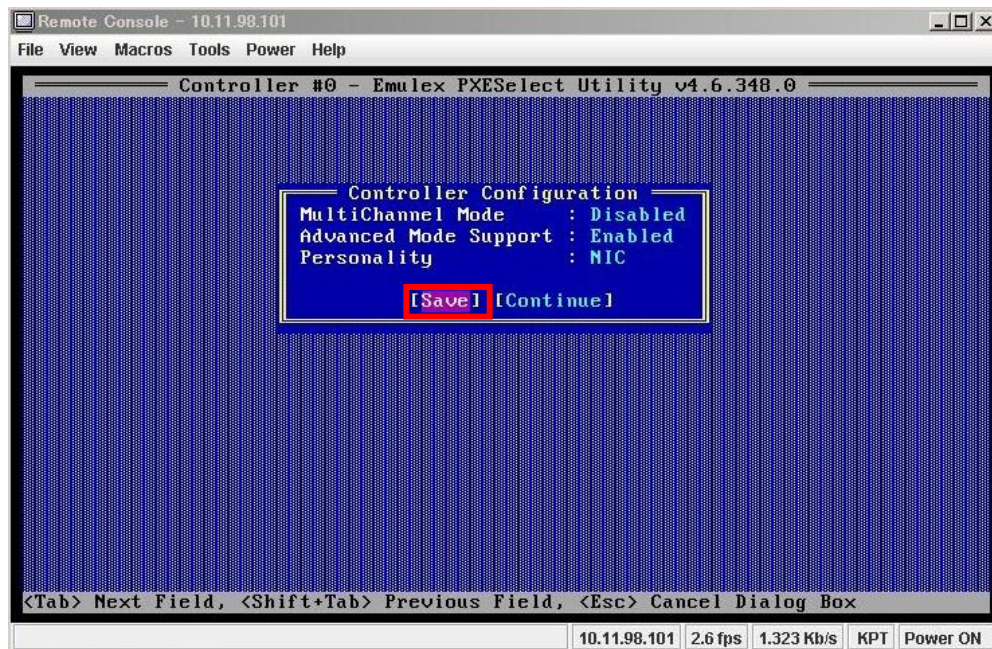
1. In the booting process, when the following message is displayed, press "Ctrl" key and "P" key simultaneously to open the PXESelect Utility.



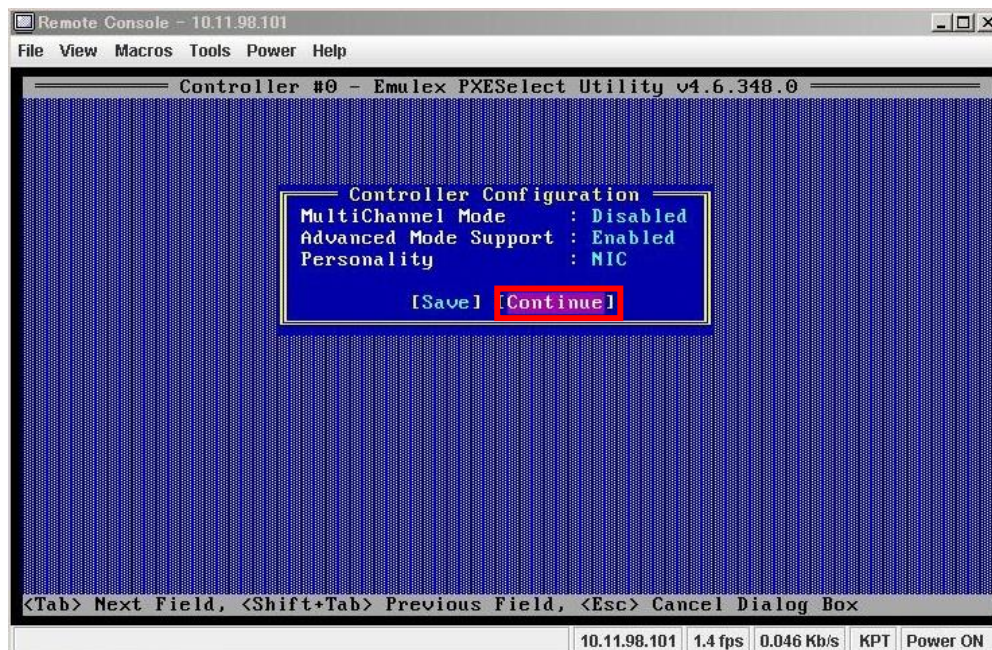
2. Select **Advanced Mode Support** with tab key, and select **Enabled**.



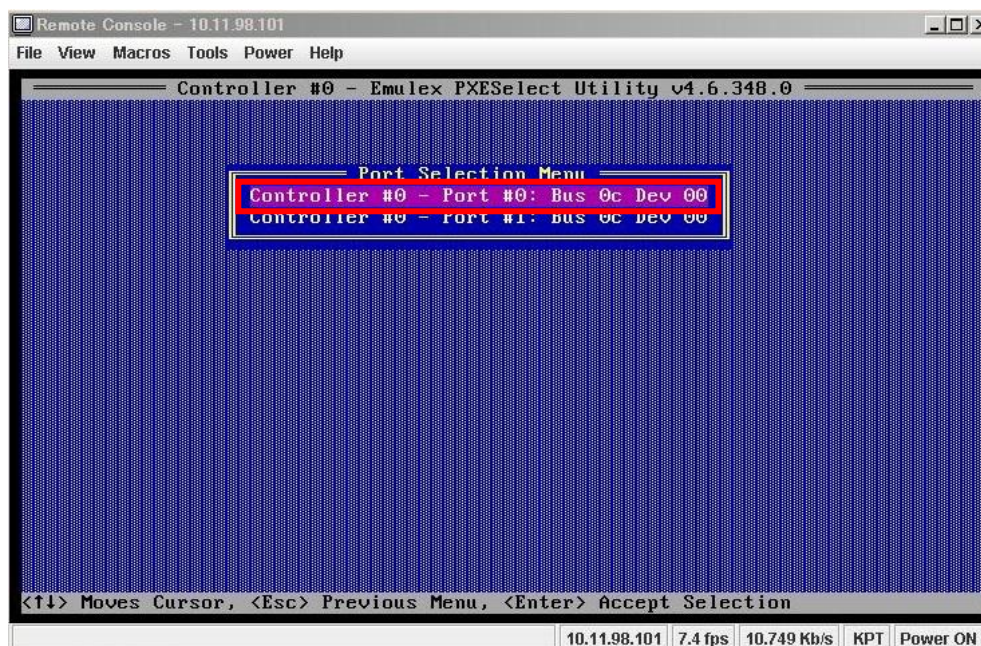
3. Select **Save** and press **Enter**.



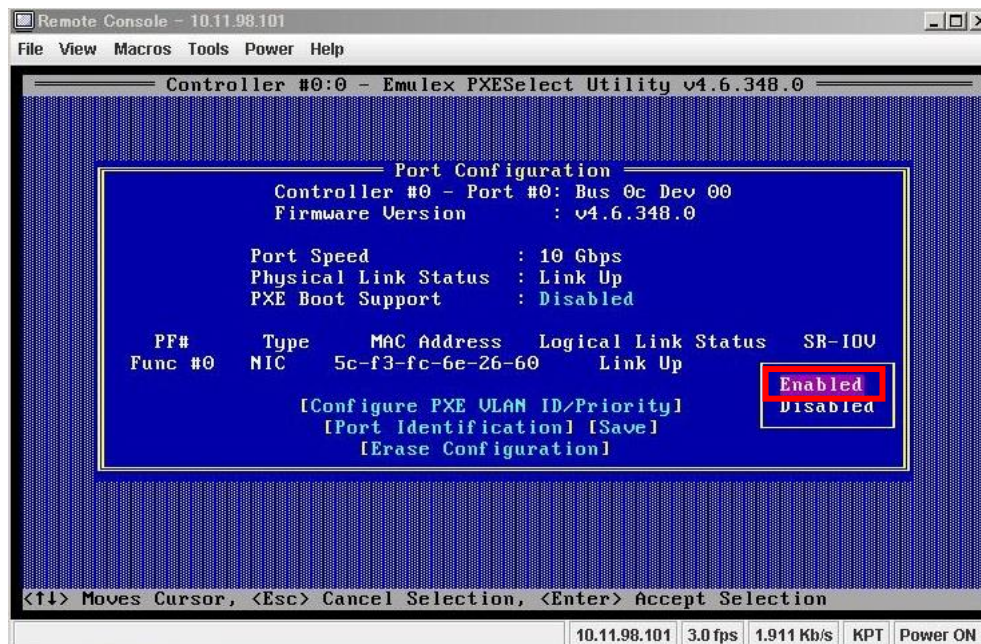
4. Move the cursor to **Continue** with tab key, and press **Enter**.



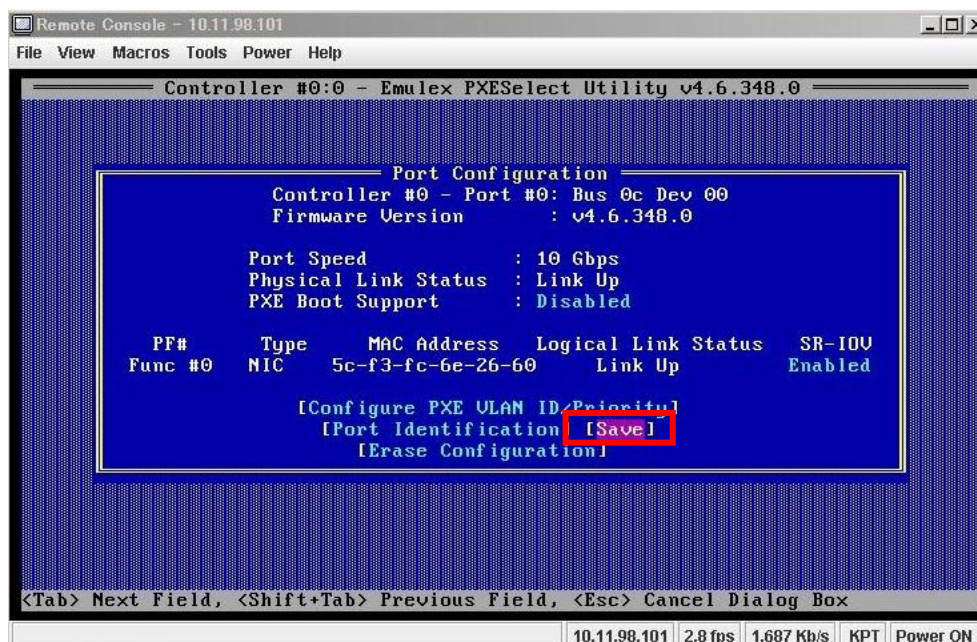
5. Move cursor to **Port#0** in **Port Selection Menu** screen, and press **Enter**.



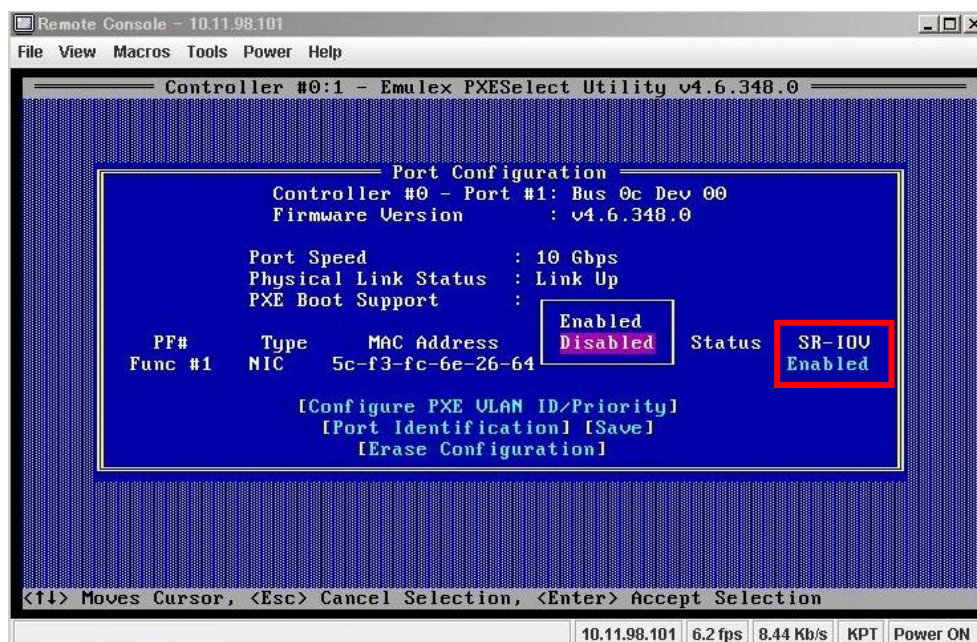
6. Move cursor to SR-IOV section with tab key in **Port Configuration** screen, and select **Enabled**.



7. Move cursor to **Save** with Tab key, and press **Enter**.



8. Quit the Port Configuration menu of Port#0, and configure Port#1 with the same procedure as Port#0. (step (5) to (7))



- When setting SR-IOV function to be enabled, all ports that belong to a controller have to be enabled.
- The personality of the ports have to be NIC to set SR-IOV function to be enabled. The personality of iSCSI and FCoE are not supported for the SR-IOV function.

9. Exit PXESelect Utility. Press **Y** for the message "**Do you want to exit from the utility [Y/N]?**"

10. The system reboots.

(3) Configuration on the host OS (Windows Server 2012 R2)



When changing the SR-IOV configuration or installing the LAN driver, the virtual network switch made by Emulex CNA or LAN device has to be removed by Hyper-V manager. If the virtual network switch is not removed, the LAN driver may not be installed normally.

1. Boot the OS.

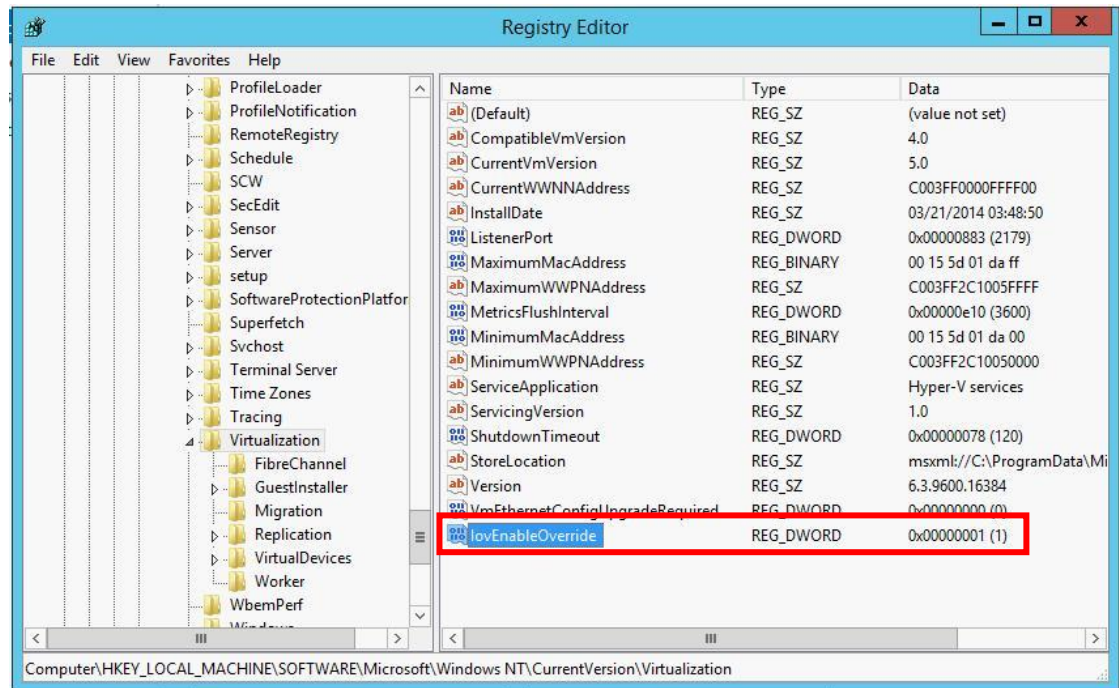
2. Open the registry editor.



Be careful sufficiently to edit the registry.

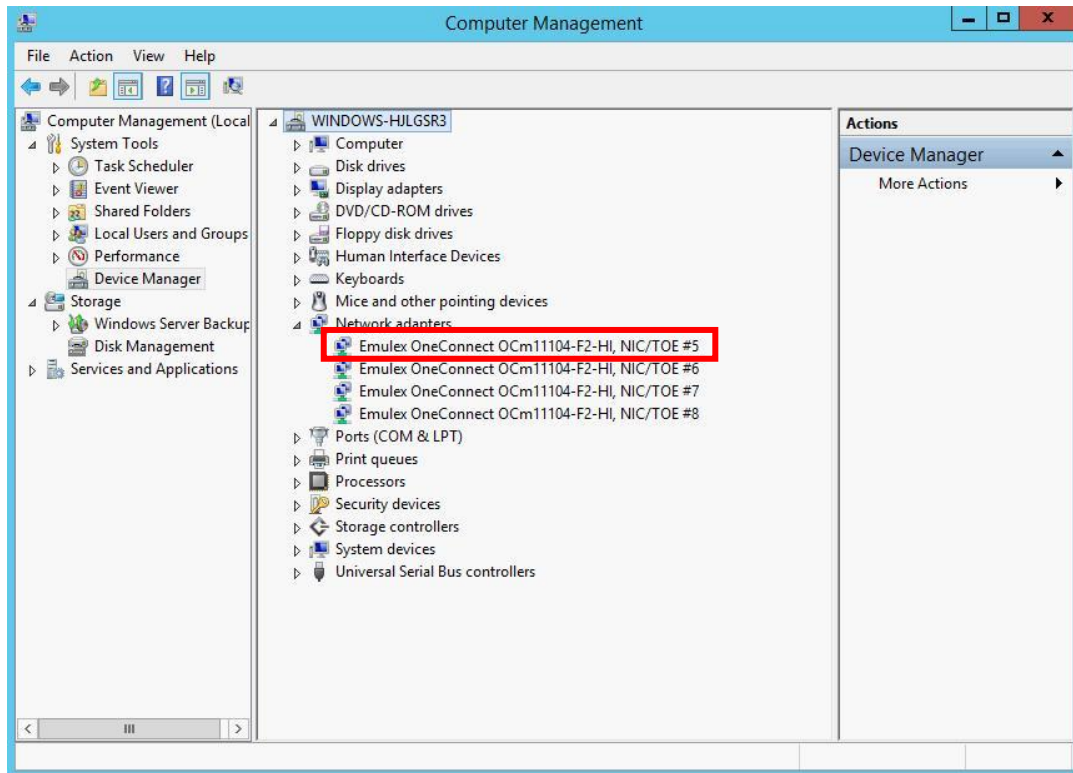
Confirm that "**IovEnableOverride**"(DWORD) is listed in
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Virtualization

If there is not "**IovEnableOverride**", add this and set the data **1**.

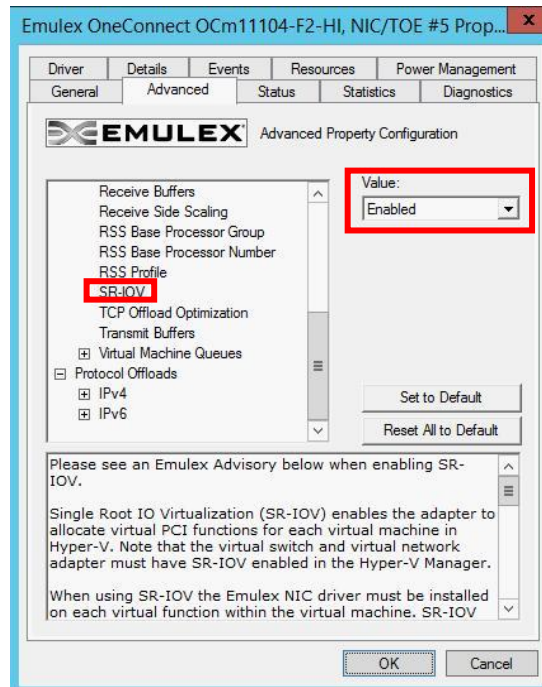


Close the registry editor after the setting above.

3. Select **Computer Management - System Tools - Device manager**. Double click **Emulex OneConnect OCx111xxx** under **Network adapters**. (xxx changes by devices.)



4. Click Advanced tab, and change the following settings.
Performance - SR-IOV : Disabled -> Enabled

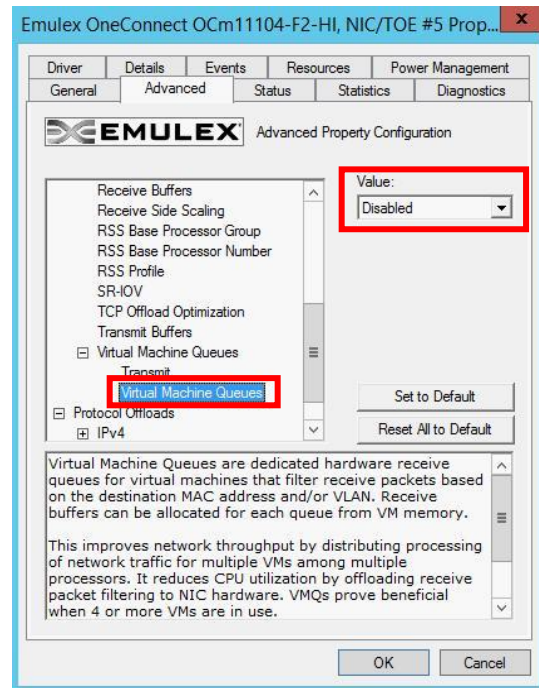


For CB500 series (VMQ is not used.)

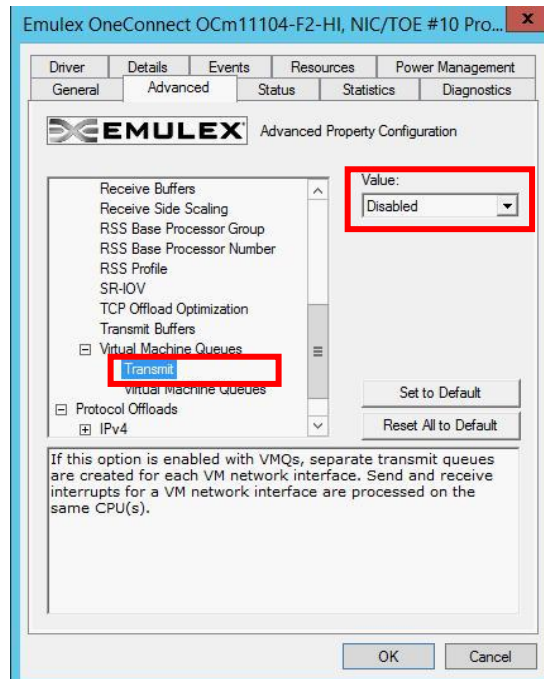
Performance - Virtual Machine Queues - Virtual Machine Queues : Enabled -> Disabled

For CB500 series (VMQ is used. (NIC driver ver.10.2.478.1 or later.))

Performance - Virtual Machine Queues - Virtual Machine Queues : Enabled



Performance - Virtual Machine Queues - Transmit : Enabled -> Disabled



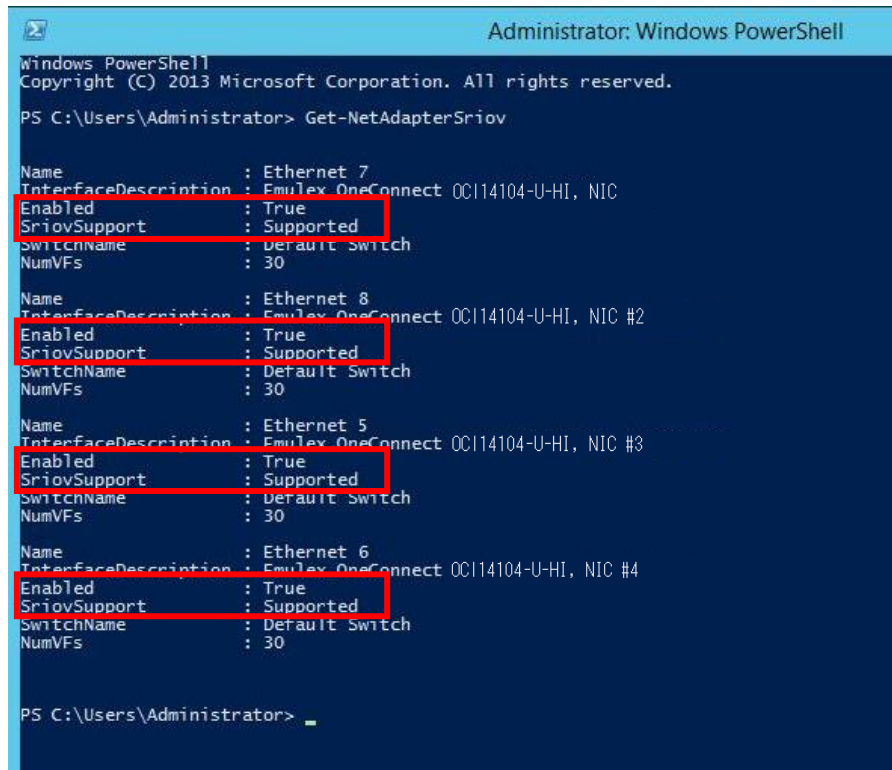
Do not generate or delete the virtual switch when the value of "**Virtual Machine Queues**" is "**Enabled**". In this case, change the value of "**Virtual Machine Queues**" to "**Disabled**".

5. Configure all Emulex 10Gb LAN devices by the step 3 ~ step 4 above. And reboot the OS.

6. Open **Windows PowerShell** after the OS boots.

7. Execute **Get-NetAdapterSriov** command. Confirm the following values.

Enabled : True
SriovSupport : Supported



```
Administrator: Windows PowerShell
Windows PowerShell
Copyright (C) 2013 Microsoft Corporation. All rights reserved.

PS C:\Users\Administrator> Get-NetAdapterSriov

Name                : Ethernet 7
InterfaceDescription : Emulex_OneConnect OC114104-U-HI, NIC
Enabled              : True
SriovSupport          : Supported
SwitchName           : Default Switch
NumVFs               : 30

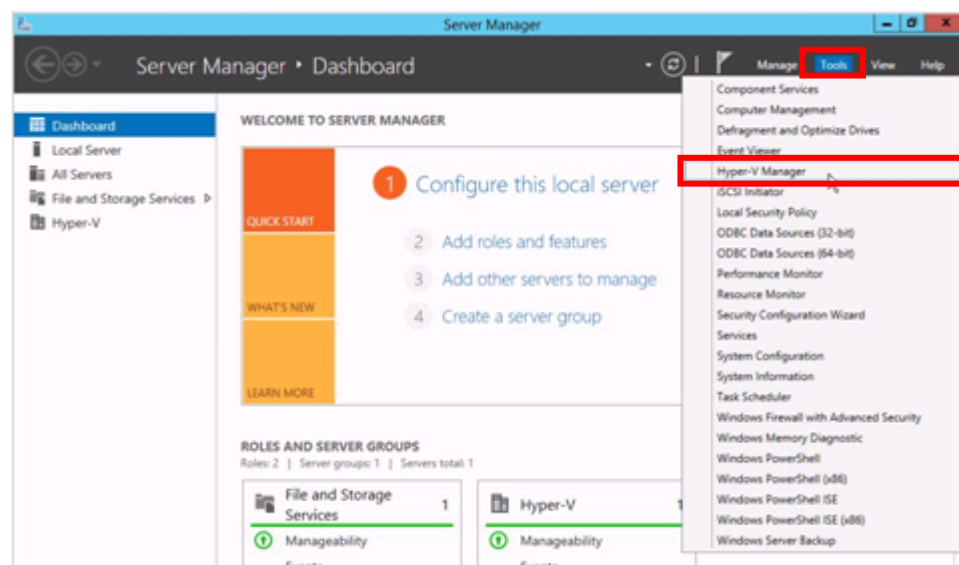
Name                : Ethernet 8
InterfaceDescription : Emulex_OneConnect OC114104-U-HI, NIC #2
Enabled              : True
SriovSupport          : Supported
SwitchName           : Default Switch
NumVFs               : 30

Name                : Ethernet 5
InterfaceDescription : Emulex_OneConnect OC114104-U-HI, NIC #3
Enabled              : True
SriovSupport          : Supported
SwitchName           : Default Switch
NumVFs               : 30

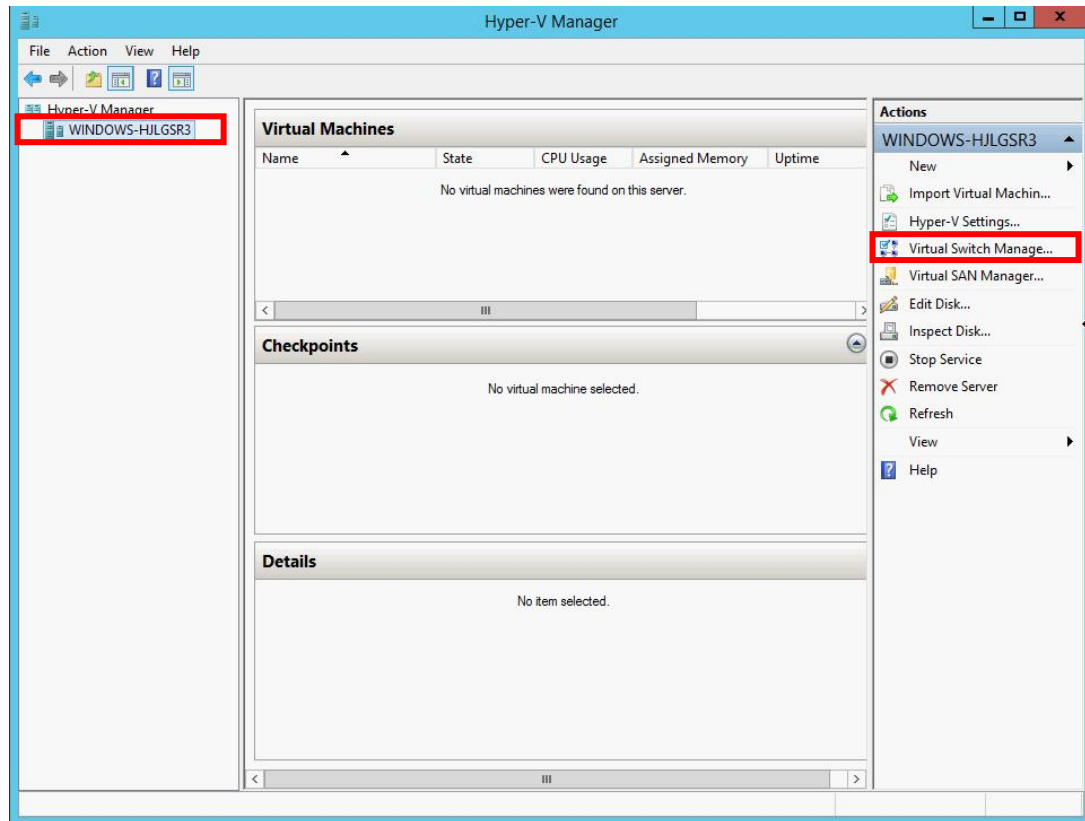
Name                : Ethernet 6
InterfaceDescription : Emulex_OneConnect OC114104-U-HI, NIC #4
Enabled              : True
SriovSupport          : Supported
SwitchName           : Default Switch
NumVFs               : 30

PS C:\Users\Administrator>
```

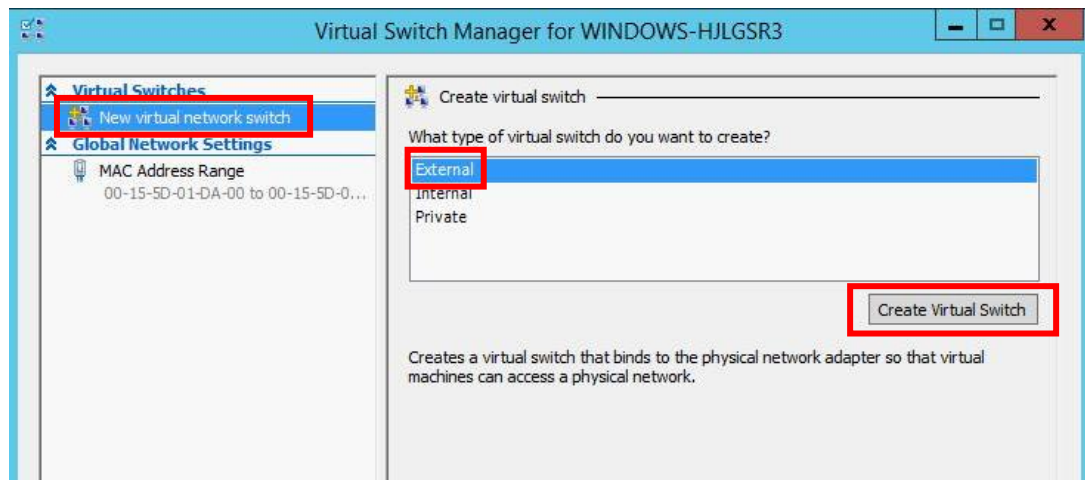
8. Click **Tools** -> **Hyper-V Manager** in Server Manager screen.



9. Click Computer Name, and click **Virtual Switch manager**.



10. Click **New virtual network switch** and select **External** and click **Create Virtual Switch**.



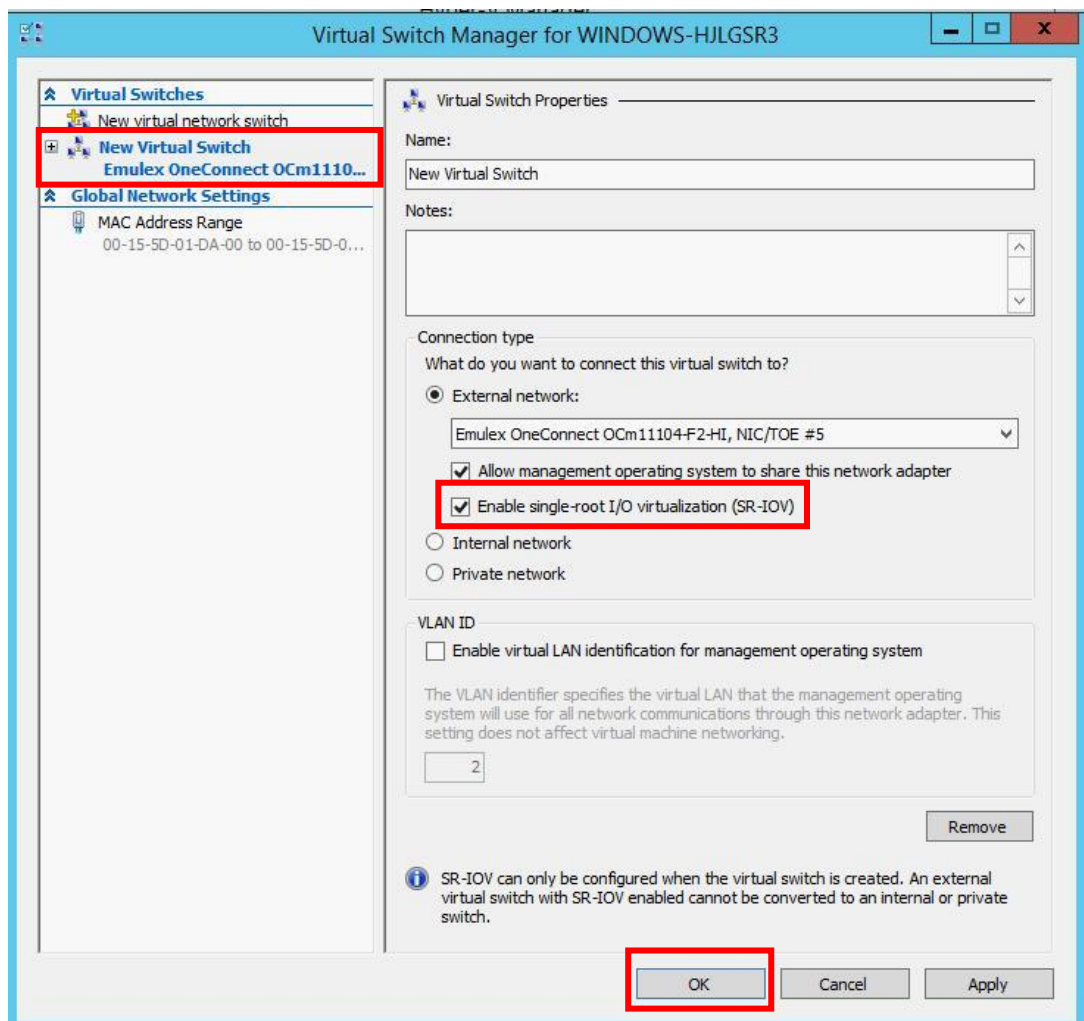
11. Select physical LAN device to assign to external network, and check the box of **Enable single-root I/O virtualization (SR-IOV)**. And click **OK**.



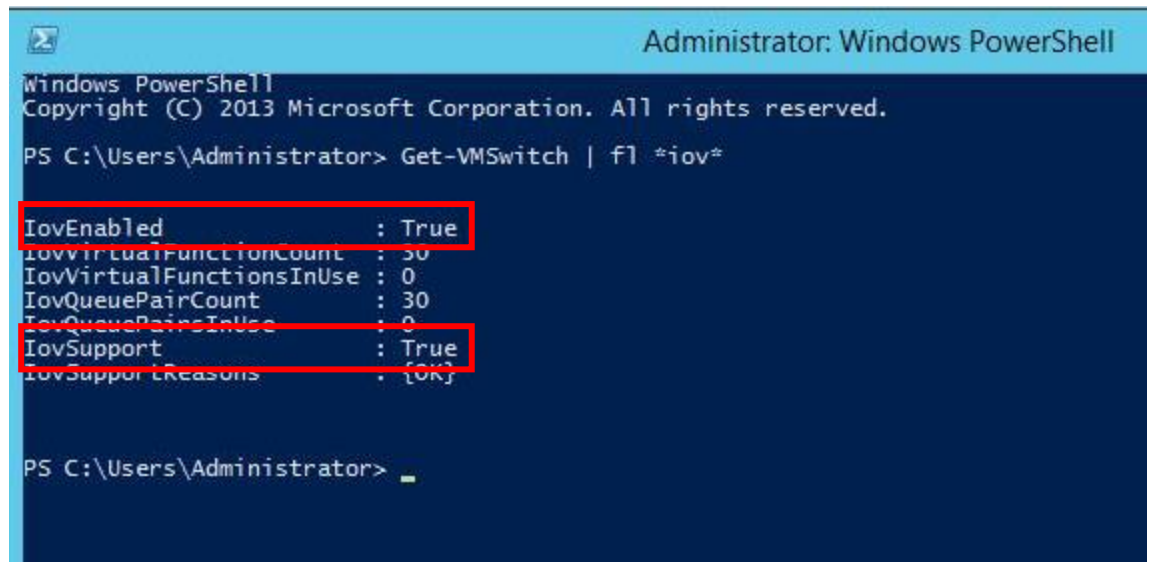
Any name can be set to **Name:**



Make sure to check the box of **Enable single-root I/O virtualization (SR-IOV)** before creating virtual switch. If the virtual switch has been created, the check box cannot be checked.



12. Execute **Get-VMSwitch | fl *iov*** command on Windows PowerShell, and confirm that **IovEnabled** and **IovSupport** are **True**.



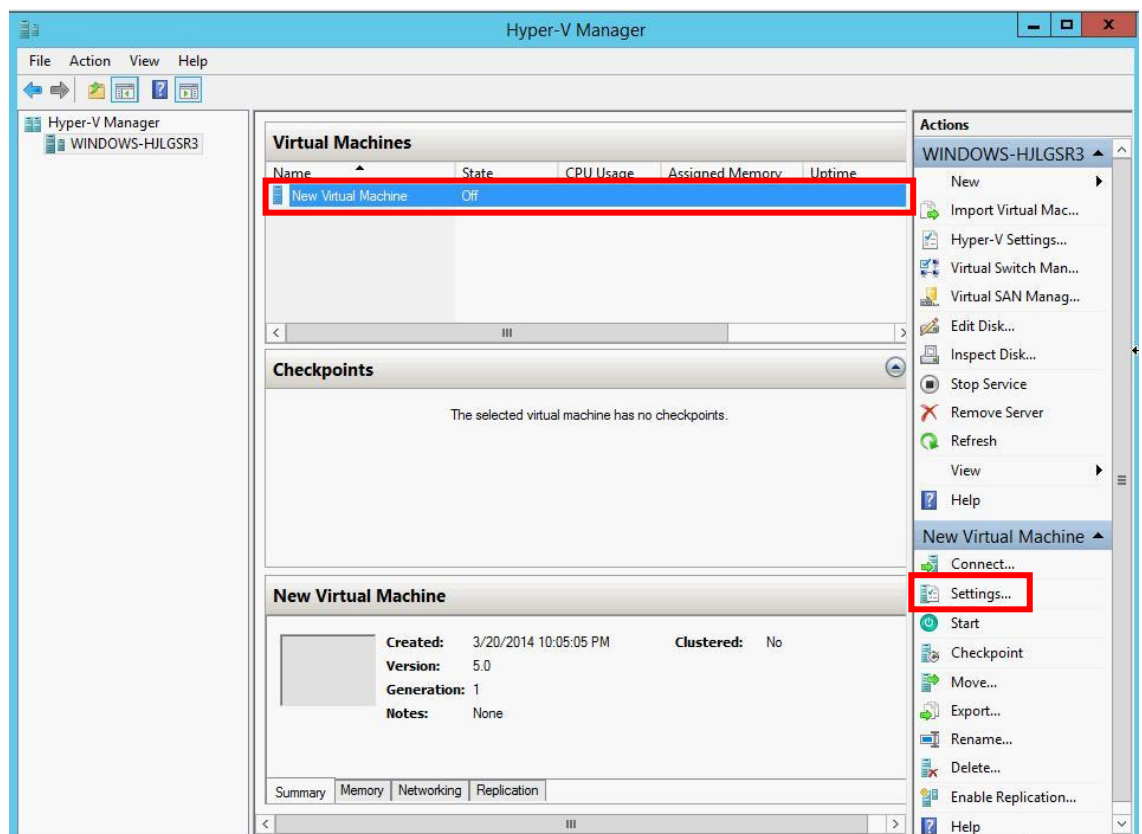
```
Administrator: Windows PowerShell
Windows PowerShell
Copyright (C) 2013 Microsoft Corporation. All rights reserved.

PS C:\Users\Administrator> Get-VMSwitch | fl *iov*

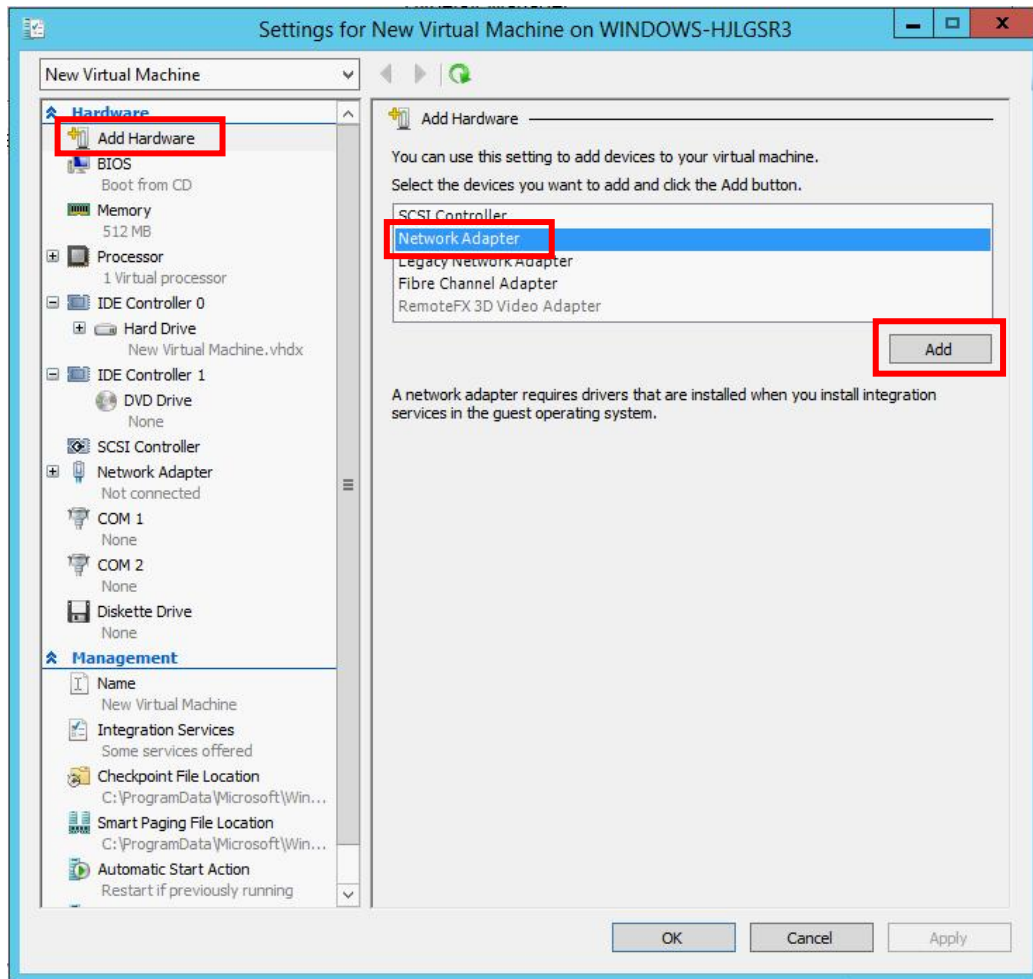
IovEnabled : True
IovVirtualFunctionCount : 30
IovVirtualFunctionsInUse : 0
IovQueuePairCount : 30
IovQueuePairsInUse : 0
IovSupport : True
IovSupportReasons : [OK]

PS C:\Users\Administrator>
```

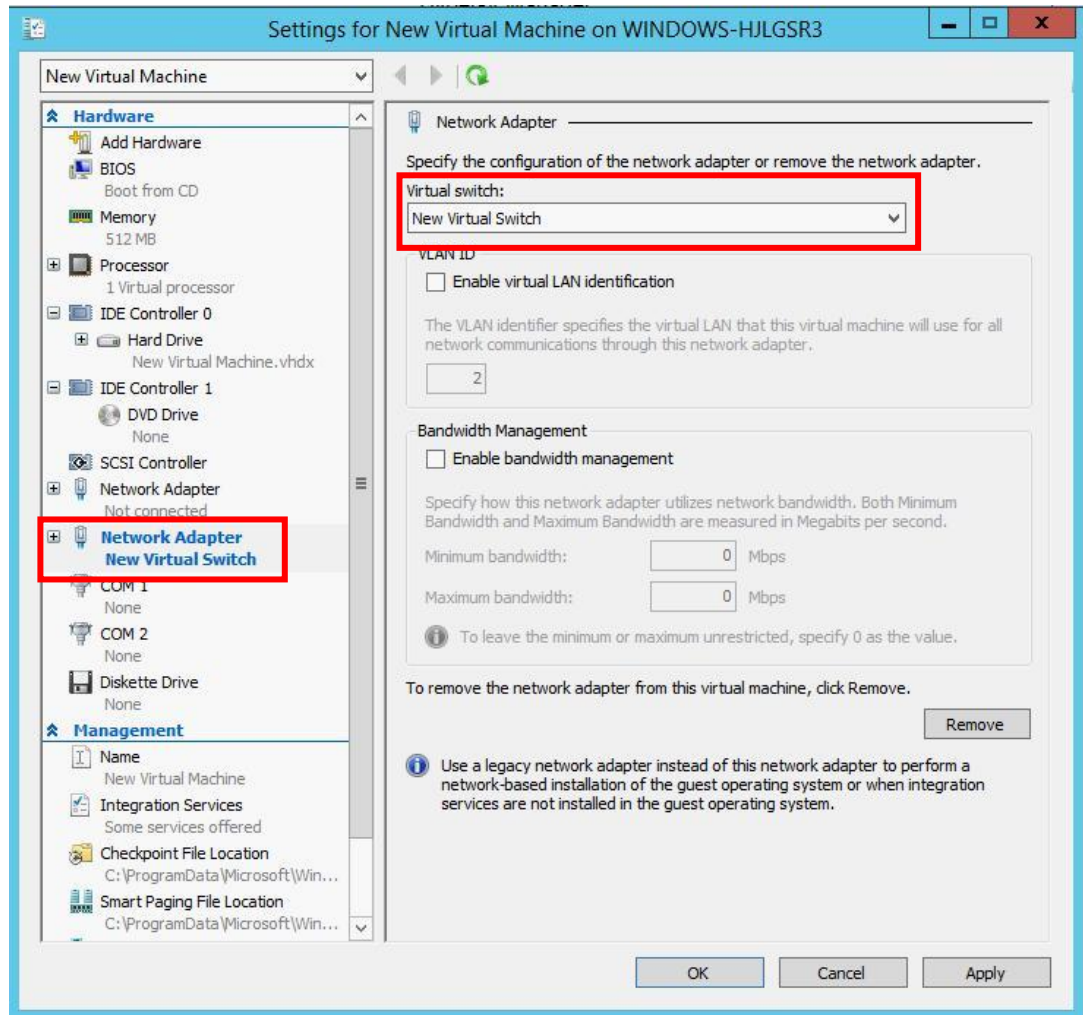
13. Select the virtual machine (guest OS) to assign the virtual switch, and click **Settings...**



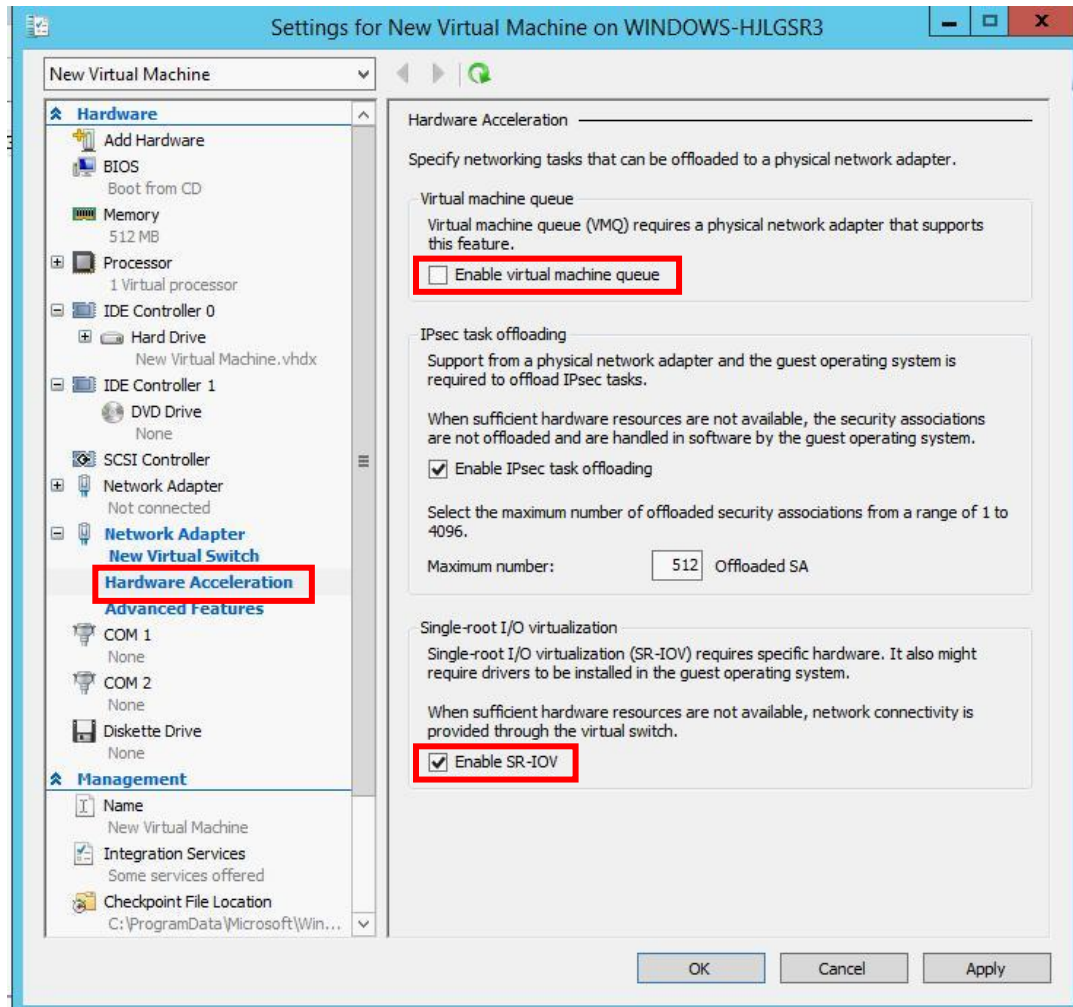
14. Click **Add Hardware**, click **Network Adapter**, and click **Add**.



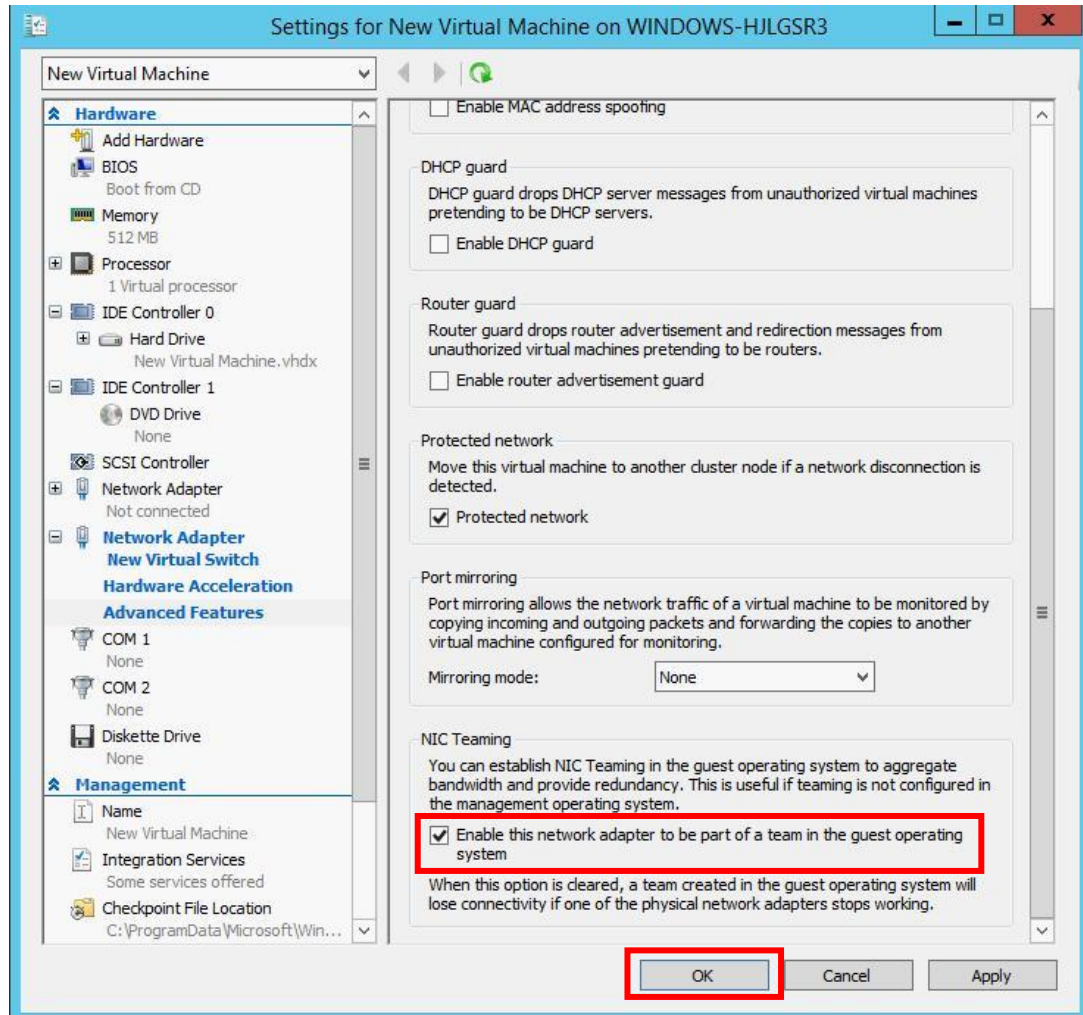
15. Select the virtual switch that has been created by **Virtual Switch Manager**.



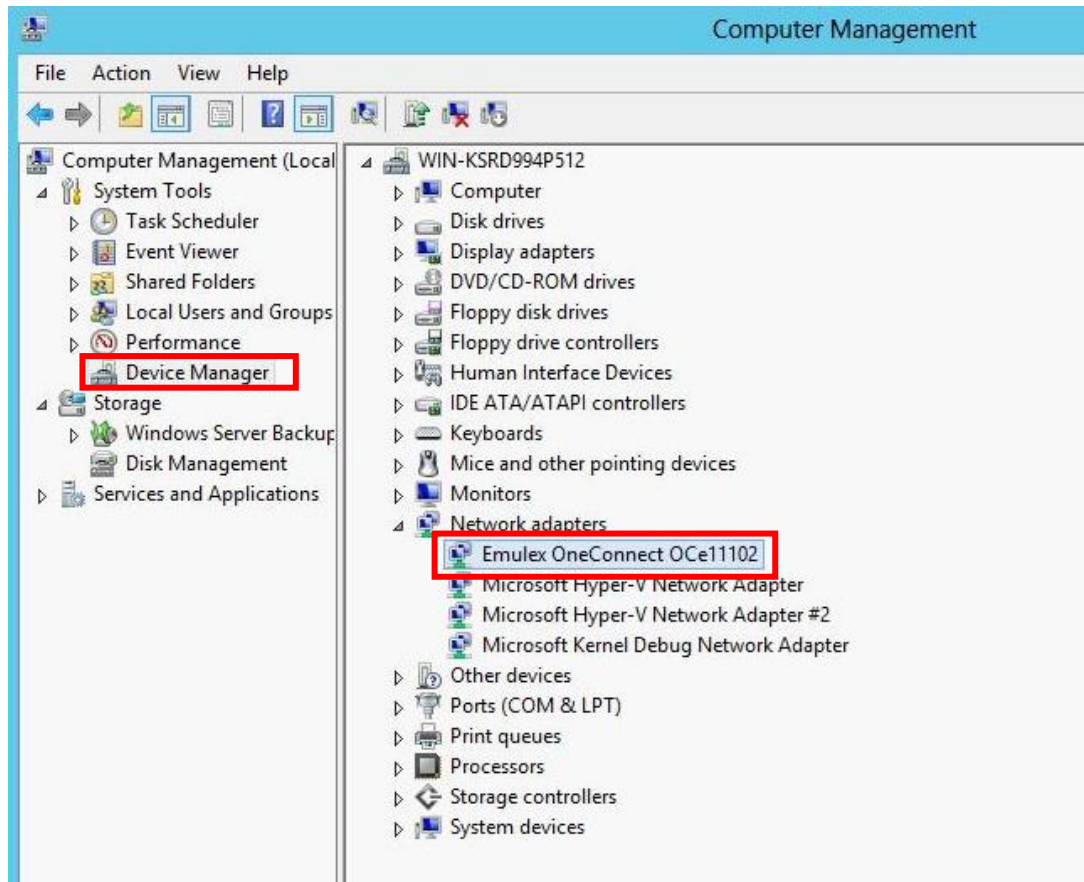
16. Click **Hardware Acceleration** under **Network Adapter**. Delete the check mark of **Enable virtual machine queue**, and check the box of **Enable SR-IOV**.



17. Check the box of **Enable this network adapter to be part of a team in the guest operate system**. And click **OK**.



18. Install the OS to the virtual machine, and open **Device Manager**. If **Emulex One Connect OCx11xxx** is displayed under **Network adapters**, the virtual machine runs with SR-IOV function.

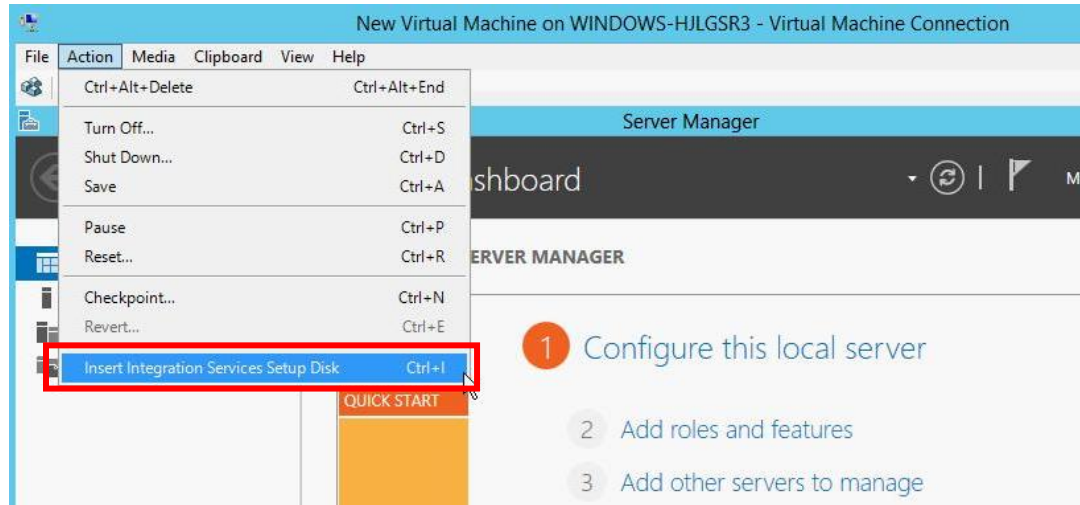


- The LAN devices that are recognized on the virtual machine run by the NIC driver bundled with the OS. Install NIC driver for SR-IOV function. For the NIC driver, see the manual : "Hitachi Compute Blade Emulex Adapter Use's Guide for Driver (MK-99COM103) rev.14 or higher".
- If the guest OS is Windows Server 2012, apply the following fix provided by Microsoft. If the fix is not applied to the OS, the NIC driver can not be installed.

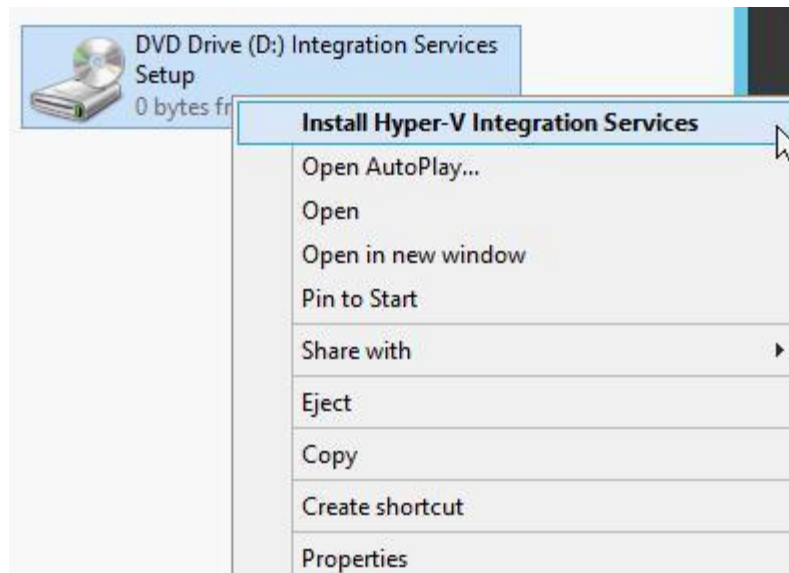
<http://support.microsoft.com/kb/2846340>

(4) Required settings for configuring LAN device redundancy on the virtual machine whose OS is Windows Server 2012.

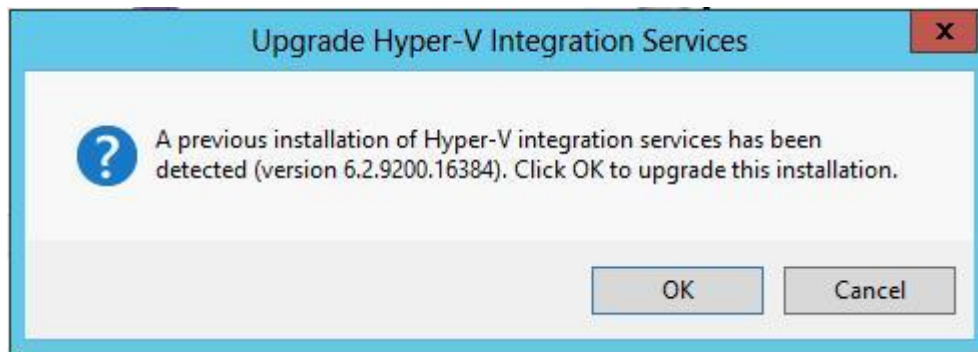
1. Select **Action - Insert Integration Services Setup Disk** in **Virtual Machine Connection** window.



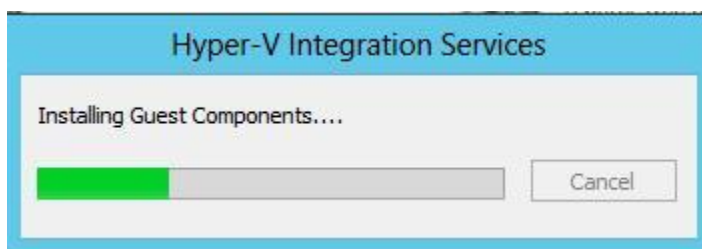
2. Right click **Integration Services Setup** installed in virtual DVD drive, click **Install Hyper-V Integration Services**.



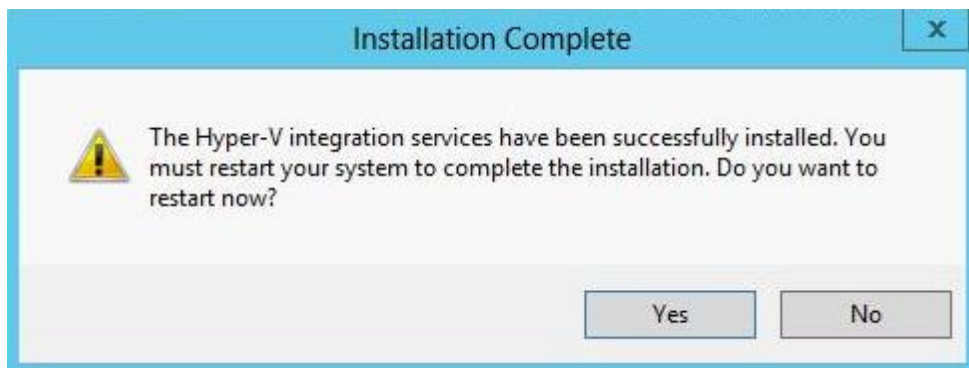
If the following window is displayed, click OK.



3. **Hyper-V Integration Services** installation starts..



4. The following window is displayed when the installation is complete. Click **Yes** and reboot the OS.



5. Select **Media - Eject vmguest.iso** in **Virtual Machine Connection** window



The settings are complete.

4.1.7 SR-IOV configuration (LPAR manager Environment)

SR-IOV (Single Root I/O Virtualization) can be used in LPAR manager environment. This section describes the procedure to configure the SR-IOV function.

There are some restrictions on the SR-IOV function. Prior to using SR-IOV in LPAR manager environment, read the user's guides below.

CB500 series : Hitachi Compute Blade 500 Series Logical partitioning manager User's Guide (MK-91CB500068)

CB2000 series : Compute Blade 2000 USER'S GUIDE (MK-99BDS2K001)
Chapter 12 Logical partitioning manager
Cautions - Notes on using SR-IOV

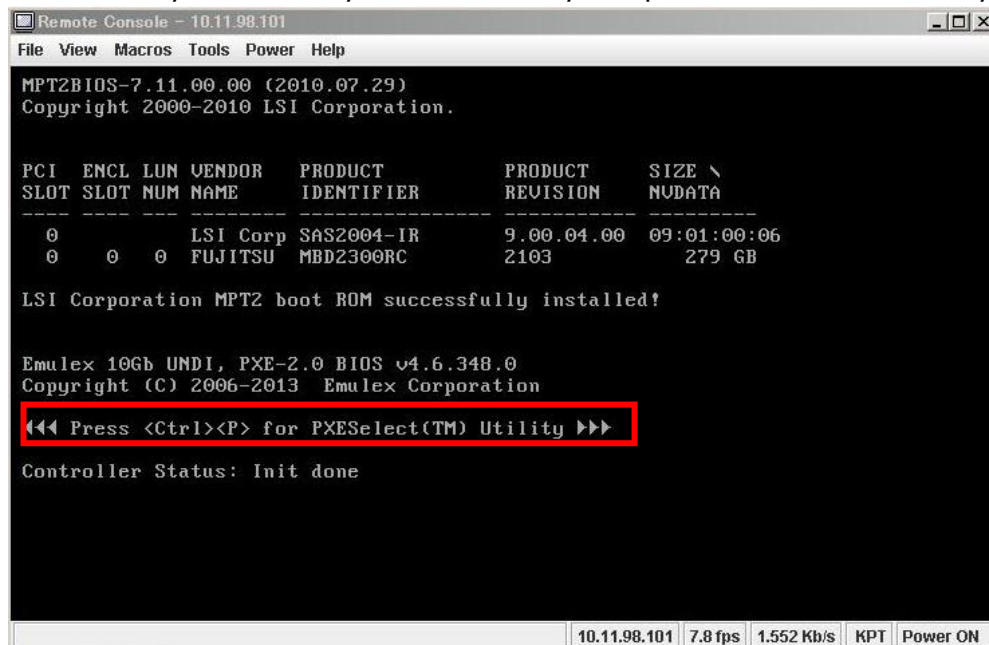
SR-IOV function in LPAR manager environment needs a NIC driver for SR-IOV installed in the guest OS. For the NIC drivers, see Chapter 4.1 Driver Installation (Onboard CNA / CNA expansion card / LAN expansion card / CNA board) in Hitachi Compute Blade Emulex Adapter User's Guide for Driver (MK-99COM103), Revision 14 or higher.



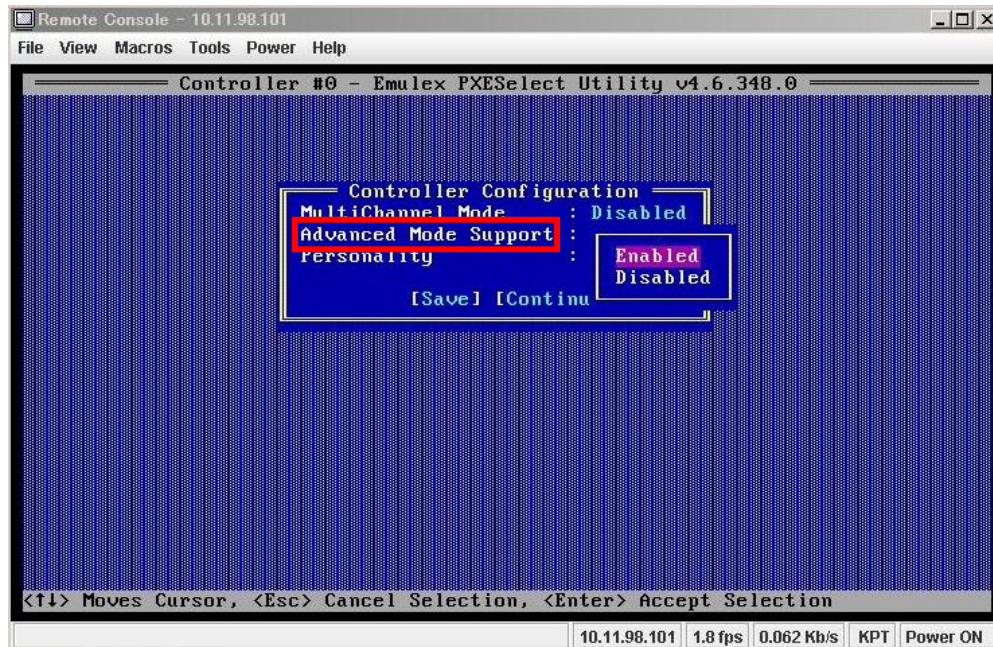
- The 1Gb LAN connection is forbidden when using the SR-IOV function. Before setting the SR-IOV function as "Enabled", the network switch has to be configured for 10Gb connection.
- Configure the SR-IOV function in non-virtualized environment.
- If configuring SR-IOV, SR-IOV function have to be configured to all ports of the controller.
- The personality of a port whose SR-IOV function is enabled supports NIC only.
- When configuring SR-IOV, Multichannel mode has to be disabled.

(1) Emulex PXE BIOS settings

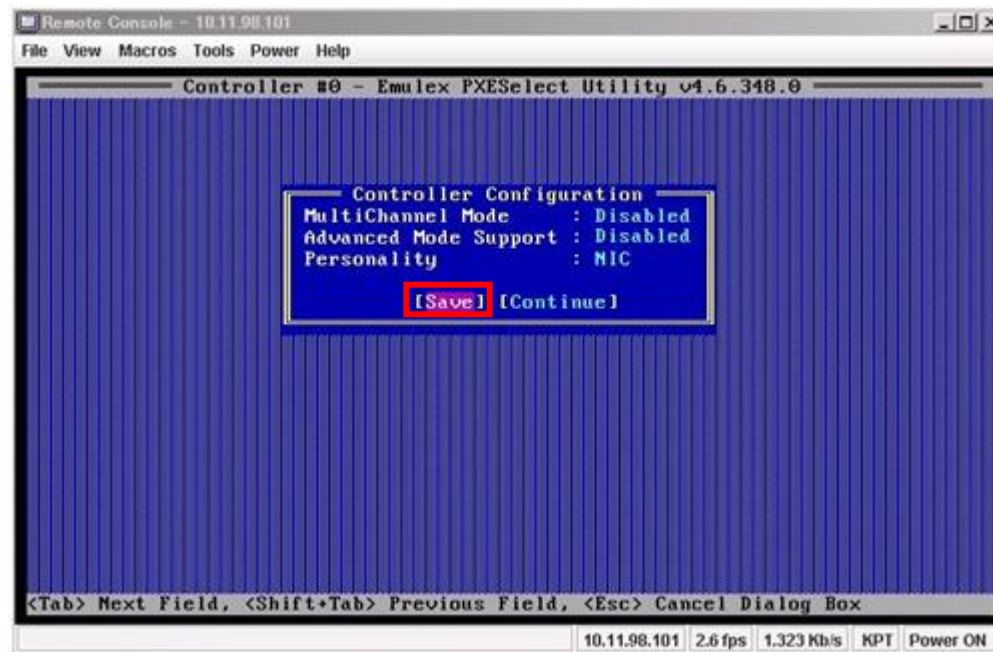
1. In the booting process, when the following message is displayed, press "Ctrl" key and "P" key simultaneously to open the PXESelect Utility.



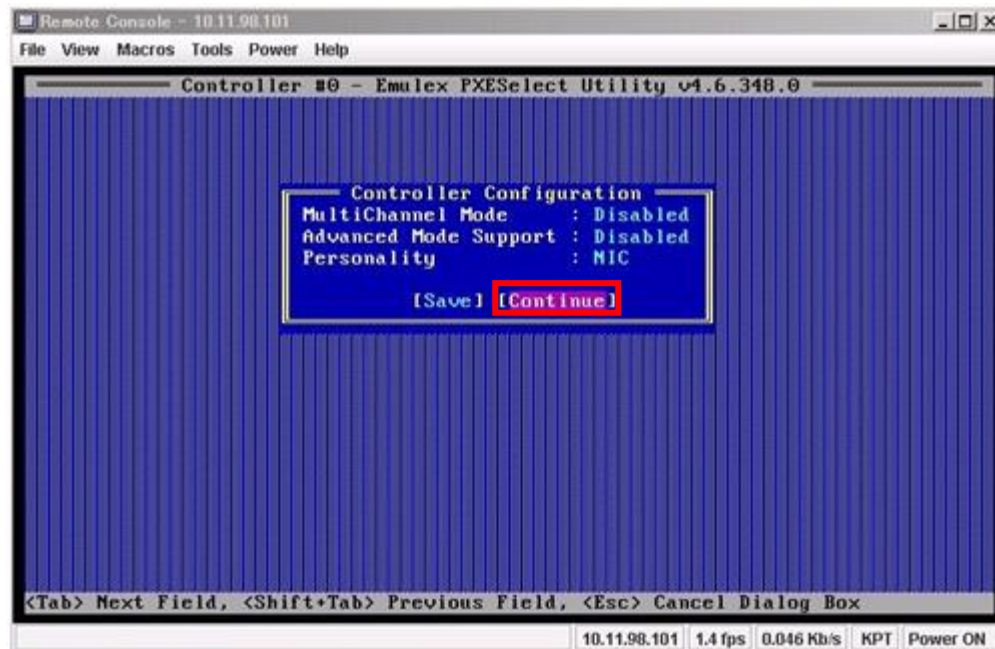
2. Select **Advanced Mode Support** with tab key, and select **Disabled**.



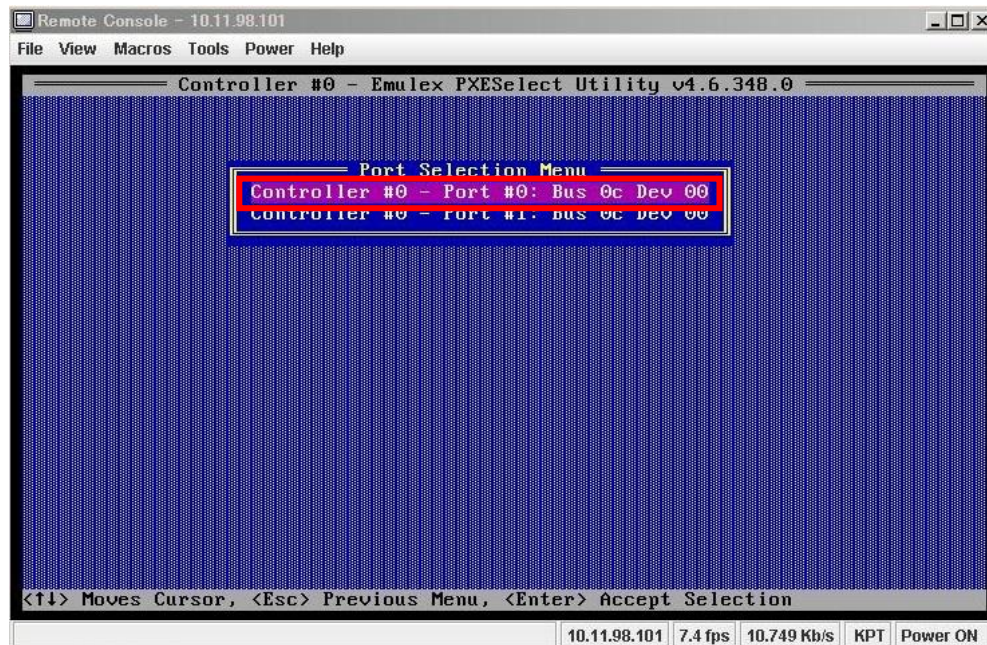
3. Select **Save** and press **Enter**.



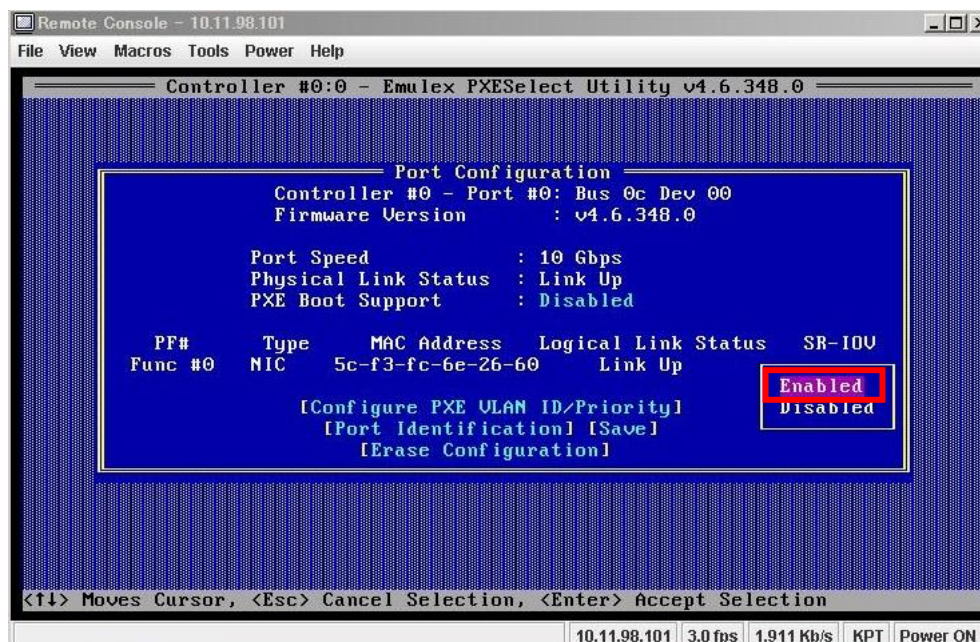
4. Move the cursor to **Continue** with tab key, and press **Enter**.



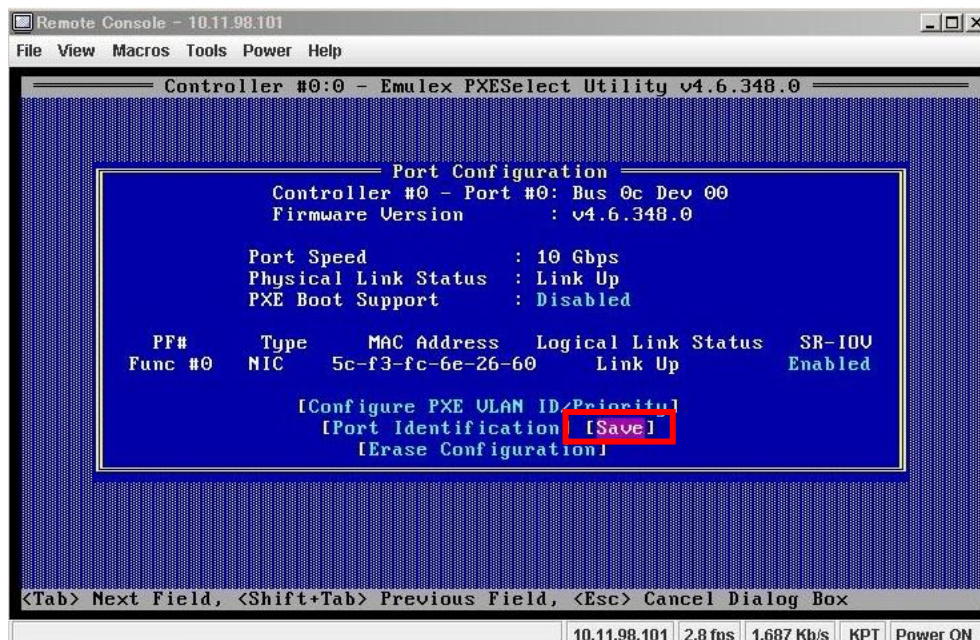
5. Move cursor to **Port#0** in **Port Selection Menu** screen, and press **Enter**.



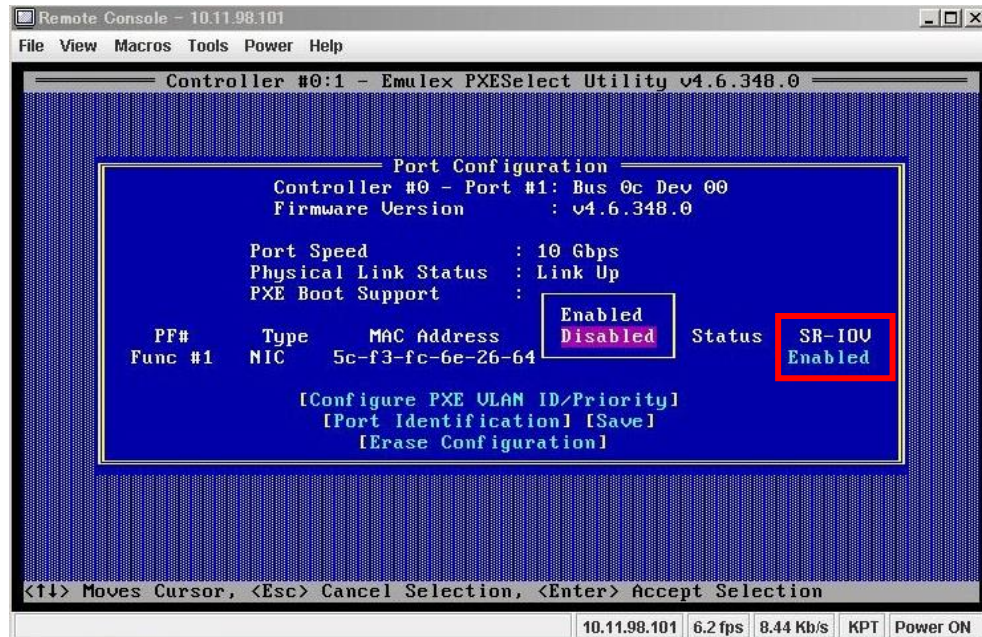
6. Move cursor to SR-IOV section with tab key in **Port Configuration** screen, and select **Enabled**.



7. Move cursor to **Save** with Tab key, and press **Enter**.



8. Quit the Port Configuration menu of Port#0, and configure Port#1 with the same procedure as Port#0. (step (5) to (7))



- When setting SR-IOV function to be enabled, all ports that belong to a controller have to be enabled.
- The personality of the ports have to be NIC to set SR-IOV function to be enabled. The personality of iSCSI and FCoE are not supported for the SR-IOV function.

9. Exit PXESelect Utility. Press **Y** for the message "**Do you want to exit from the utility [Y/N]?**"

10. The system reboots.

4.2 Procedure of configuration for onboard CNA (UEFI on CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4)

4.2.1 PXE configuration (UEFI)

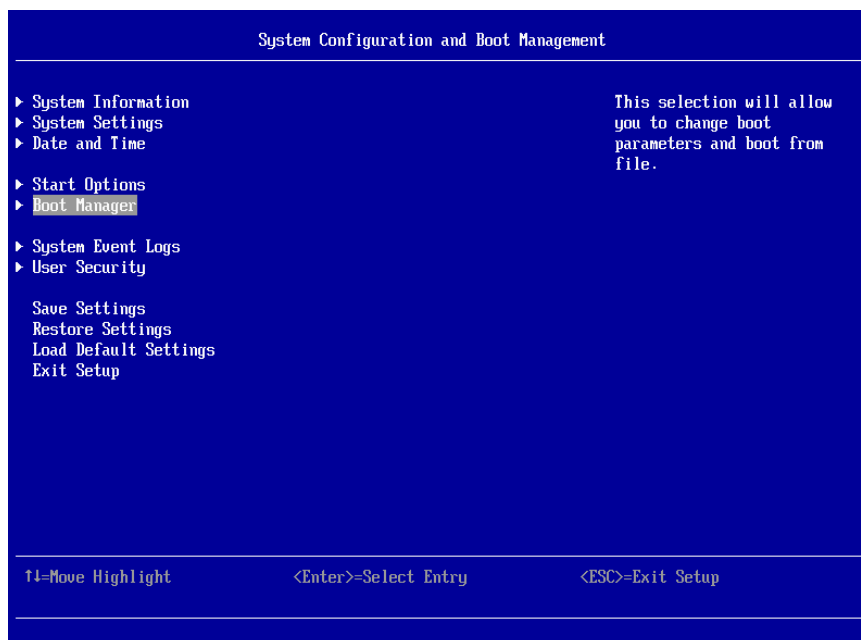
The PXE boot function is supported by onboard CNA with NIC personality.

(1) Enabling the PXE function

1. Turn on the remote console, then click **Power - Power On** in tool bar of the remote console to turn on the system.
2. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



3. Select **Boot Manaer** in **System Configuration and Boot Managemet** screen.



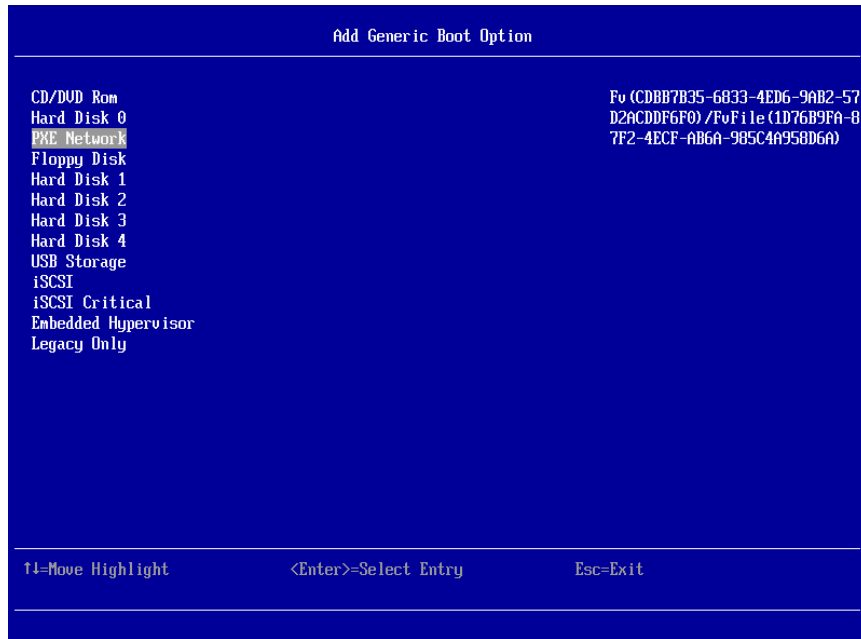
4. Select **Add Boot Option** in **Boot Manager** screen.



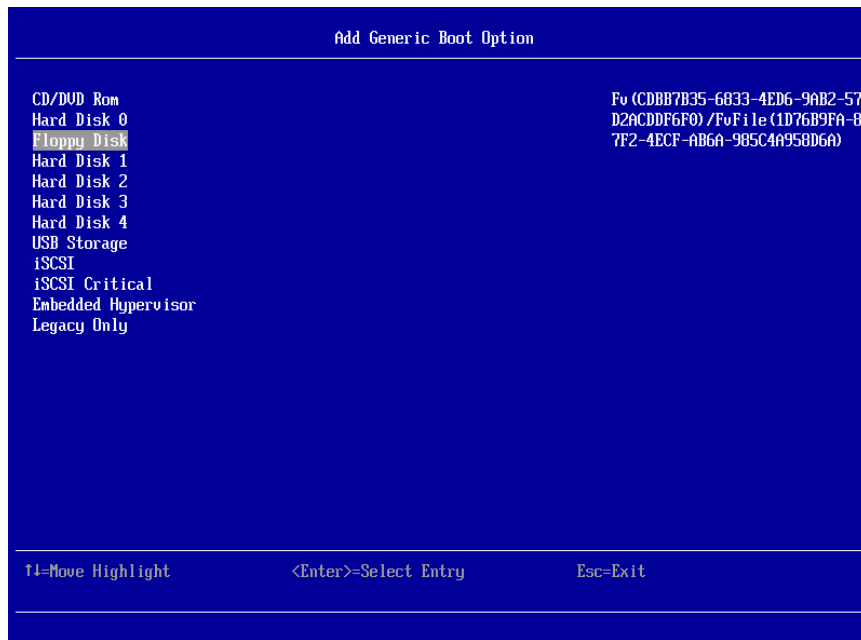
5. Select **Generic Boot Option** in **Add Boot Option** screen.



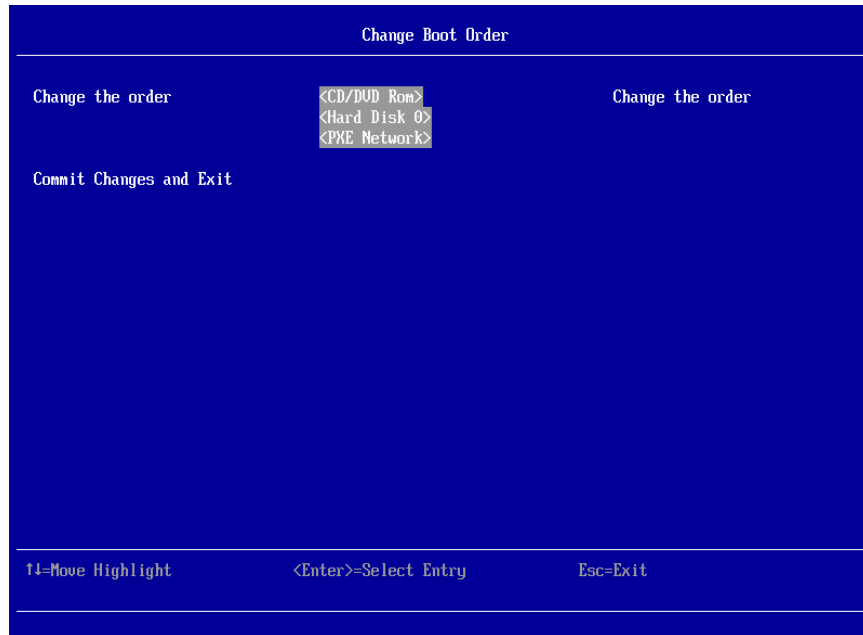
6. Select **PXE Network** in **Add Generic Boot Option** screen and press <Enter>.



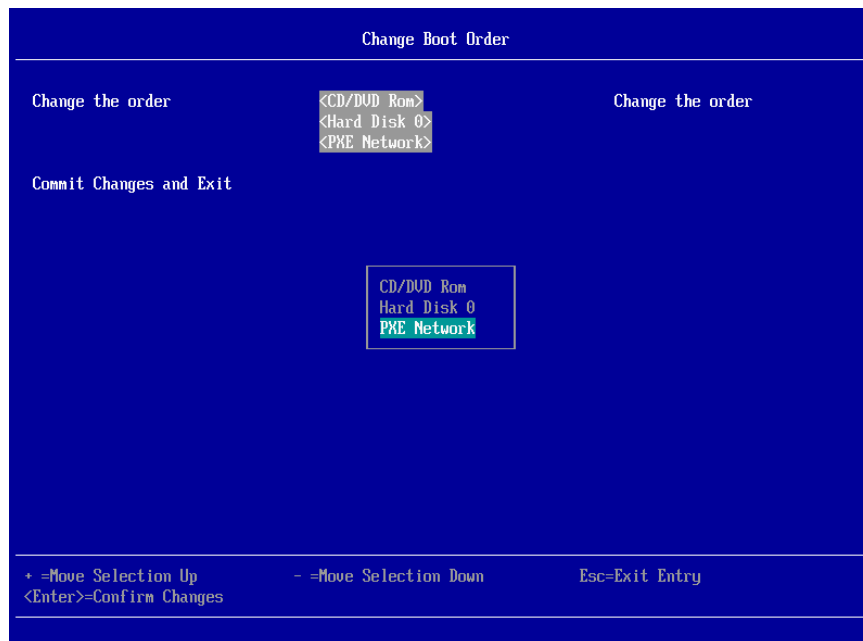
PXE Network disappears.



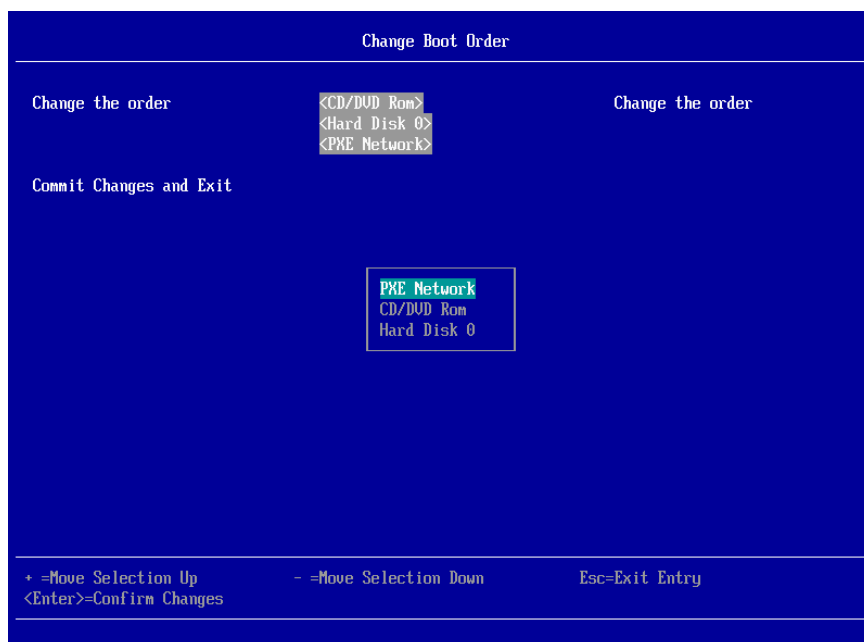
7. Return to **Boot Manager** screen with ESC key.
Select **Change Boot Order**, and the following screen is displayed.



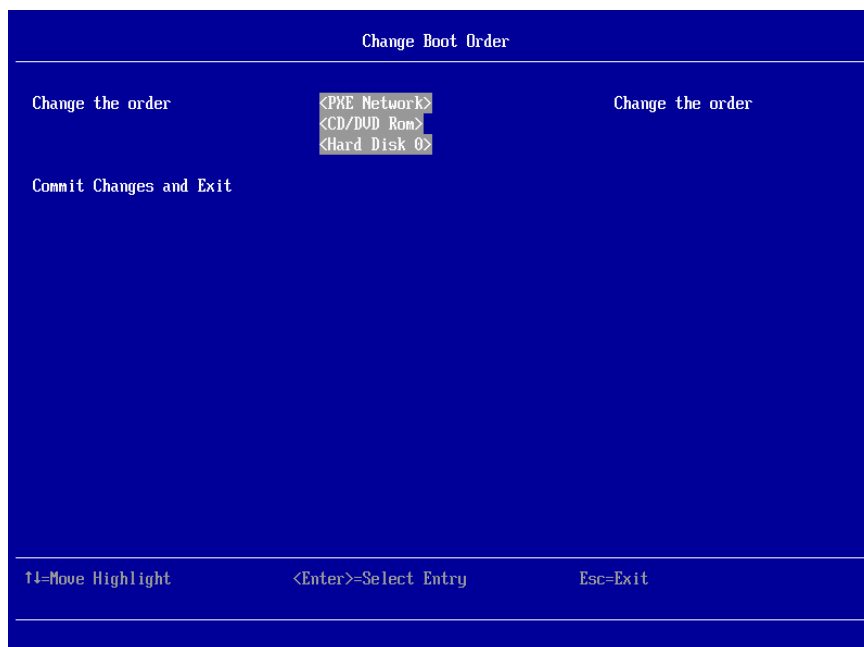
8. Press <Enter> key once, and select **PXE Network** with arrow keys.



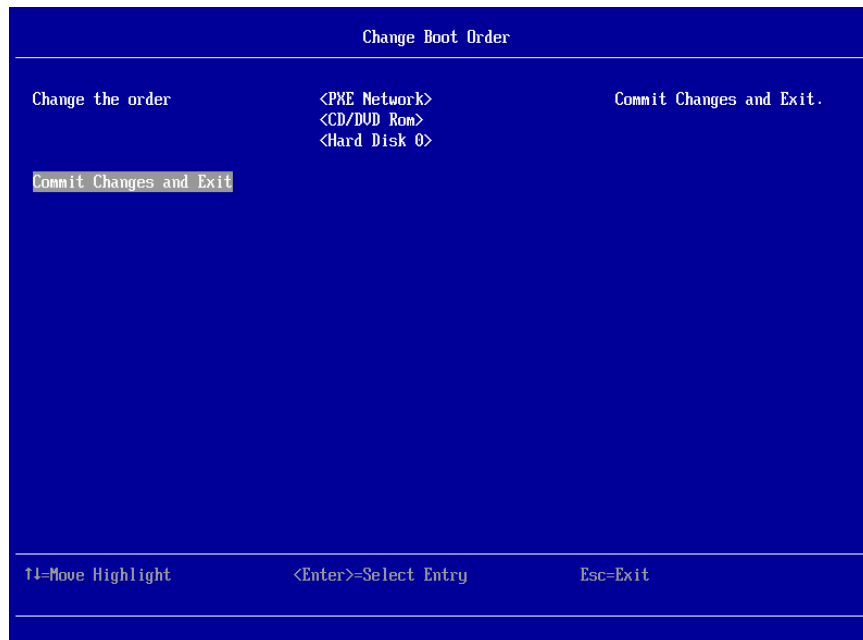
9. Move **PXE Network** to the top of the list with **+** key and press **<Enter>**.



Check that **PXE Network** is at the top of the list.



10. Select **Commit Changes and Exit**.



11. Return to **System Configuration and Boot Management** screen with ESC key.

12. Select **Save Settings**.

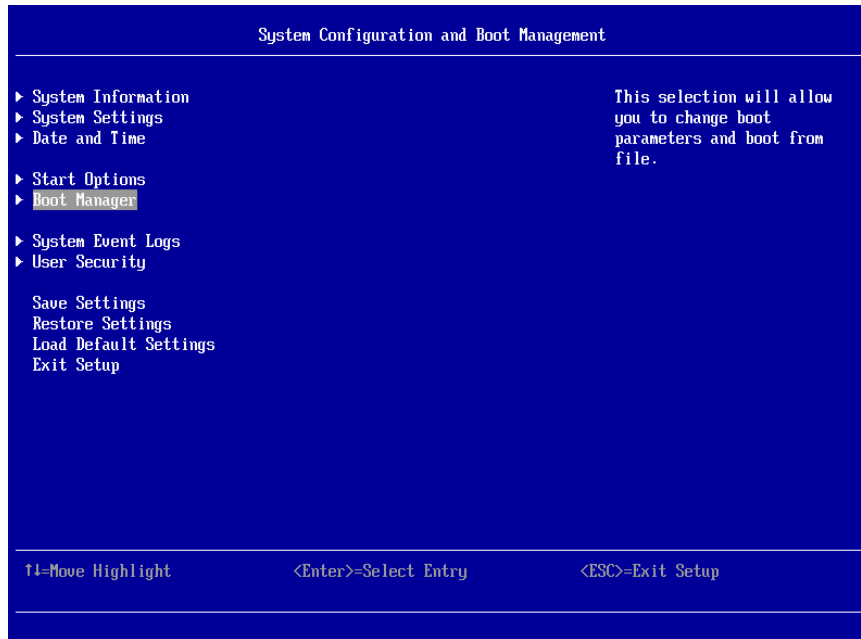
13. Select **Exit Setup**.

(2) Disabling the PXE function

1. Turn on the remote console, then click **Power - Power On** in tool bar of the remote console to turn on the system.
2. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires..



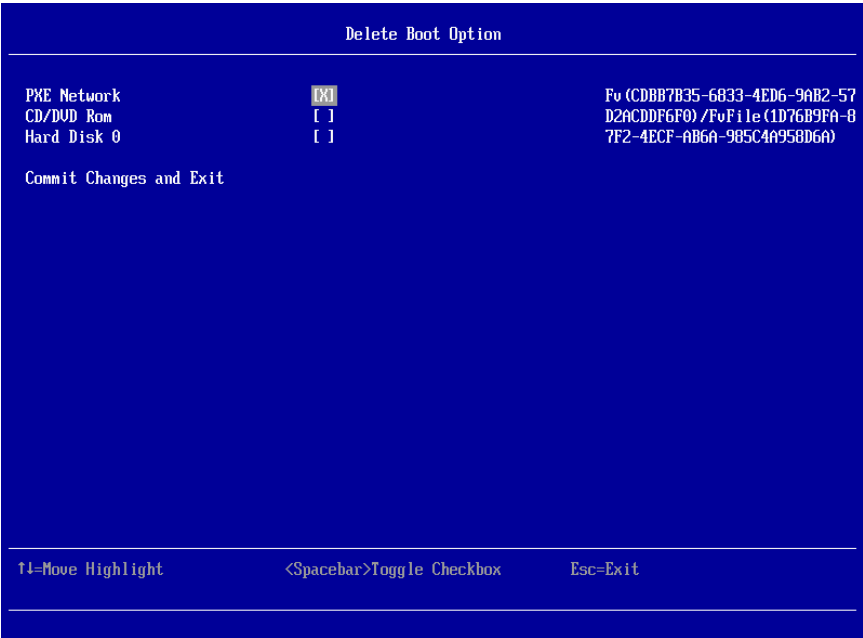
3. Select **Boot Manaer** in **System Configuration and Boot Managemet** screen.



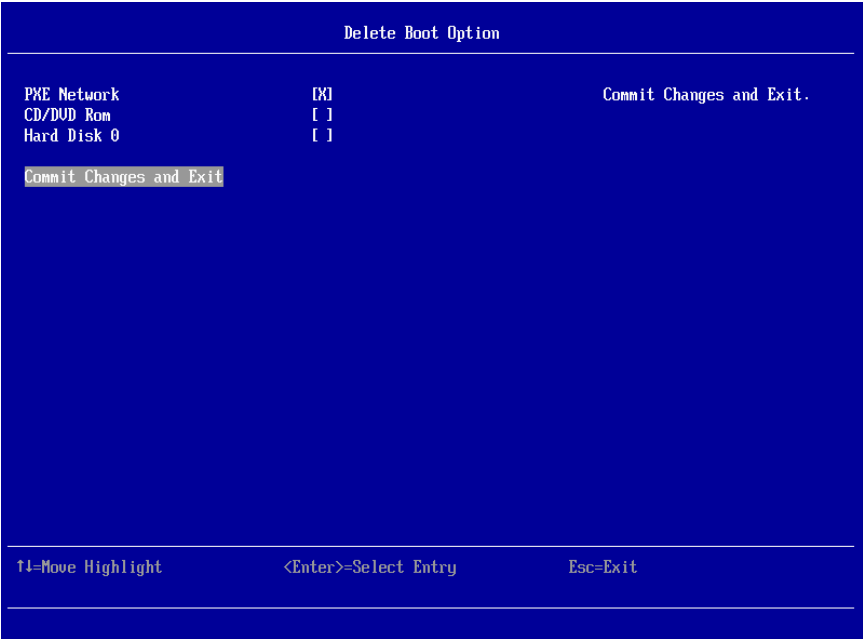
4. Select **Delete Boot Option**.



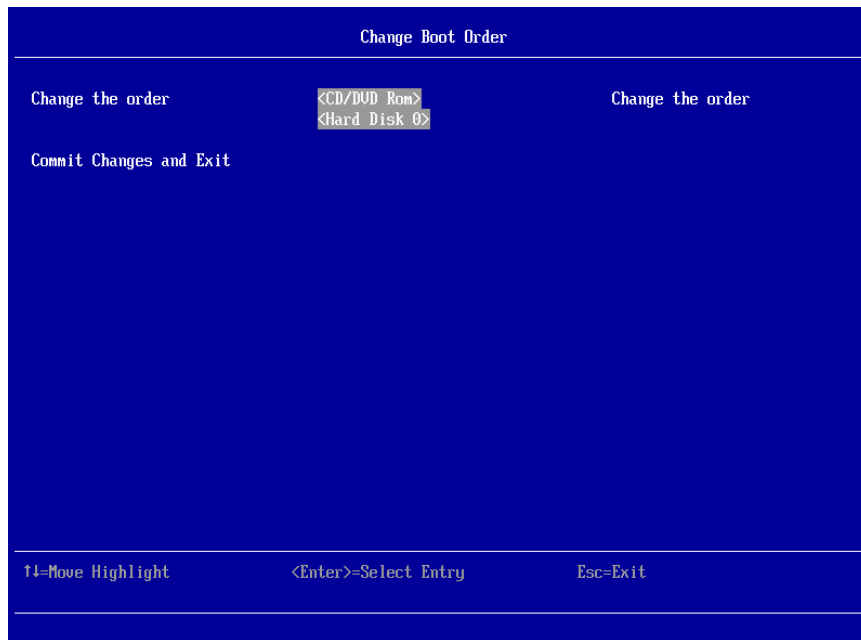
5. Select **PXE Network** with space key.



6. Select **Commit Changes and Exit**.



7. Confirm that **PXE Network** is selected in the order list.



8. Select **Commit Changes and Exit**.

9. Return to **System Configuration and Boot Management** screen with ESC key.

10. Select **Save Settings**.

11. Select **Exit Setup**.

4.2.2 Personality configuration (UEFI)

CNA adapters can be used as NIC only or NIC+Storage(iSCSI or FCoE) adapter by changing the personality.

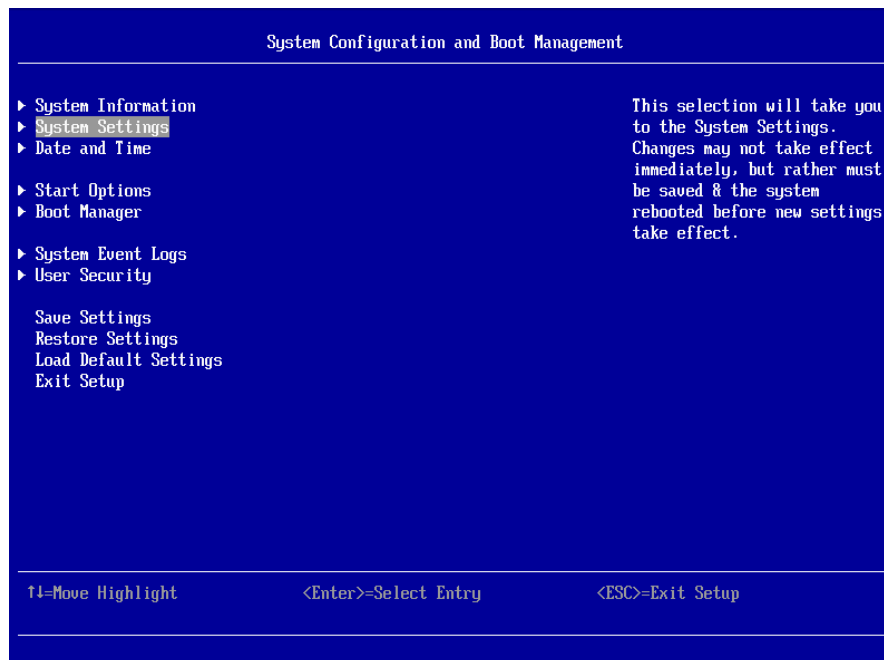


- "**Custom**" and "**NIC+RoCE**" personalities are not supported.
- Examples of screen in this chapter are based on FW10.2.*.*. Following procedures are common among supported firmware versions.

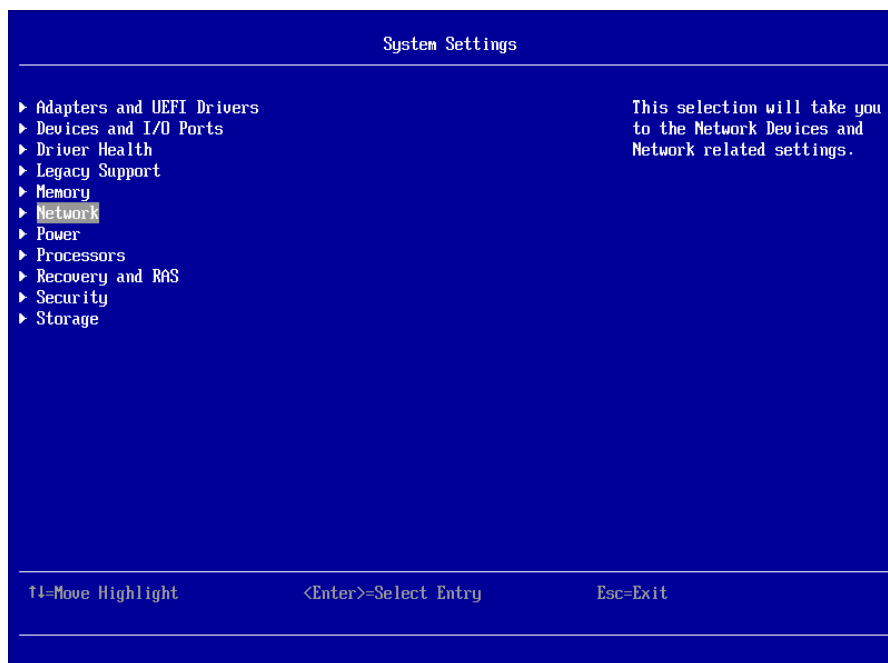
1. Turn on the remote console, then click **Power - Power On** in tool bar of the remote console to turn on the system.
2. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



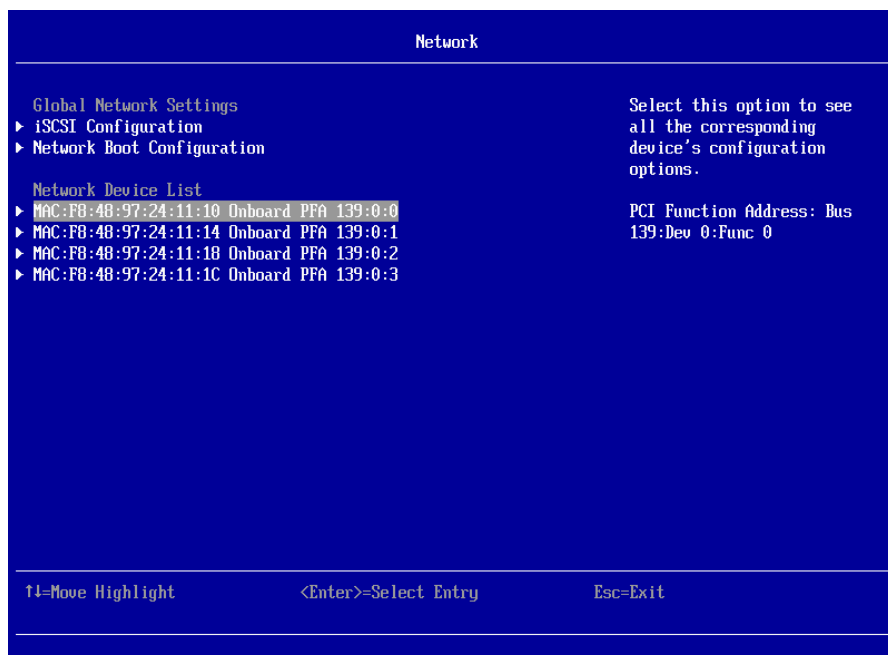
3. **System Configuration and Boot Management** screen opens, and select **System Settings** and press **Enter** key.



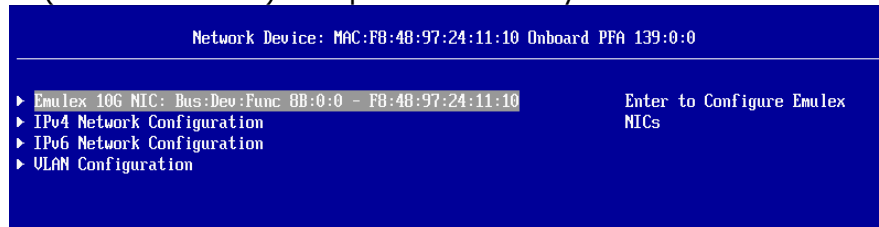
4. In **System Setting** screen, move the cursor to **Network** and press **Enter** key.



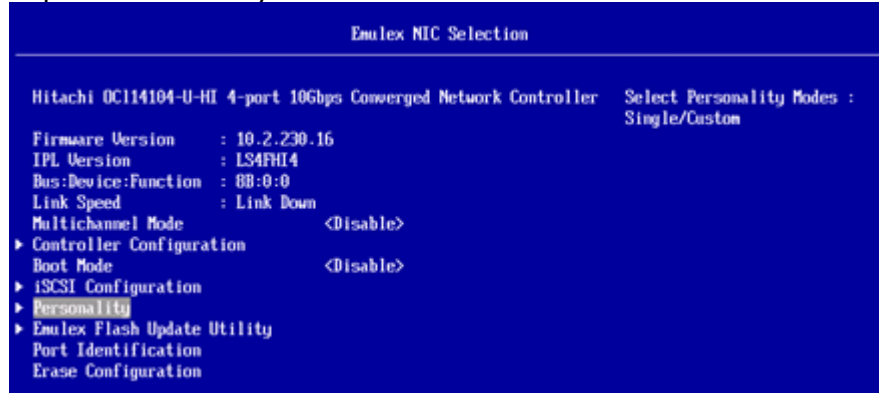
5. Select **MAC:XX:XX:XX:XX:XX:XX Onboard PFA XX:0:0** (X is a number.) in **Network Device List** area in **Network** screen, and press **Enter** key.



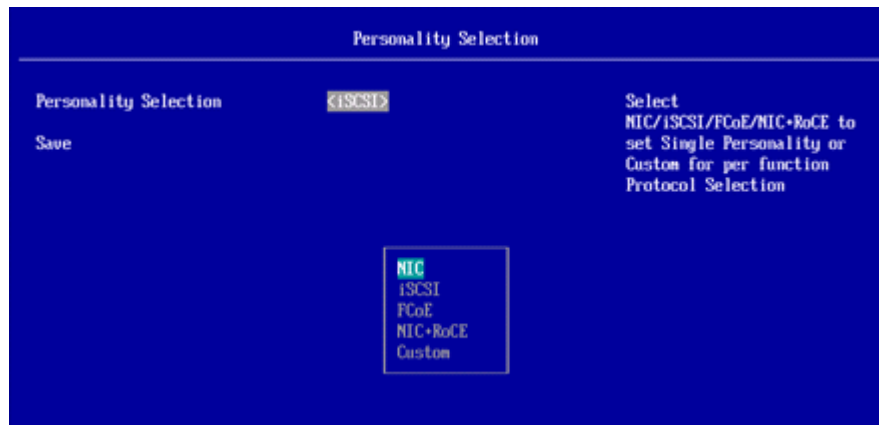
6. Select **Emulex 10G NIC: Bus:Dev:Func XX:X:0 - XX:XX:XX:XX:XX:XX** (X is a number.) and press **Enter** key.



7. Move the cursor to **Personality** in **Emulex NIC Selection** screen, and press **Enter** key.

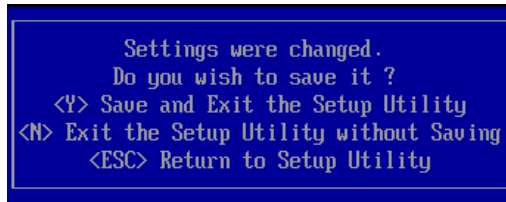


8. Press **Enter** key and select a personality (NIC, iSCSI or FCoE). Then press **Save** key.



- **Custom** and **NIC+RoCE** are not supported.

9. Press **ESC** key several times to return to **System Configuration and Boot Management** screen. Select **Save settings** and select **Exit Setup**. When the following is displayed, press **Y** key.



The system reboots and the procedure is complete.

4.2.3 MultiChannel configuration (UEFI)

This section describes multichannel function of the onboard CNA of CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4, and how to configure it. Multichannel function provides port partitioning and traffic management capabilities to optimize bandwidth allocation.



- Examples of screen in this chapter are based on FW10.2.*.*. Following procedures are common among supported firmware versions.

(1) Enabling the multichannel function (UEFI)

The number of partitioned ports differs by the personality. The following Table 4-1 shows the relation between the kind of personality and the number of the partitioned ports. Available OS's are also listed. Select the value of Multichannel mode and the value of personality with the following Table 4-1. For Windows or VMware, partitioning to 8 ports is supported, and for RHEL, partitioning to 16 ports or to 8 ports is supported.

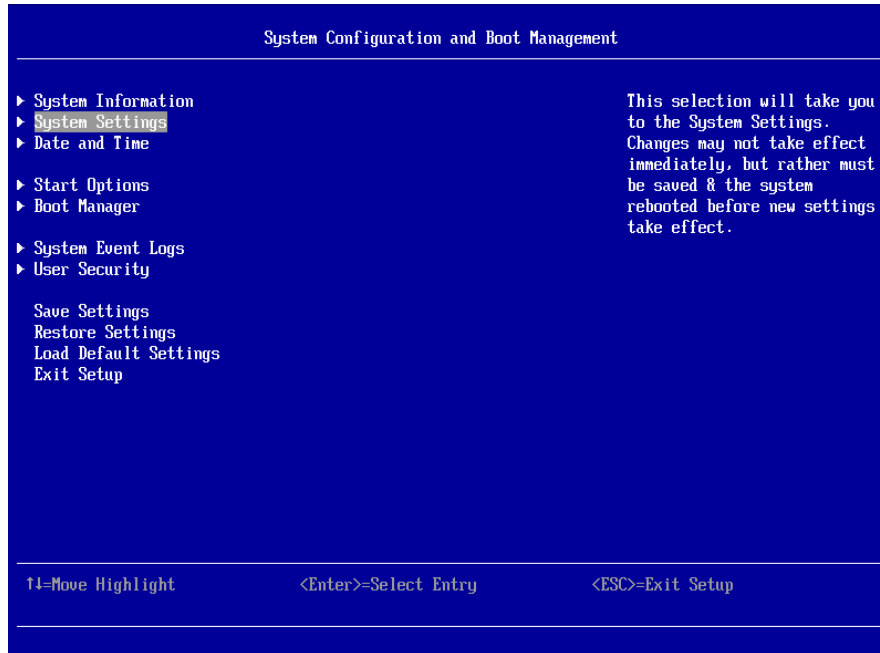
Table 4-1:

Multichannel mode	Personality	The number of ports	Available OS
Enable	NIC	8 NIC	Windows, VMware, RHEL
	iSCSI	4 NIC + 4 iSCSI	Not supported
	FCoE	4 NIC + 4 FCoE	Not supported
	Custom -> NIC	16 NIC	RHEL
	Custom -> iSCSI	12 NIC + 4 iSCSI	RHEL
	Custom -> FCoE	12 NIC + 4 FCoE	RHEL
	Custom -> NONE	-	Not supported
Disable	NIC	4 NIC	Windows, VMware, RHEL
	iSCSI	4 NIC + 4 iSCSI	Windows, VMware, RHEL
	FCoE	4 NIC + 4 FCoE	Windows, VMware, RHEL
	Custom	-	Not supported

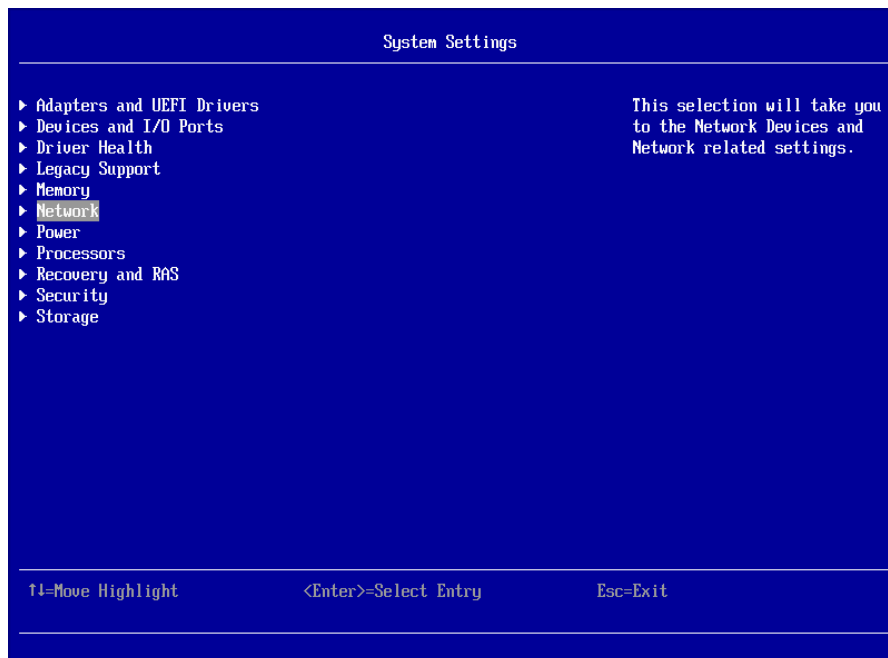
1. Turn on the remote console, and then click **Power - Power On** in tool bar of the remote console to turn on the system.
2. When the following screen appears during the startup of the system, press <F1> key before **Connecting Boot Devices and Adapters ...** counter expires.



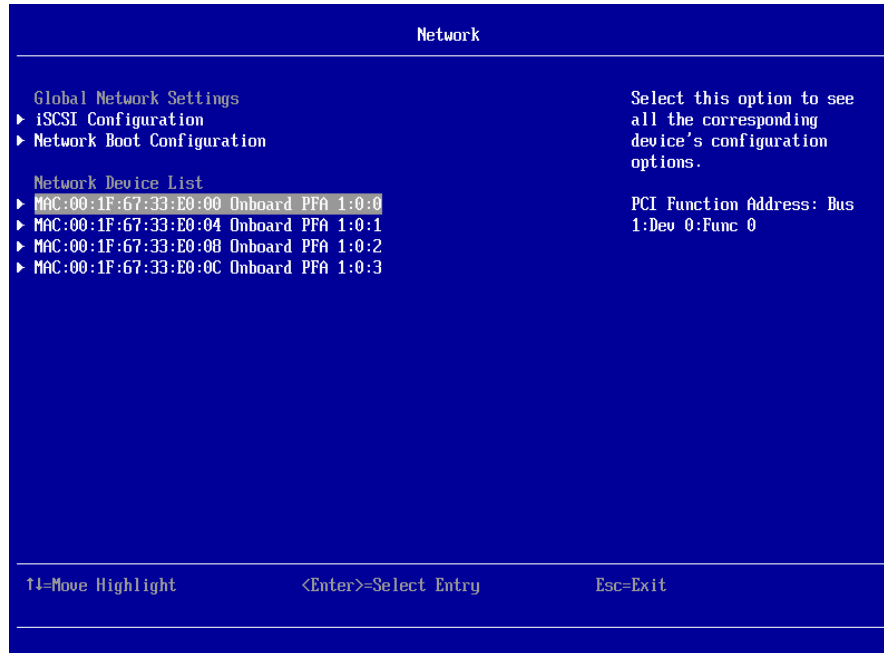
3. **System Configuration and Boot Management** screen opens, and select **System Settings** and press **<Enter>** key.



4. In **System Settings** screen, move the cursor to **Network** and press **<Enter>** key.

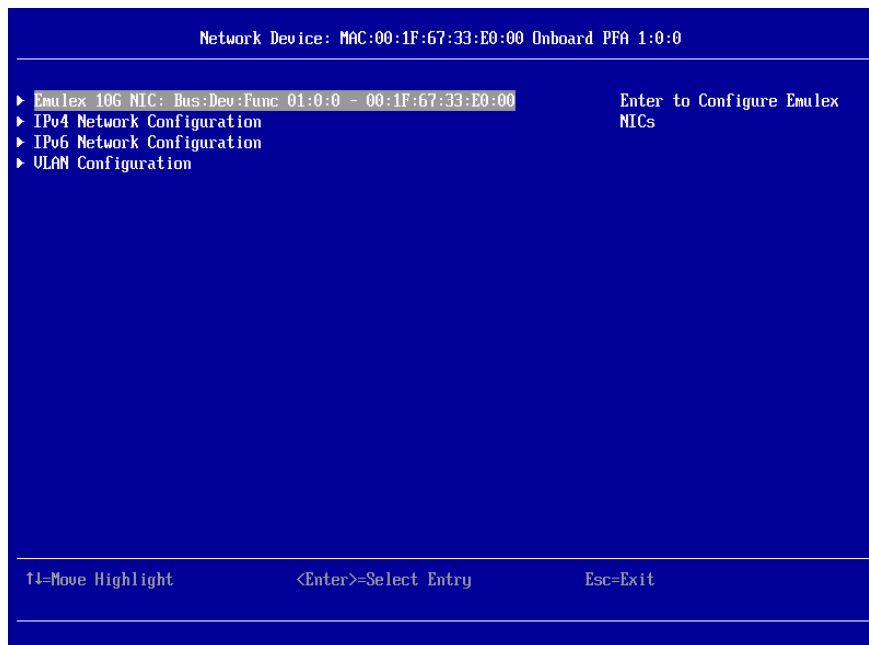


5. Select the network device **MAC:XX:XX:XX:XX:XX:XX Onboard PFA X:0:0** in **Network Device List**, and press **<Enter>** key.

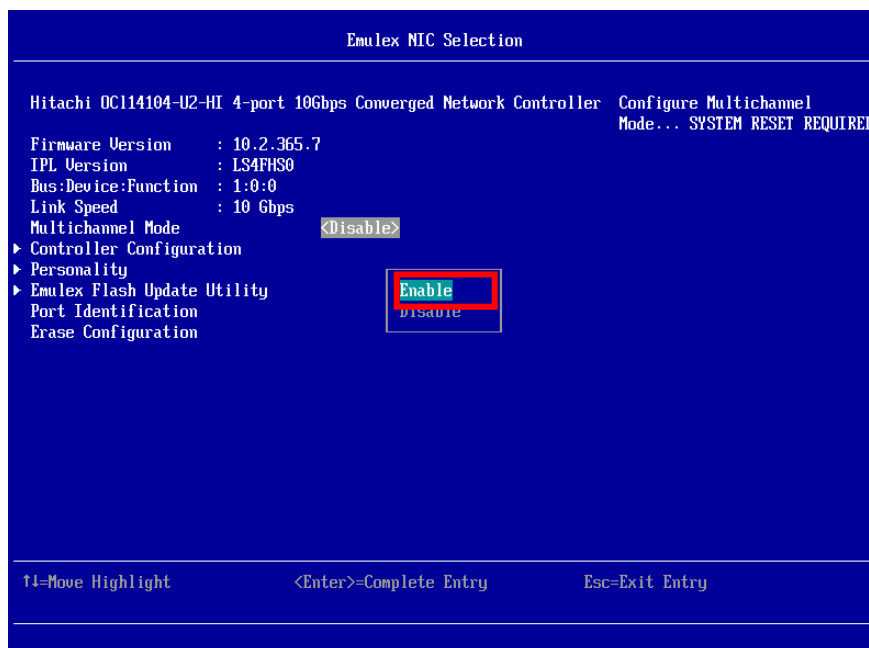


- **Network Boot Configuration** function is not supported.
- **iSCSI Configuration** function is not supported.

6. Select **Emulex 10G NIC: Bus:Dev:Fuc XX:X:X - XX:XX:XX:XX:XX:XX**.

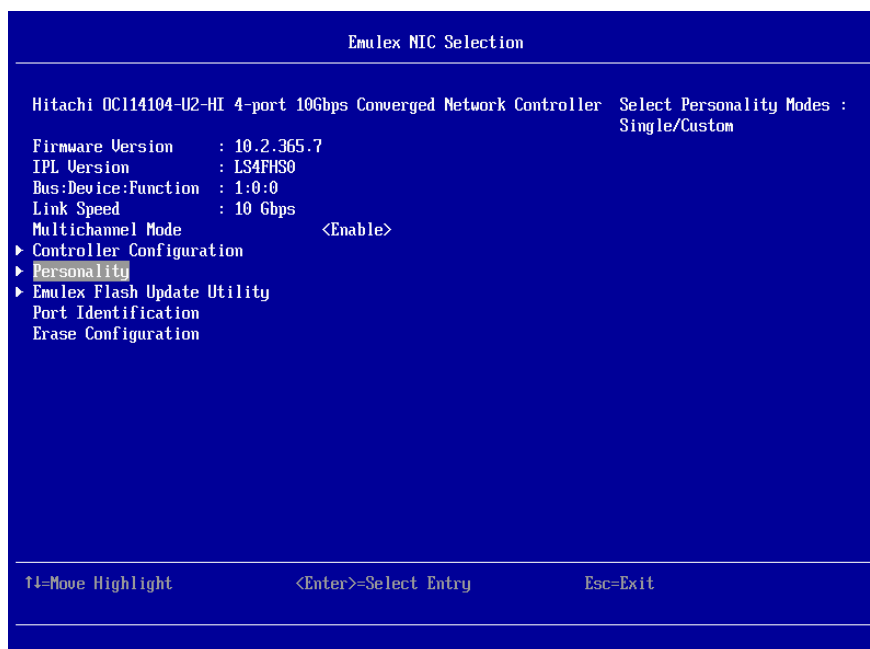


7. When the top item **MAC:XX:XX:XX:XX:XX:XX Onboard PFA X:0:0** is selected in the step 5, select **Multichannel Mode** in **Emulex NIC Selection** screen, press **<Enter>** key. Select **Enable** and press **<Enter>** key. If **MAC:XX:XX:XX:XX:XX:XX Onboard PFA X:0:Y** (Y : 1, 2 or 3) has been selected in the step 5, skip this step.



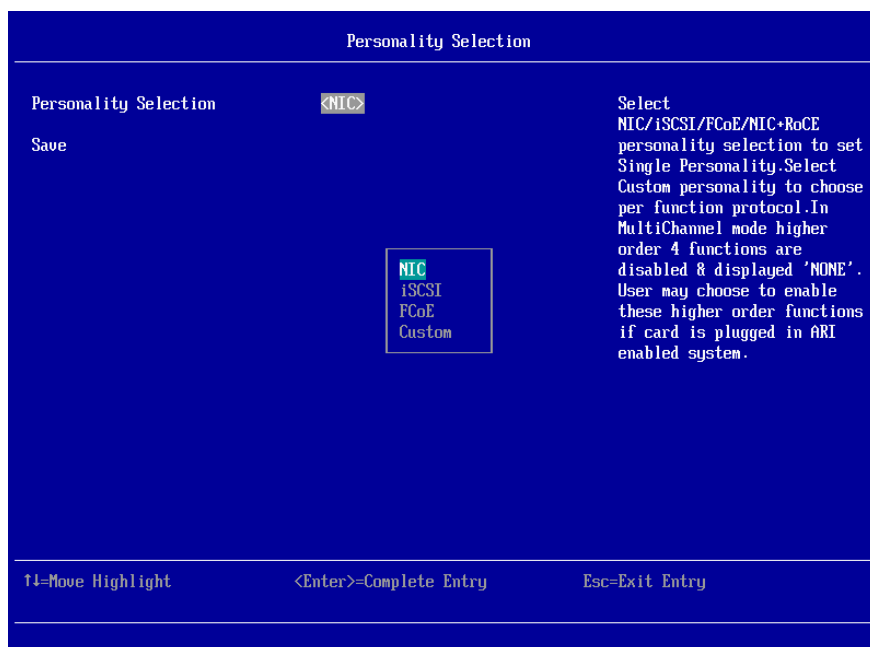
- **Emulex Flash Update Utility** is not supported.

8. Select **Personality**, press **<Enter>** key.

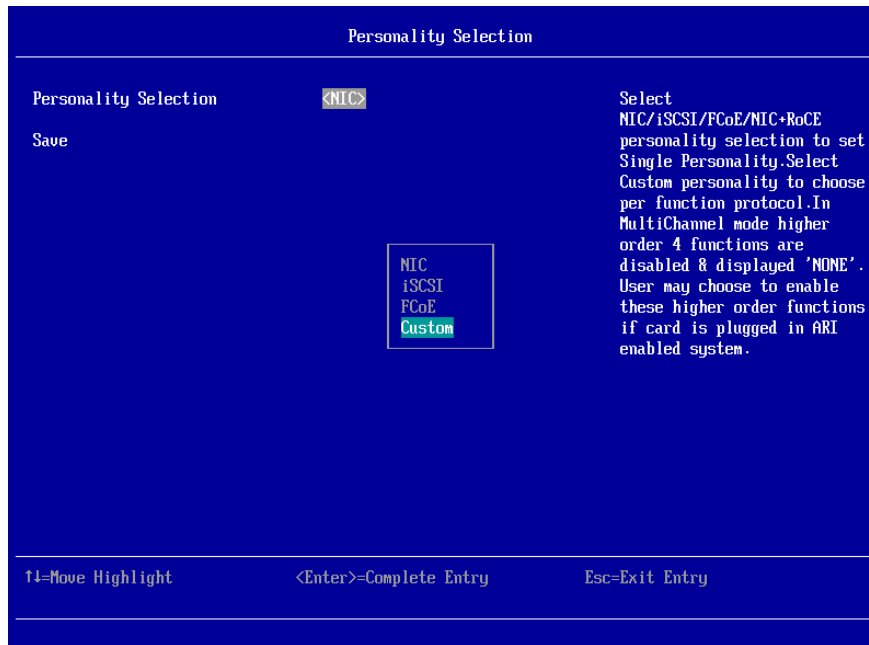


9. Select **Personality Selection** value and press **<Enter>** key. Then select personality with Table 4-1 and press **<Enter>** key.

For Windows or VMware, select **NIC** and press **<Enter>** key. And then select **Save** and press **<Enter>** key. Go to step 13. If **iSCSI** or **FCoE** is desired, select **Disable** as **Multichannel mode** in step 7. For the procedure after that, see "4.2.2 Personality configuration (UEFI)".



For RHEL, select **Custom** to partition to 16 ports per controller, or **NIC** to partition to 8 NIC ports per controller. If **NIC** is selected, press **<Enter>** key and select **Save**, press **<Enter>** key. Go to step 13. If **Custom** is selected, press **<Enter>** key and go to step 10.



Custom is supported only for RHEL to partition to 16 ports per controller.

10. Select the **Function** of channel 2 (**Function 8, 9, 10 or 11**. In the following screen, **Function 8** is shown.) and press **<Enter>** key. Then select **NIC** and press **<Enter>** key. For channel No., see " 1.3.5 Multichannel Function (I/O Virtualization Function)", Table 1-14 or Table 1-15.

Personality Selection		
Personality Selection	<Custom>	Select Protocol type for function. The Protocol types shown for this function are based on the results of previous function type selection.
Function 0	<NIC>	
Function 4	<NIC>	
Function 8	<NONE>	
Function 12	<NONE>	
Save	<div> NIC iSCSI FCoE NONE </div>	
↑↓=Move Highlight <Enter>=Complete Entry Esc=Exit Entry		

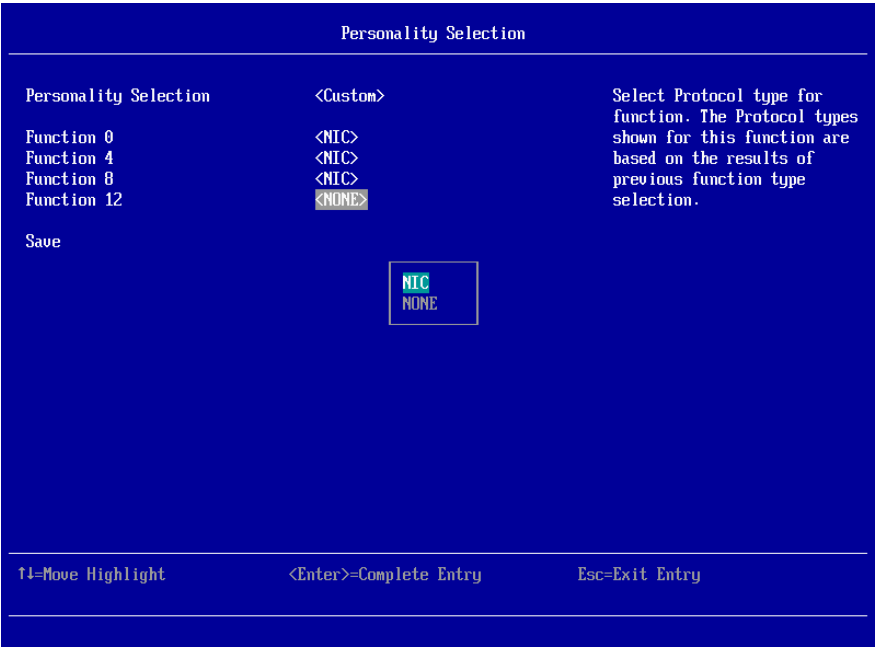


- If setting **iSCSI** or **FCoE** personality, set **iSCSI** or **FCoE** personality to channel 1 **Function** (**Function 4, 5, 6, 7**. In the above screen, **Function 4** is shown.) at step 10.



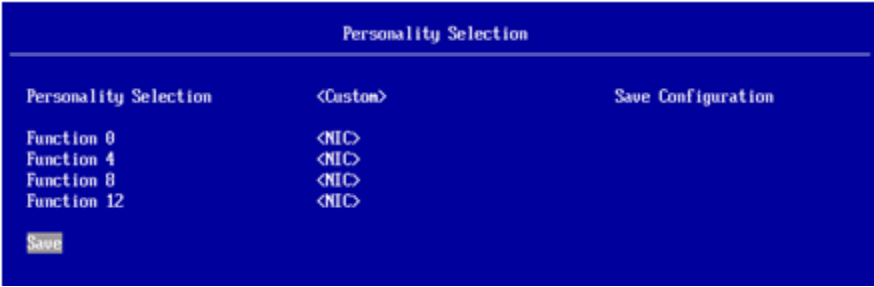
- The storage (i.e. **iSCSI** or **FCoE**) personality is not supported for the channel 2 (**Function 8, 9, 10, 11**). Set the storage personality only to the channel 1 (**Function 4, 5, 6, 7**).
- Set storage (i.e. iSCSI or FCoE) personality to all Functions in the channel 1 (**Function 4, 5, 6, 7**).

11. Select the **Function** of channel 3(**Function 12, 13, 14, 15**) and press **<Enter>** key. Then select **NIC** and press **<Enter>** key.



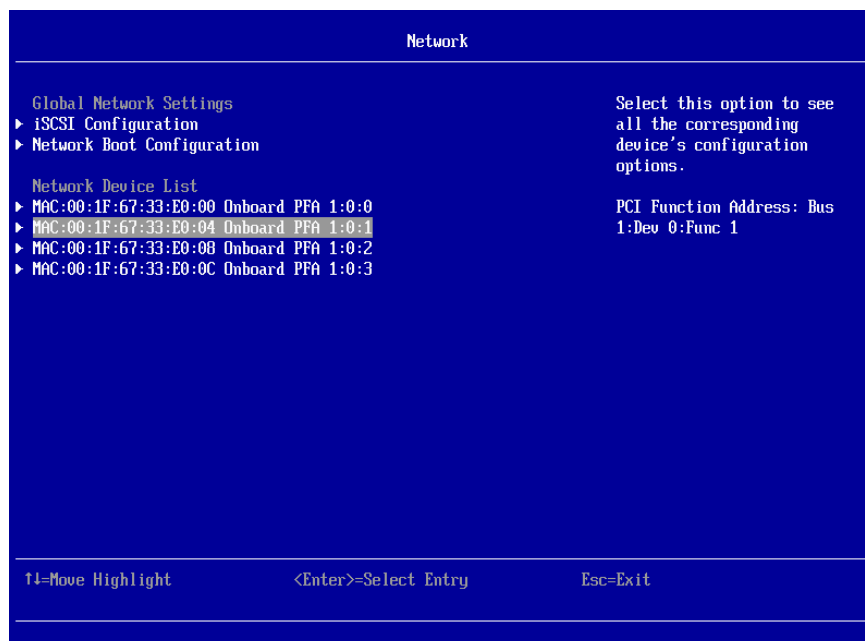
Be sure to change **<NONE>** to **NIC** in the step 10 and step 11.

12. Select **Save**, and press **<Enter>** key.

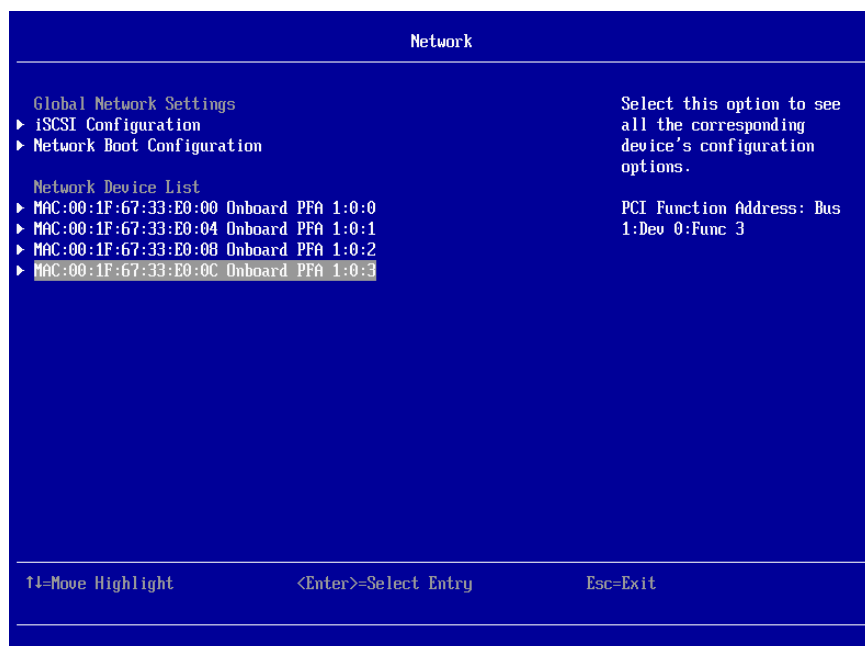


- Once step 12 is completed, the Personality Selection shows the personality selected for channel 1 (Function 4, 5, 6, 7), even if Custom was selected as step 9.

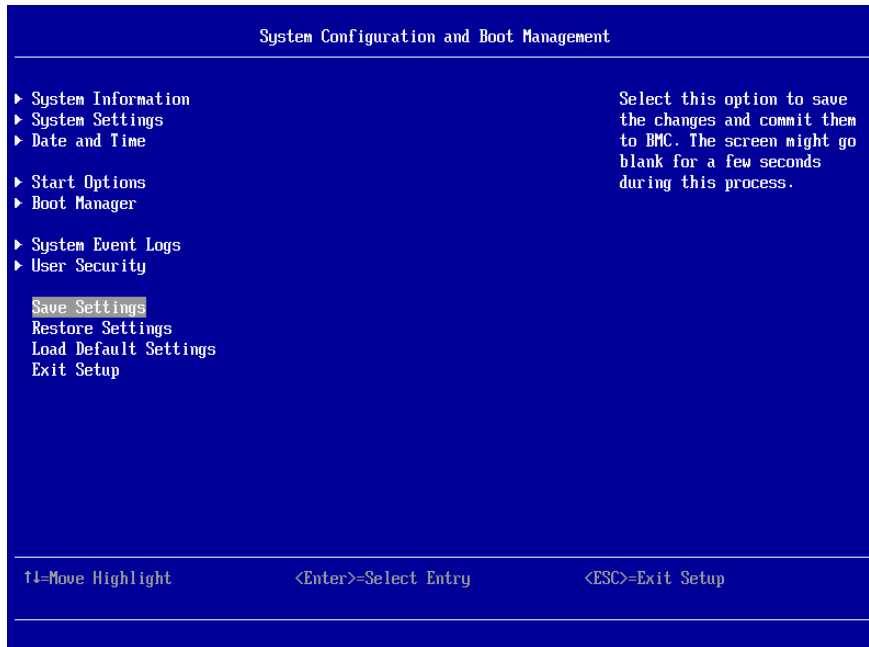
13. Return to **Network** screen with **ESC** key. Select **MAC:XX:XX:XX:XX:XX:XX Onboard PFA X:0:1** under **Network Device List**.



14. Perform the same steps as step 6 to 12 for **MAC:XX:XX:XX:XX:XX:XX Onboard PFA X:X:Y** (Y is 1, 2 or 3) in **Network Device List**.



15. Return to **System Configuration and Boot Management** screen with **ESC** key. Select **Save Settings** and press **<Enter>** key.



16. Select **Exit Setup**. When "**Settings were changed. Do you wish to save it ?**" is displayed, press **Y** key

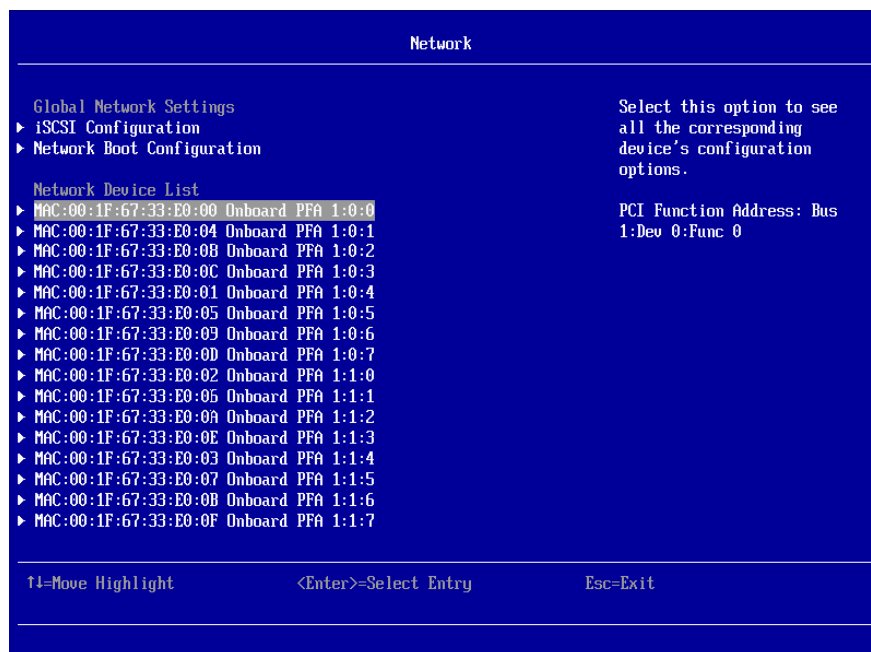
17. When the following is displayed, press **Enter** key, and the system reboots.



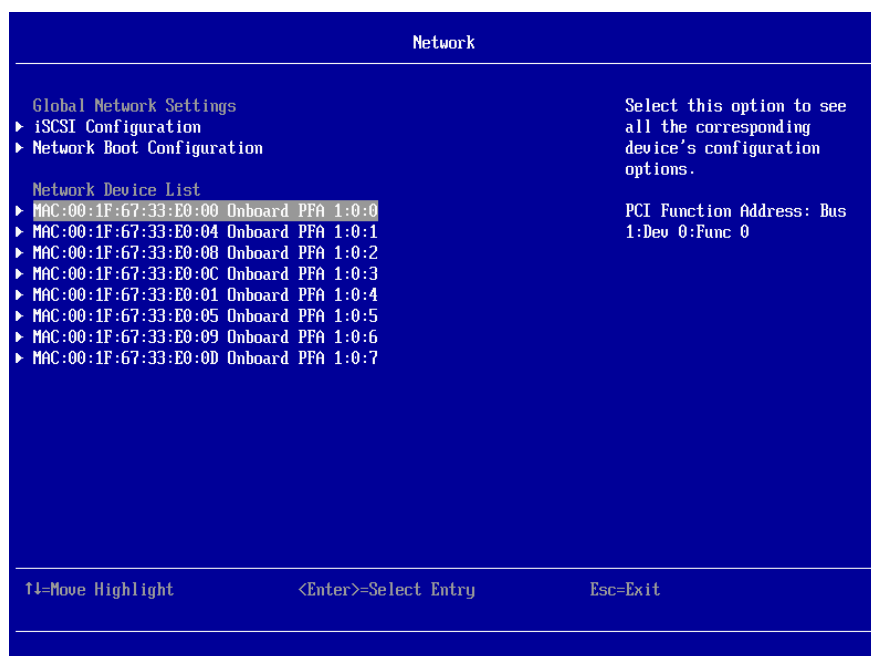
18. When the following screen appears during the startup of the system, press **<F1>** key before **Connecting Boot Devices and Adapters ...** counter expires.



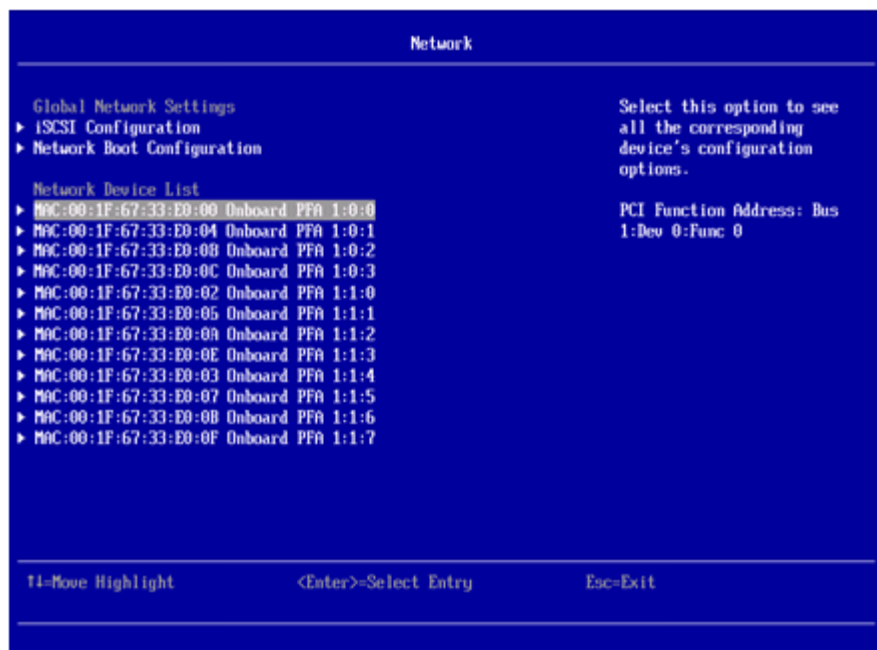
19. Select **System Settings** in **System Configuration and Boot Management** screen, and select **Network** in **System Settings** screen. The following screen is displayed when **Custom** was selected in step 9.



When **NIC** was selected in step 9, the following screen is displayed.

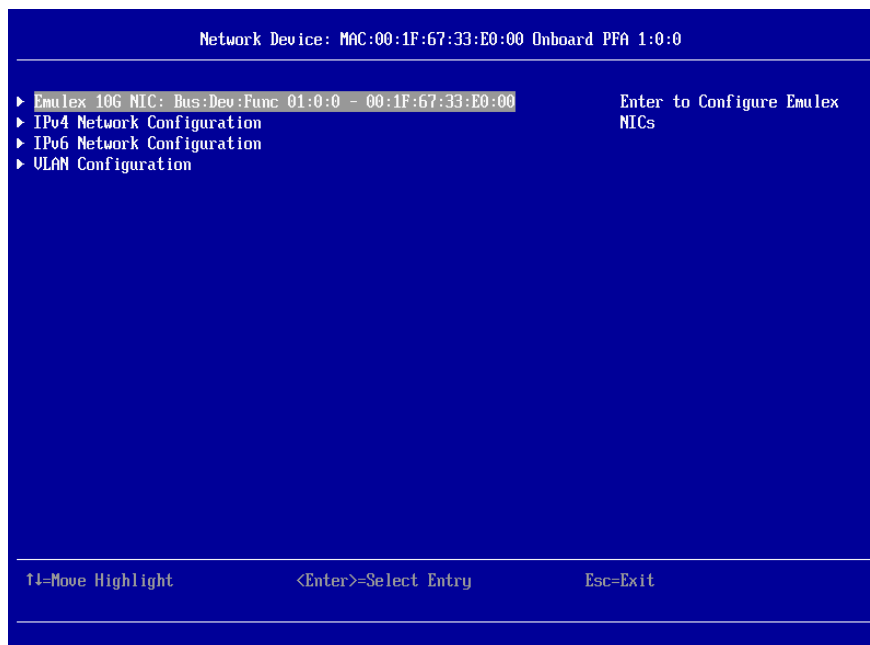


When **iSCSI** was selected in step 10, the following screen is displayed.
MAC:XX:XX:XX:XX:XX:XX Onboard PFA X:0:Y (Y is 4-7) are not displayed.

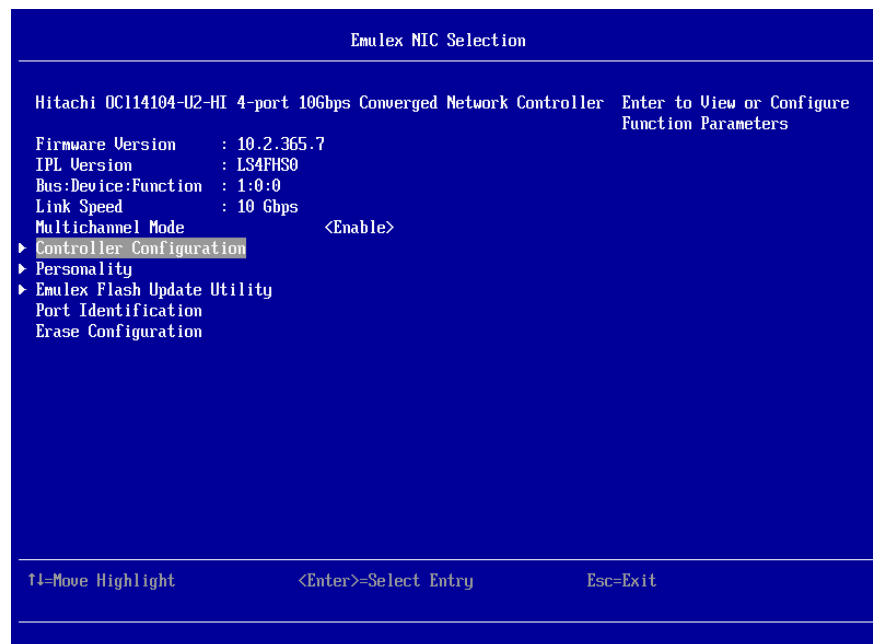


20. Select the network device **MAC:XX:XX:XX:XX:XX:XX Onboard PFA X:0:0** in **Network Device List** area.

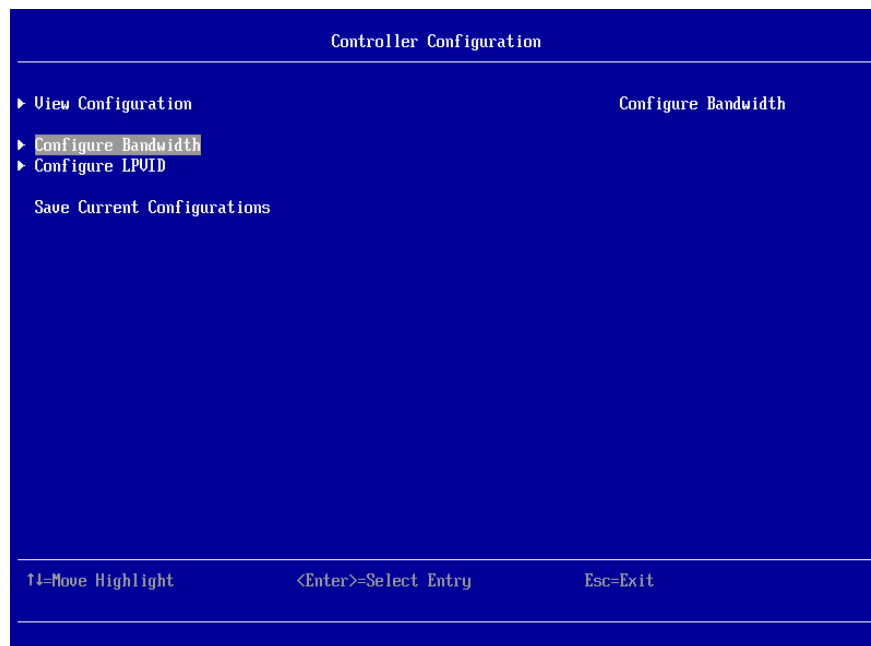
21. Select **Emulex 10G NIC: Bus:Dev:Fuc XX:X:X - XX:XX:XX:XX:XX:XX**.



22. Select **Controller Configuration** in **Emulex NIC Selection** screen.



23. Select **Configure Bandwidth** in **Controller Configuration** screen.



24. Move the cursor to **Function X** (X is a number.) value in **Configure Bandwidth** screen, press <Enter> key. Set the same value to **Function X** under **Configure Minimum Bandwidth** and **Function X** under **Configure Maximum Bandwidth**. The value of all functions must be 100 in total. If a **Function X** value is set to 0, the channel corresponds to the **Function** will link down. For detail of the channel, see "1.3.5 Multichannel Function (I/O Virtualization Function)". When **NIC** personality has been selected in step 9, channel 2 (**Function 8, 9, 10, 11**) and channel 3 (**Function 12, 13, 14, 15**) are grayed out and can not be selected.

Configure Bandwidth

Configure Minimum Bandwidth

Function 0	[25]
Function 4	[25]
Function 8	[25]
Function 12	[25]

Configure Maximum Bandwidth

Function 0	[100]
Function 4	[100]
Function 8	[100]
Function 12	[100]

Configure Minimum Bandwidth Percentage. Setting a channel's Minimum and Maximum Bandwidth to zero disables the channel

Set the same value

F4=Move Highlight
<Enter>=Select Entry
Esc=Exit

25. Return to **Controller Configuration** screen with ESC key. Select **Configure LPVID**.

Controller Configuration

► View Configuration

► Configure Bandwidth

► **Configure LPVID**

Save Configuration

Configure Logical Port ULAN ID

F4=Move Highlight
<Enter>=Select Entry
Esc=Exit

26. Input the LPVID value. The LPVID must be a unique value between 2 and 4094 even if the bandwidth is 0%. When **NIC** personality was selected in step 9, channel 2 (**Function 8, 9, 10, 11**) and channel 3 (**Function 12, 13, 14, 15**) can not be selected.

Configure LPVID

Function 0	[2]	Configure Logical Port ULAN ID (2-4094)
Function 4	[3]	
Function 8	[4]	
Function 12	[5]	

↑↓=Move Highlight

<Enter>=Select Entry

Esc=Exit

If the personality type of channel 1 (**Function 4, 5, 6, 7**) is **iSCSI** or **FCoE**, it is not necessary to input the LPVID value.

Configure LPVID

Function 0	[0]	Configure Logical Port ULAN ID
Function 4	[0]	
Function 8	[0]	
Function 12	[0]	

↑↓=Move Highlight

<Enter>=Select Entry

Esc=Exit

27. If the following message is displayed, check the configuration.

- LPVID already in use. Enter a new value
- Logical Port VLAN ID must be set to a valid value

28. Return to **Controller Configuration** screen with ESC key, and select **Save Configuration**.



If the error message is displayed, check the configured value and save again. The error message can be disappeared by pressing any key. The error message is displayed when :

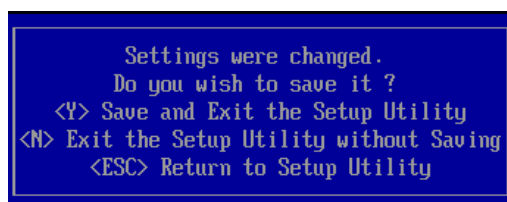
- the sum of Bandwidth of Func#'s is not 100%.
- the LPVID is not set or is multiple.
- If the LPVID is not in the range of 2-4094.

29. Return to Network screen with ESC key.

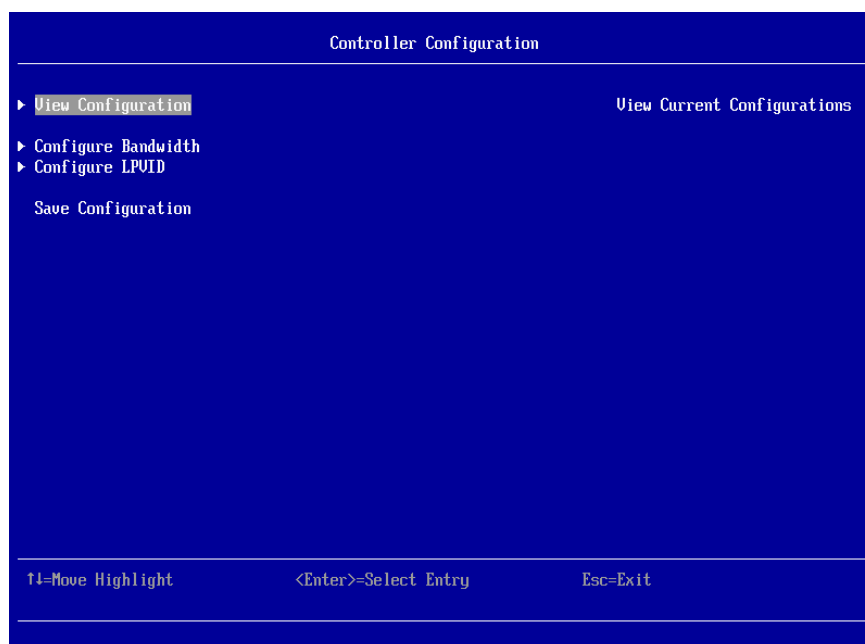
30. Perform the same steps as step 21 to step 30, for **MAC:XX:XX:XX:XX:XX:XX Onboard PFA X:0:1**, **MAC:XX:XX:XX:XX:XX:XX Onboard PFA X:0:2**, **MAC:XX:XX:XX:XX:XX:XX Onboard PFA X:0:3** shown under **Network Device List** in **Network** screen.

31. Return to **System Configuration and Boot Management** screen with **ESC** key. Select **Save Settings** and press **<Enter>** key.

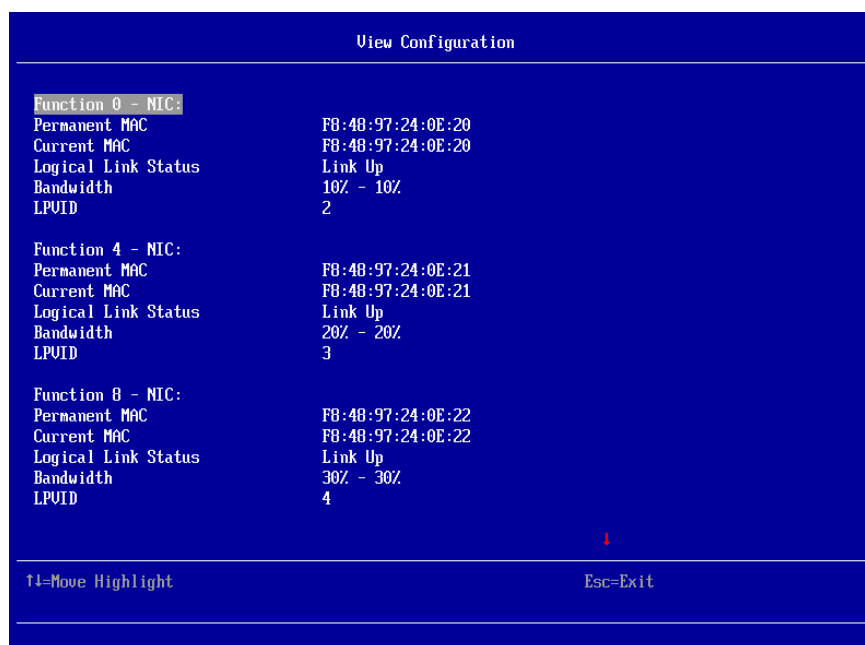
32. Select **Exit Setup**. When the following is displayed, press **Y** key



33. Reboot the system surely.
34. Open the **Controller Configuration** screen by performing the same step as step 18 to 22.
35. Select **View Configuration** in **Controller Configuration** screen.

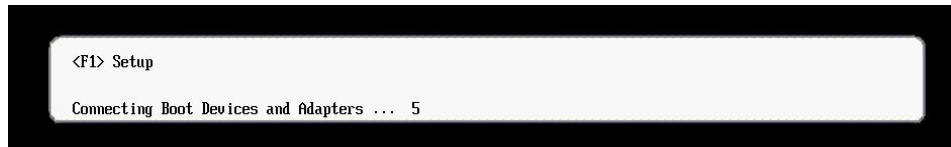


36. Check each Multichannel Mode status. and the procedure is complete.

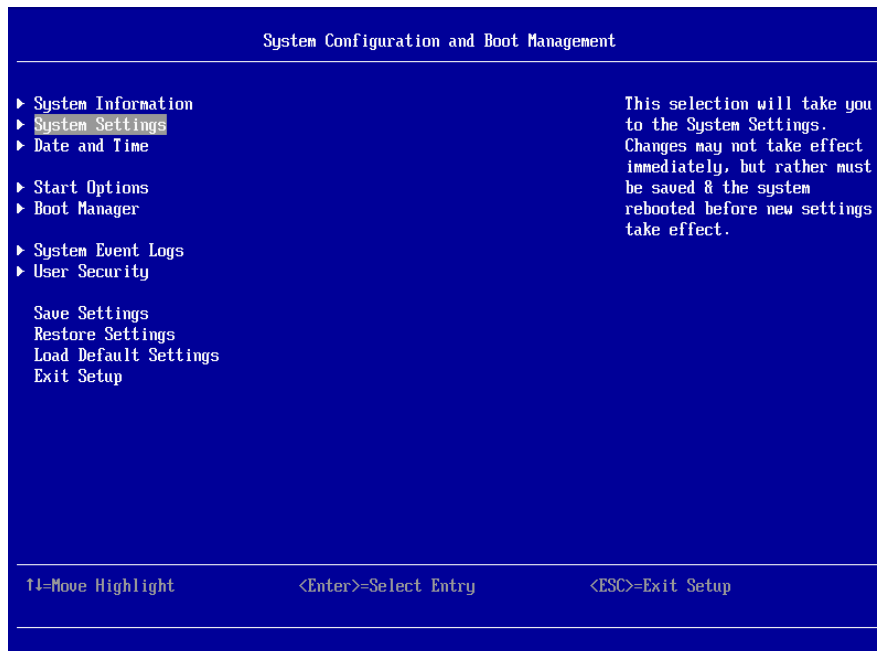


(2) Disabling the multichannel function (UEFI)

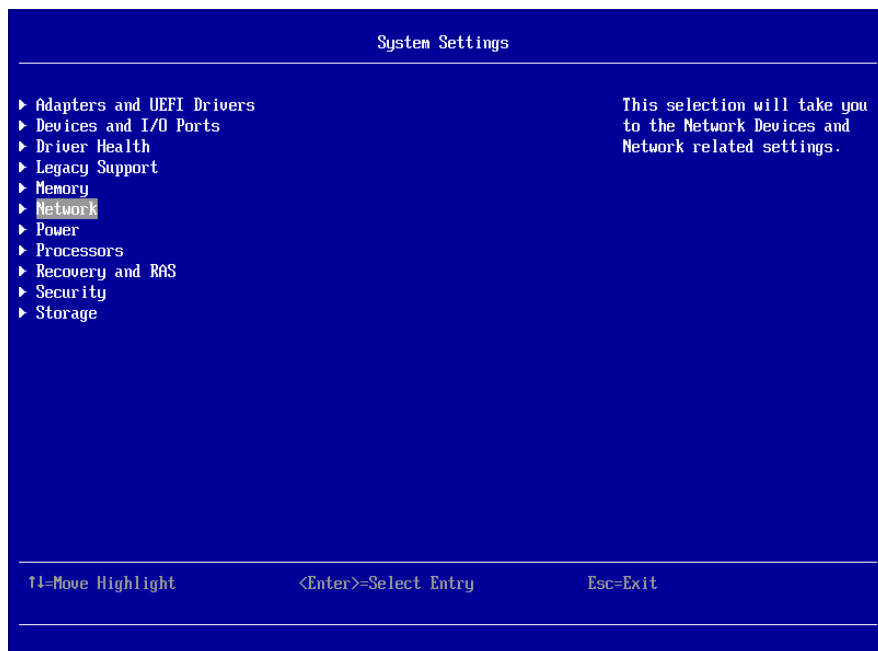
1. Turn on the remote console, then click **Power - Power On** in tool bar of the remote console to turn on the system.
2. When the following screen appears during the startup of the system, press <F1> key before **Connecting Boot Devices and Adapters ...** counter expires.



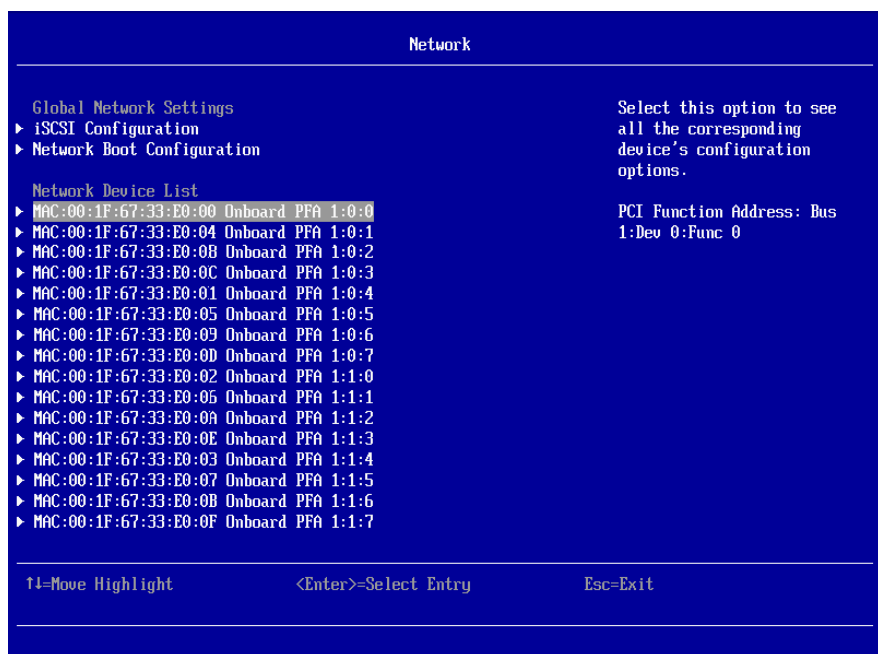
3. **System Configuration and Boot Management** screen opens, and select **System Settings** and press <Enter>.



4. In **System Setting** screen, select **Network** and press <Enter> key.

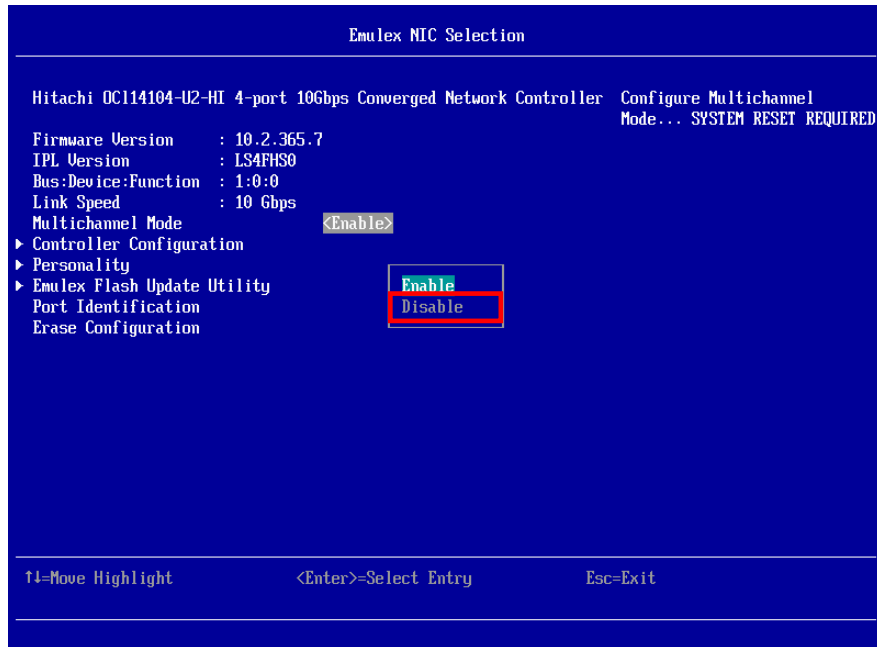


5. Select the network device **MAC:XX:XX:XX:XX:XX Onboard PFA X:0:0** under **Network Device List** area. The following screen is an example of multichannel-enabled status.



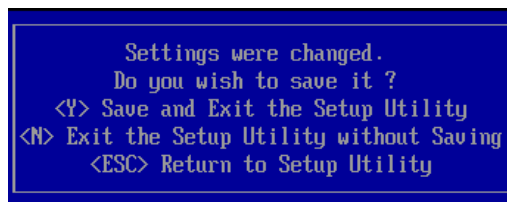
- **Network Boot Configuration** is not supported.
- **iSCSI Configuration** is not supported.

6. Select **Multichannel Mode** value in **Emulex NIC Selection** screen, press <Enter> key. Select **Disable** and press <Enter> key.



- **Emulex Flash Update Utility** is not supported.

7. Return to **System Configuration and Boot Management** screen with **ESC** key. Select **Save Settings** and press <Enter> key.
8. Select **Exit Setup**. When the following is displayed, press **Y** key



9. When the following is displayed, press **Enter** key, and the system reboots.



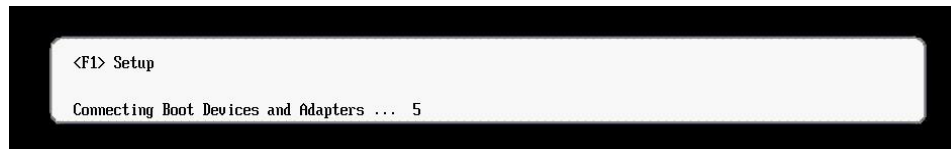
4.2.4 iSCSI configuration (UEFI)



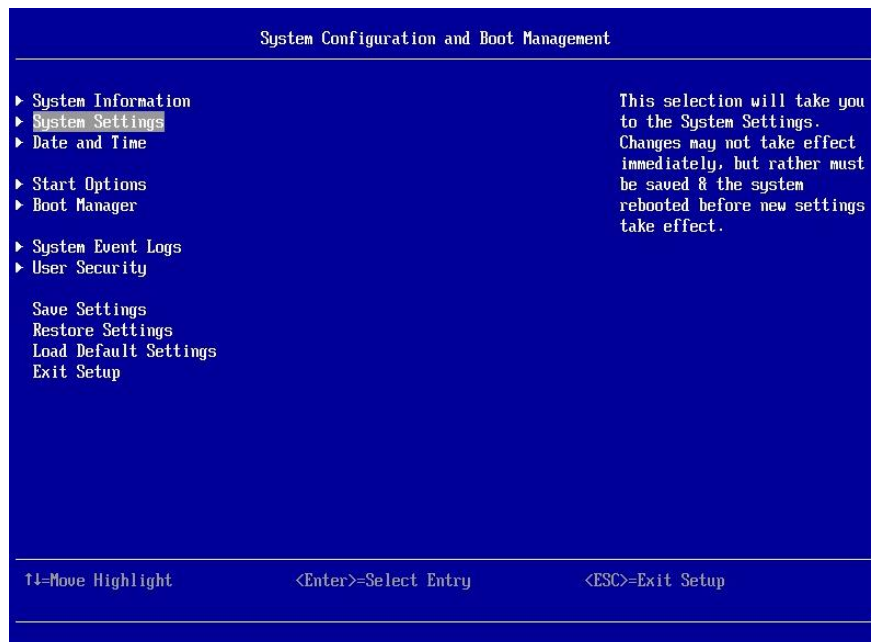
- iSCSI is not supported on RHEL6.7 or later, RHEL7.1 or later, Windows Server 2016 or later, VMware6.0 U3 or later and VMware6.5 or later.

(1) iSCSI initiator configuration

1. Set the personality of the port as iSCSI by the procedure in the section 4.2.1 Personality configuration (UEFI).
2. Turn on the remote console, then click **Power - Power On** in tool bar of the remote console to turn on the system. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



3. **System Configuration and Boot Management** opens, and select **System Settings** and press **Enter**.



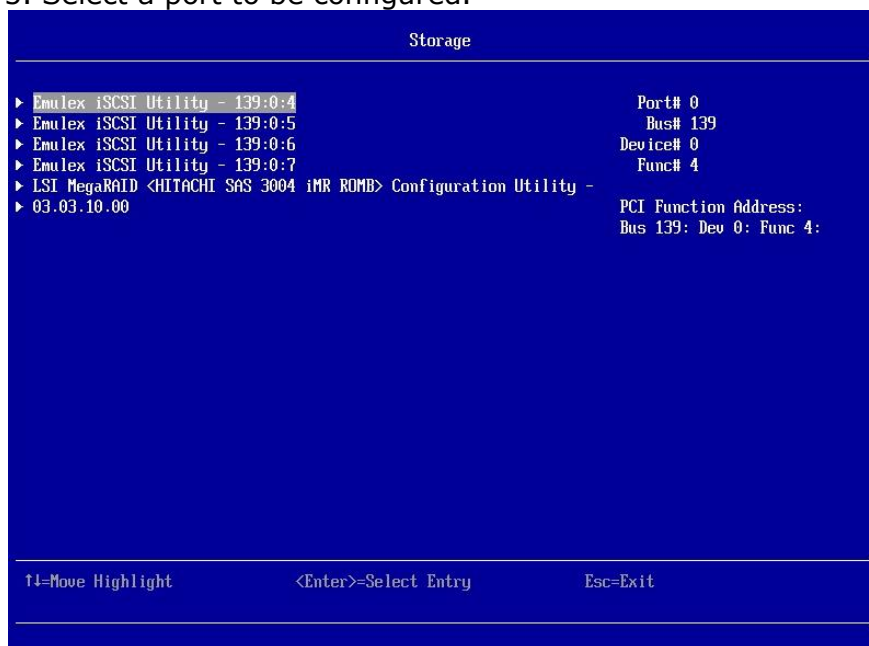
4. Move the cursor to **Storage** in **System Settings** screen, press **Enter** key.



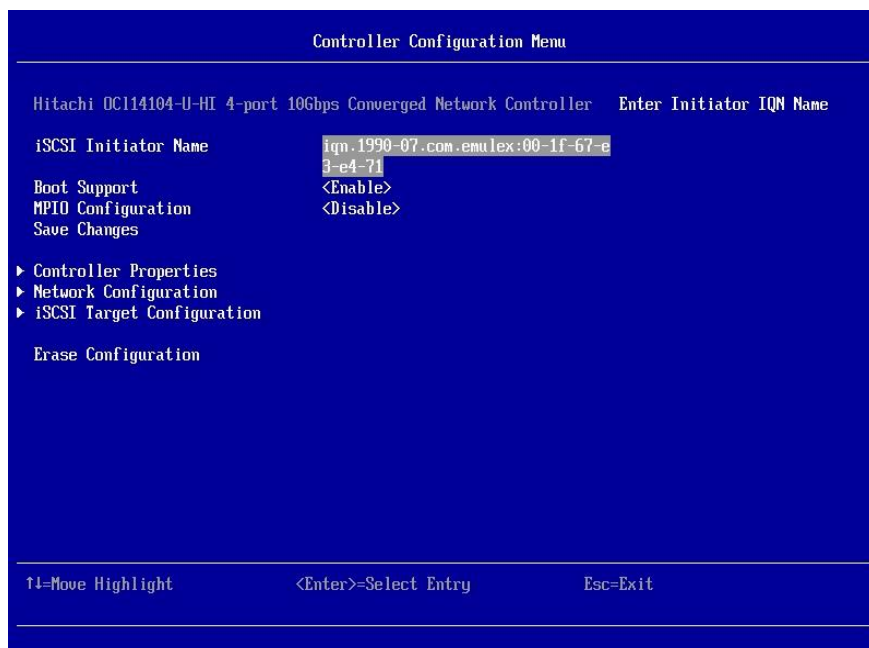
In the case that there are multiple iSCSI ports, all of the ports are displayed in this menu.

The PCI ID's (Bus#, Dev#) of each controller changes depending on the I/O device installed in the system. Confirm the I/O device installed in the system before the selection.

5. Select a port to be configured.



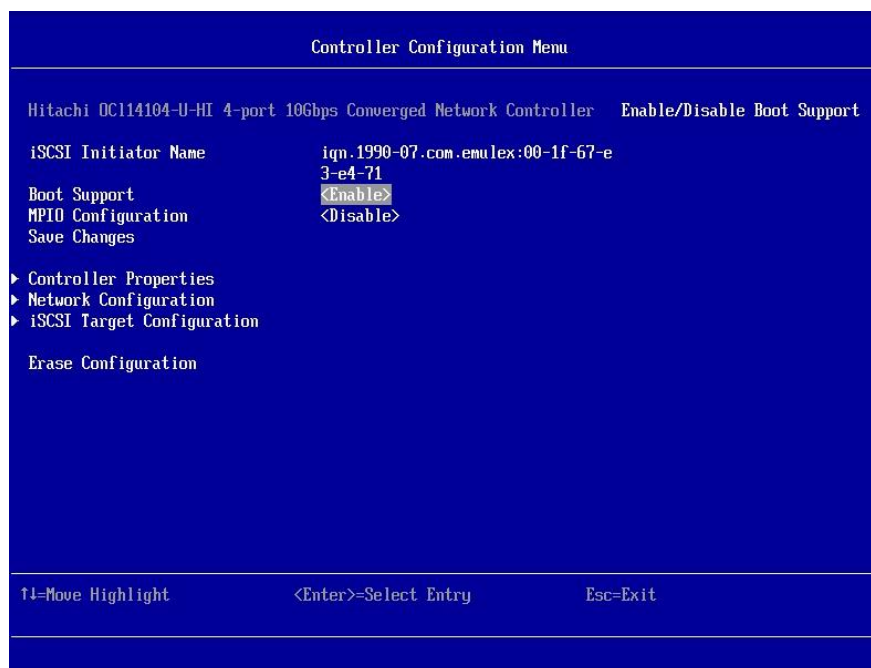
6. Move the cursor to **iSCSI Initiator Name**, press **Enter** key to input iSCSI Initiator name.



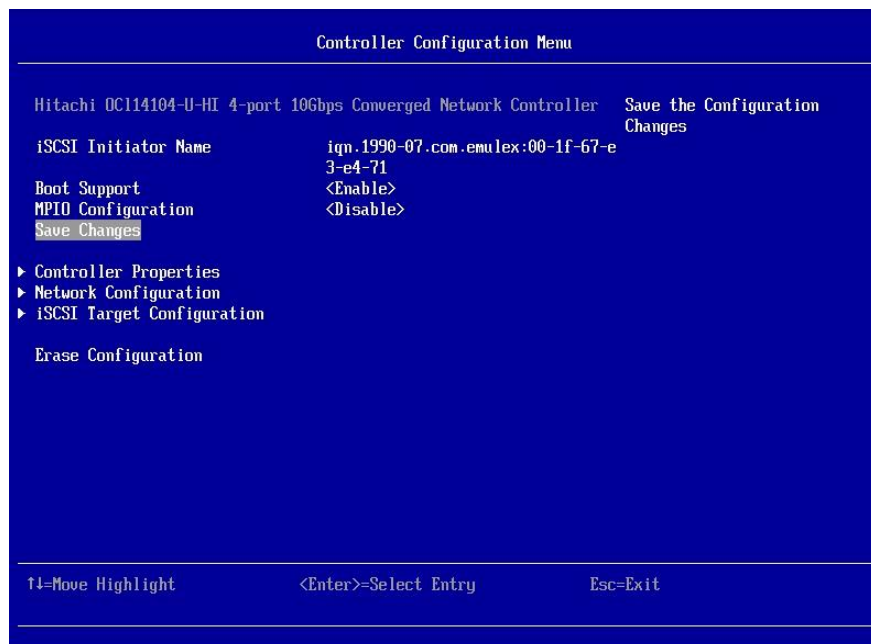


The initial value of **iSCSI Initiator Name** is **iqn.1990-07.com.emulex:xx-xx-xx-xx-xx-xx**.
(xx-xx-xx-xx-xx-xx is MAC address.)

7. Move the cursor to **Boot Support**, if the port is used for boot, press **Enter** key and select **Enable**, if the port will be connected to a data device, select **Disable**.



8. Move the cursor to **Save changes**, press **Enter** key to save the configuration.



9. Move the cursor to **Network Configuration**, press **Enter** key.

```
Controller Configuration Menu

Hitachi OC114104-U-HI 4-port 10Gbps Converged Network Controller  Modify Network Configuration

iSCSI Initiator Name      iqn.1990-07.com.emulex:00-1f-67-e
                          3-e4-71
Boot Support              <Enable>
MPIO Configuration       <Disable>
Save Changes

▶ Controller Properties
▶ Network Configuration
▶ iSCSI Target Configuration

Erase Configuration

↑↓=Move Highlight      <Enter>=Select Entry      Esc=Exit
```

10. Move the cursor to **Configure IPV4 Address**, press **Enter** key.

```
Network Configuration

MAC Address              00-1F-67-E3-E4-71      Configure IPV4 Address
Port Speed               10 Gbps
Link Status              Link Up
IP Version                <DUAL MODE>

▶ Configure IPV4 Address
▶ Configure IPV6 Address
▶ Configure VLAN ID/Priority

↑↓=Move Highlight      <Enter>=Select Entry      Esc=Exit
```



- **Configure VLAN ID/Priority** is not supported.

11. Move the cursor to **Configure Static IPv4 Address**, press **Enter** key.

```
Configure IPv4 Address

Initiator IP via DHCP      <Disable>      Configure Static IPv4 Address
Save DHCP Settings
> Configure Static IPv4 Address
> Ping

↑↓=Move Highlight      <Enter>=Select Entry      Esc=Exit
```

12. Input the value to **IP Address** and **Subnet Mask** . Then, select **Save Change** and press **Enter** key.

```
Configure Static IP Address

IP Address      192.168.0.198      Enter the IP Address
Subnet Mask     255.255.255.0
Default Gateway 0.0.0.0
Save Changes

↑↓=Move Highlight      <Enter>=Select Entry      Esc=Exit
```



- Do not configure **Default Gateway**.

(2) iSCSI target (Boot device) configuration

1. Select **iSCSI Target Configuration** in **Controller Configuration Menu** screen, press **Enter** key.

The screenshot shows the 'Controller Configuration Menu' for a Hitachi OC114104-U-HI 4-port 10Gbps Converged Network Controller. The menu is titled 'Configure iSCSI Target'. It displays the following configuration details: iSCSI Initiator Name (iqn.1990-07.com.emulex:00-1f-67-e3-e4-71), Boot Support (<Enable>), and MPIO Configuration (<Disable>). Below these, there are three menu items: 'Controller Properties', 'Network Configuration', and 'iSCSI Target Configuration', which is currently highlighted. At the bottom, there is an 'Erase Configuration' option and a legend: ↑↓=Move Highlight, <Enter>=Select Entry, and Esc=Exit.

```
Controller Configuration Menu

Hitachi OC114104-U-HI 4-port 10Gbps Converged Network Controller  Configure iSCSI Target

iSCSI Initiator Name      iqn.1990-07.com.emulex:00-1f-67-e
                          3-e4-71
Boot Support              <Enable>
MPIO Configuration       <Disable>
Save Changes

▶ Controller Properties
▶ Network Configuration
▶ iSCSI Target Configuration

Erase Configuration

↑↓=Move Highlight      <Enter>=Select Entry      Esc=Exit
```

2. Select **Add Target**, press **Enter** key.

The screenshot shows the 'iSCSI Target Configuration' screen. It features a menu item 'Add Target' which is highlighted. To the right of this item, the text 'Enter to Add a Target' is displayed. Below the menu item, there is a section labeled 'Discovered Targets'. At the bottom of the screen, a legend indicates: ↑↓=Move Highlight, <Enter>=Select Entry, and Esc=Exit.

```
iSCSI Target Configuration

▶ Add Target                      Enter to Add a Target

Discovered Targets

↑↓=Move Highlight      <Enter>=Select Entry      Esc=Exit
```

3. Set the target information in **Add/Ping iSCSI Target** screen. Input the value to **iSCSI Target IP Address**, select **Save/Login**, press **Enter** key.

Add/Ping iSCSI Target

iSCSI Target Name - Enter the IP Address of the iSCSI Target

IP Version <IPv4>

iSCSI Target IP Address

TCP Port Number 3260

BladeEngine Port Number 0

ISID Qualifier 11

Boot Target <None>

Header Digest <No>

Data Digest <No>

Authentication Method <None>

Ping

► Save/Login

↑↓=Move Highlight <Enter>=Select Entry Esc=Exit



- The following functions are not supported.

ISID Qualifier, Header Digest, Data Digest, Authentication Method



If the IP address of **iSCSI Target IP Address** does not exist or can not be accessed, the message **Loginto portal xxx.xxx.xxx.xxx:xxxx failed.** is displayed.

4. Select the target in **Discovered Targets**, press **Space** key to input the check mark **X**. After the input, select **Save Target**, press **Enter** key.

iSCSI Target Configuration

Discovered Targets Enter to Save Selected Target

iqn.1994-04.jp.co.hitachi:rsd.d9 00

s.t.10190.0e038

► Save Target

↑↓=Move Highlight <Enter>=Select Entry Esc=Exit

5. Select the target in **iSCSI Target Configuration** screen, press **Enter** key.

iSCSI Target Configuration	
► Add Target	Select the Target to Edit the Configuration
Discovered Targets	
► <u>iqn.1994-04.jp.co.hitachi:rsd.d9s.t.10198.0e038</u>	IP Address: 192.168.0.204 IP Version: IPV4 TCP Port: 3260 Boot Target: No Connection Status: Yes
↑↓=Move Highlight <Enter>=Select Entry Esc=Exit	

6. Select **Boot Target** in **Edit/Ping Target** screen to change to **Yes** or **Primary**. After the input, select **Save/Login**, press **Enter** key.

Edit/Ping Target	
iSCSI Target Name	iqn.1994-04.jp.co.hitachi:rsd.d9s Boot From This Target .t.10198.0e038
IP Version	IPV4
iSCSI Target IP Address	192.168.0.204
TCP Port Number	3260
BladeEngine Port Number	0
ISID Qualifier	111
Boot Target	<u><Primary></u>
Header Digest	<No>
Data Digest	<No>
Authentication Method	<None>
Ping	
► Save/Login	
► Advanced Properties	
Login	
Logout	
► Delete Target	
► LUN Configuration	
↑↓=Move Highlight <Enter>=Select Entry Esc=Exit	

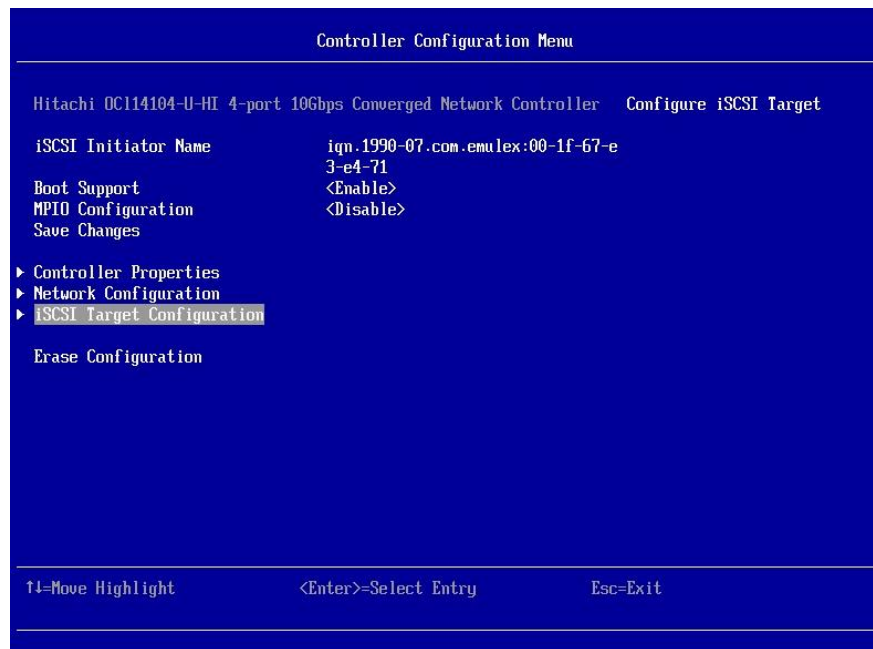
7. Press **Esc** key 4 times, select **Exit Setup** in **System Configuration and Boot Management** screen. When the message **Settings were changed. Do you wish to save it ?** is displayed, press **Y** key. The system reboots. This procedure is complete.



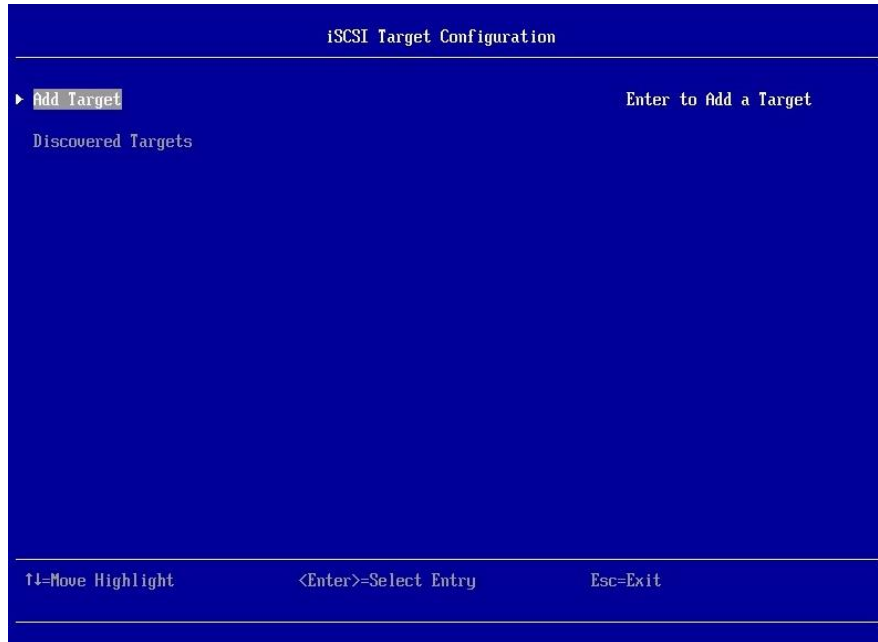
If the boot OS is Windows Server 2012 R2 or 2012 or 2008 R2, and the iSCSI driver be2iscsi.sys version is 10.2.254.0, make sure to configure a setting to produce a page file to the internal HDD. If not, the memory dump cannot be collected. See Appendix, A.3 Memory dump settings for the procedure of the configuration.

(3) iSCSI target (Data device) configuration

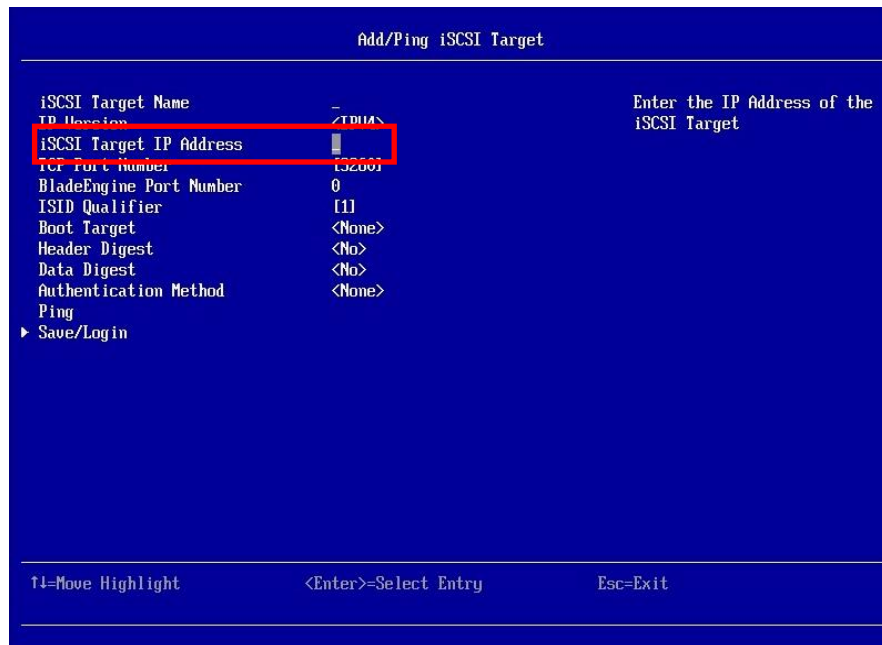
1. Select **iSCSI Target Configuration** in **Controller Configuration Menu** screen, press **Enter** key.



2. Select **Add Target**, press **Enter** key.



3. Set the target information in **Add/Ping iSCSI Target** screen. Input the value to **iSCSI Target IP Address**, select **Save/Login**, press **Enter** key.



- The following functions are not supported.
ISID Qualifier, Header Digest, Data Digest, Authentication Method



If the IP address of **iSCSI Target IP Address** does not exist or can not be accessed, the message **Loginto portal xxx.xxx.xxx.xxx:xxxx failed.** is displayed.

4. Select the target in **Discovered Targets**, press **Space** key. After the input, select **Save/Login**, press **Enter** key.
5. Press **Esc** key 4 times, select **Exit Setup** in **System Configuration and Boot Management** screen. When the message **Settings were changed. Do you wish to save it ?** is displayed, press **Y** key. The system reboots. This procedure is complete.

(4) Disconnecting iSCSI Boot Device



Although the iSCSI configuration in Emulex iSCSISelect Utility is deleted, the configuration is enabled by the utility of "OneCommand Manger" settings. To disable the configuration, OneCommand Manager configuration must be disabled. See "Hitachi Compute Blade Emulex Adapter Use's Guide for Utility", chapter 3 - "Configuring by OCM" - "iSCSI Target Setting" - "(2) Disconnecting the iSCSI target".

1. At step 6 in "4.2.4 iSCSI configuration (UEFI)" - "(2) iSCSI target (Boot device) configuration", change the value of **Boot Target** from **Yes** or **Primary** to **No**.



- The following functions are not supported.
ISID Qualifier, Header Digest, Data Digest, Authentication Method



If **Boot Target** value is **Yes**, the iSCSI target can not be deleted, and the following message is displayed.

Operation Failed: An iSCSI target configured for boot cannot be deleted. If you wish to delete this target, please remove the boot attribute.

2. Move the cursor to **Delete Target**, press **Enter** key, and the iSCSI target is deleted. Then, reboot the system.

(5) Disconnecting iSCSI Data Device



Although the iSCSI configuration in Emulex iSCSISelect Utility is deleted, the configuration is enabled by the utility of "OneCommand Manger" settings. To disable the configuration, OneCommand Manager configuration must be disabled. See "Hitachi Compute Blade Emulex Adapter Use's Guide for Utility", chapter 3 - "Configuring by OCM" - "iSCSI Target Setting" - "(2) Disconnecting the iSCSI target".

1. At step 6 in "4.2.4 iSCSI configuration (UEFI)" - "(2) iSCSI target (Boot device) configuration", move cursor to **Delete Target**, press **Enter** key, and the iSCSI target is deleted. Then, reboot the system.



- The following functions are not supported.
ISID Qualifier, Header Digest, Data Digest, Authentication Method

4.2.5 FCoE configuration (UEFI)

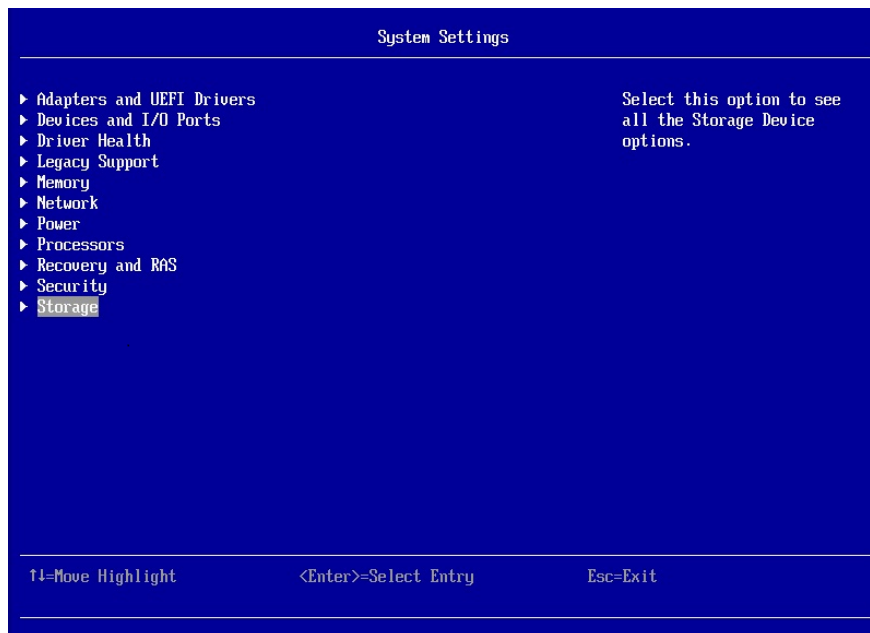


- FCoE is not supported on RHEL6.8 or later, RHEL7.3 or later, Windows Server 2016 or later, VMware6.0 U3 or later and VMware6.5 or later.

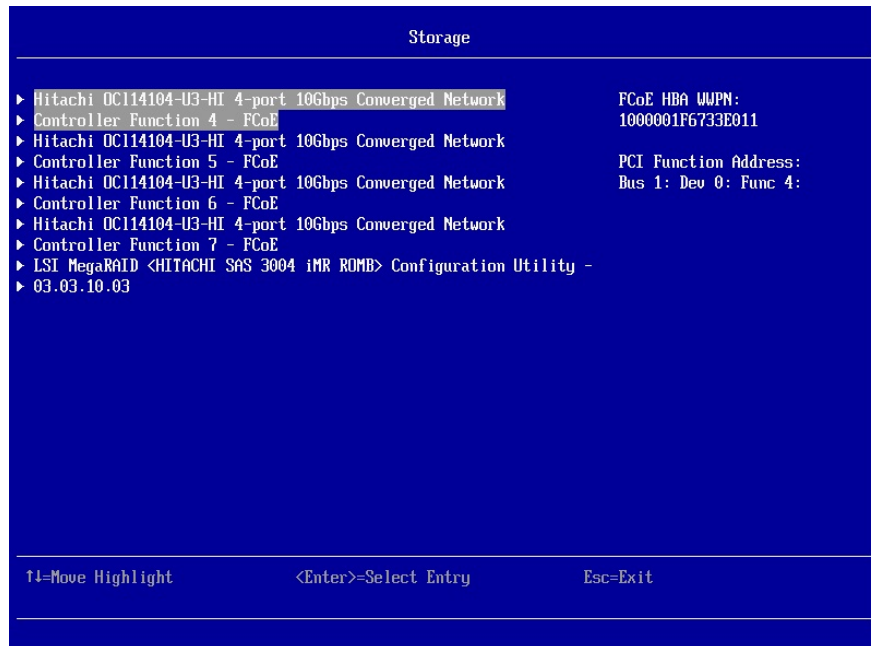
1. Set the personality of the port as FCoE by the procedure in the section 4.2.1 Personality configuration (UEFI).
2. Turn on the remote console, then click **Power - Power On** in tool bar of the remote console to turn on the system. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



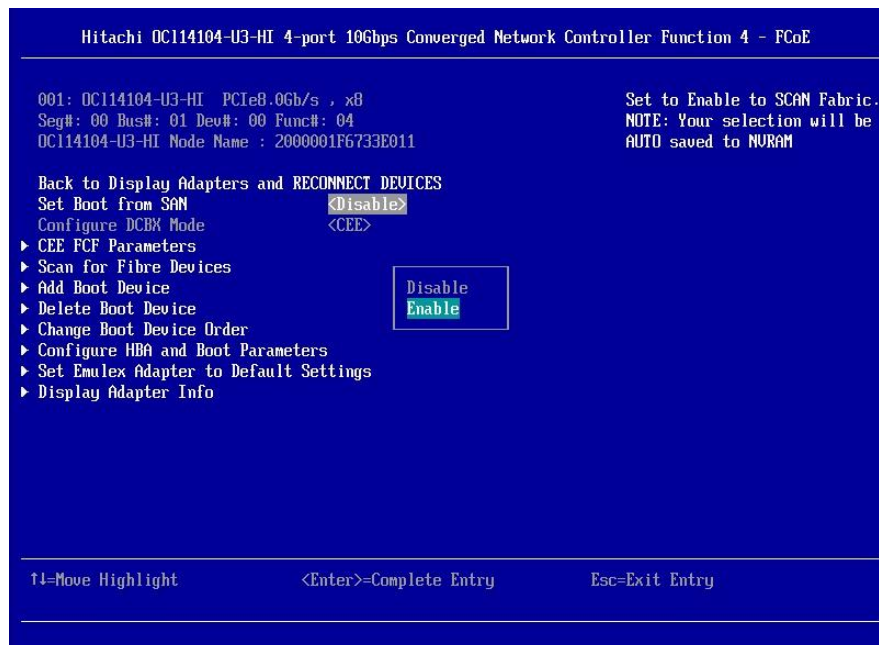
3. **System Configuration and Boot Management** screen opens. Select **System Settings** and press **Enter**. Move the cursor to **Storage** in **System Settings** screen, press **Enter** key.



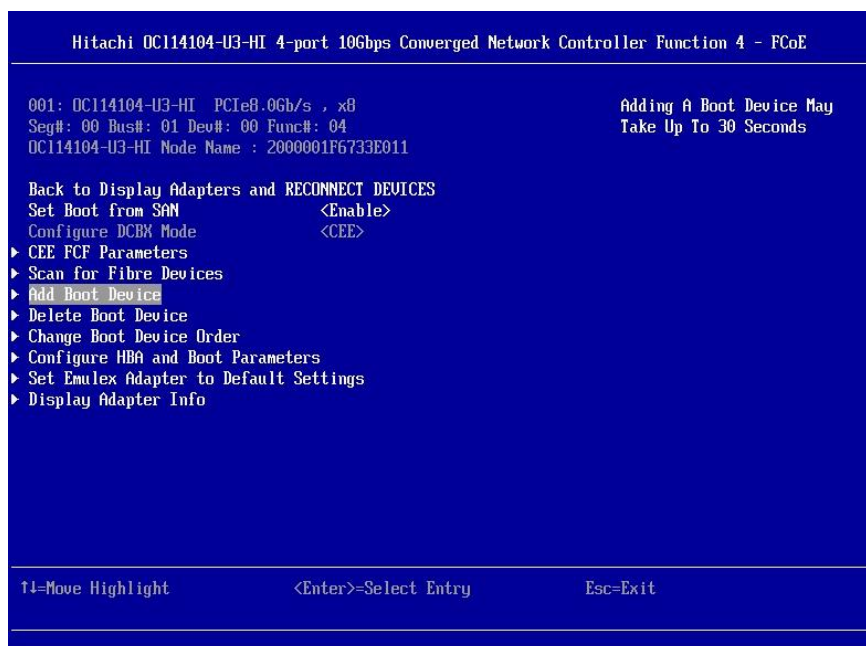
4. In **Storage** screen, Select **Hitachi OC114104-U3-HI 4-port 10Gbps Converged Network Controller Function X - FCoE** (X is a number.) to be configured.



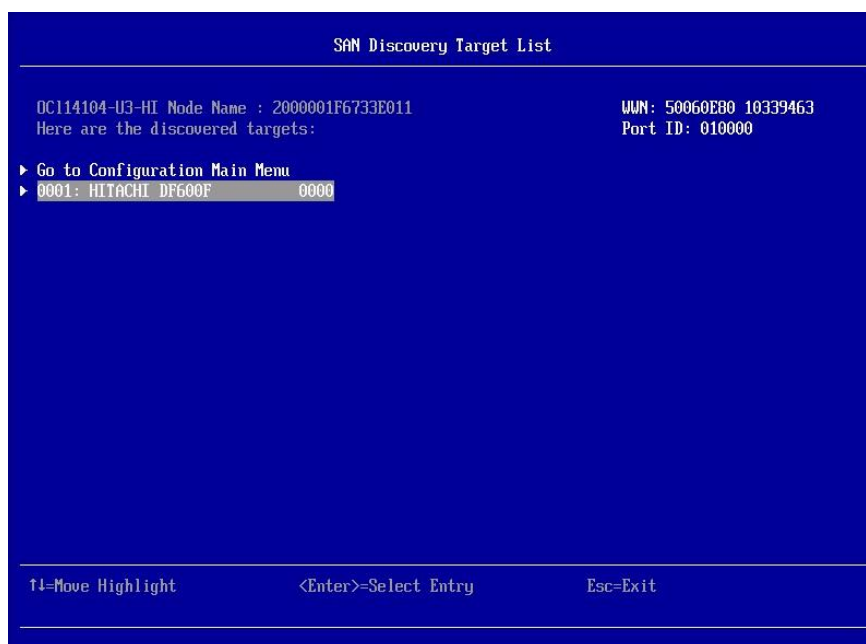
5. **Hitachi OC114104-U3-HI 4-port 10Gbps Converged Network Controller Function X - FCoE** (X is a number.) screen opens. Select a value of **Set Boot from SAN**, if the port will be used for boot, press **Enter** key and select **Enable**, if the port will be connected to a data device, select **Disable**.



6. Select **Add Boot Device**.



7. **SAN Discovery Target List** screen opens. Select **0001: XXXXXX** (XXXXXX is the storage device name.)



8. Select **LUN:0000 Mode: Peripheral dev** in **OCI14104-U3-HI Node Name : XXXXXXXXXXXXXXXX(WWN)** screen.

```
OCI14104-U3-HI Node Name : 2000001F6733E011

WWN: 50060E80 10339463                                HITACHI
                                                           DF600F
                                                           0000
▶ Return to Previous Page
▶ LUN:0000 Mode: Peripheral dev
▶ LUN:0001 Mode: Peripheral dev
▶ LUN:0002 Mode: Peripheral dev

↑↓=Move Highlight      <Enter>=Select Entry      Esc=Exit
```

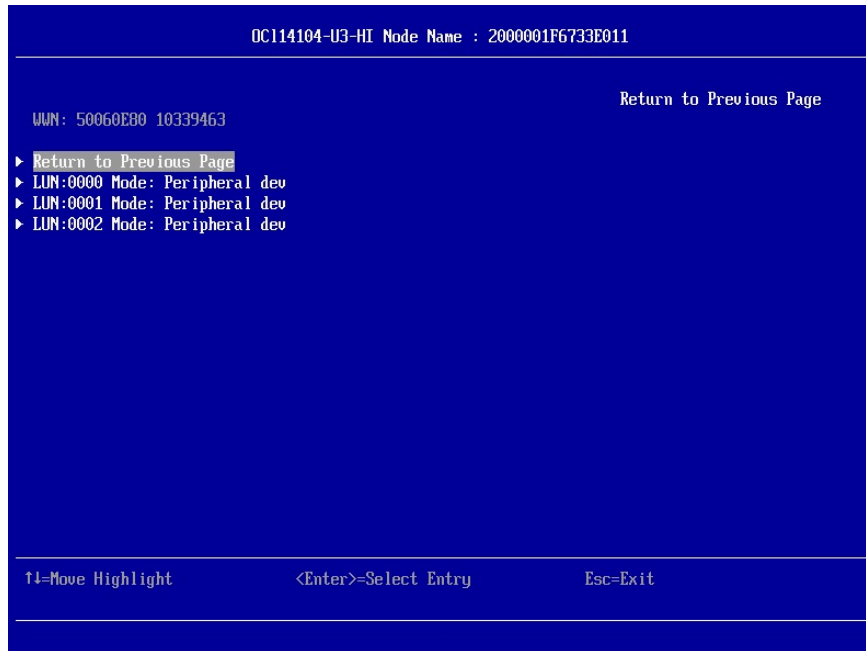
9. Select **Commit Changes** in **SAN Discovery Target List** screen.

```
SAN Discovery Target List

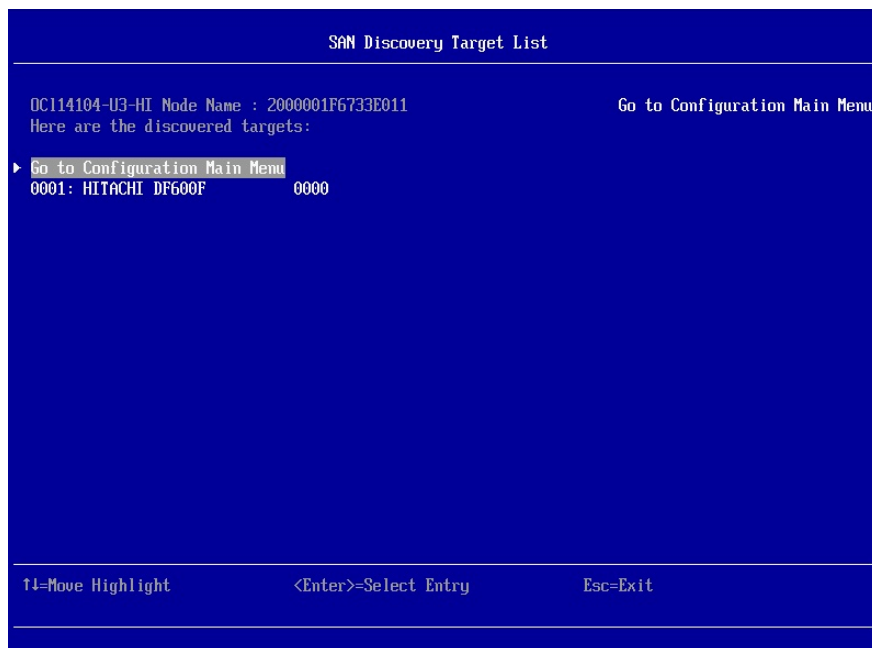
LUN:0000 Mode: Peripheral dev                                Commit Changes and Go to the
OCI14104-U3-HI Node Name : 2000001F6733E011                Previous Page
▶ Commit Changes
▶ Discard Changes

↑↓=Move Highlight      <Enter>=Select Entry      Esc=Exit
```

10. Select **Return to Previous Page** in **OCI14104-U3-HI Node Name : XXXXXXXXXXXXXXXX** (X is a number.) screen.



11. Select **Go to Configuration Main Menu** in **SAN Discovery Target List** screen.



12. Select **Change Boot Device Order** in **Hitachi OC114104-U3-HI 4-port 10Gbps Converged Network Controller Function X - FCoE** (X is a number.) screen.

```
Hitachi OC114104-U3-HI 4-port 10Gbps Converged Network Controller Function 4 - FCoE

001: OC114104-U3-HI PCIe8.0Gb/s , x8                                Change Boot Device Order
Seg#: 00 Bus#: 01 Dev#: 00 Func#: 04
OC114104-U3-HI Node Name : 2000001F6733E011

Back to Display Adapters and RECONNECT DEVICES
Set Boot from SAN          <Enable>
Configure DCBK Mode        <CEE>
▶ CEE PCF Parameters
▶ Scan for Fibre Devices
▶ Add Boot Device
▶ Delete Boot Device
▶ Change Boot Device Order
▶ Configure HBA and Boot Parameters
▶ Set Emulex Adapter to Default Settings
▶ Display Adapter Info

↑↓=Move Highlight          <Enter>=Select Entry          Esc=Exit
```

13. Confirm that the WWN of the storage device is located at top of the list.

```
Change Boot Device Order

OC114104-U3-HI Node Name : 2000001F6733E011                        Change Boot Device Order
Here are the discovered targets:

▶ Discard Changes
▶ Commit Changes
  Boot Device Order

<01: WWN:50060E80 10339463>
<02: WWN:00000000 00000000>
<03: WWN:00000000 00000000>
<04: WWN:00000000 00000000>
<05: WWN:00000000 00000000>
<06: WWN:00000000 00000000>
<07: WWN:00000000 00000000>
<08: WWN:00000000 00000000>

↑↓=Move Highlight          <Enter>=Select Entry          Esc=Exit
```


4.2.6 SR-IOV configuration (Hyper-V Environment)

This section describes the procedure to configure the SR-IOV function in Hyper-V environment.

For CB520X B1, CB520X B2, CB520X B3, CB520H B3 or CB520H B4 server blades, SR-IOV (Single Root I/O Virtualization) function can be set in Windows Server 2012 R2 Hyper-V environment. For the guest OS, Windows Server 2012 or Windows Server 2012 R2 can be used.

To use SR-IOV function in Hyper-V environment, the NIC driver for SR-IOV has to be installed to the host OS and guest OS. For the NIC driver and CNA firmware, see "Hitachi Compute Blade Emulex Adapter User's Guide for Driver (MK-99COM103) (rev.14 or higher), 4.1 Driver Installation (Onboard CNA / CNA expansion card / LAN expansion card / CNA board)".



- When changing the SR-IOV configuration or installing the LAN driver, the virtual network switch made by Emulex CNA or LAN device has to be removed by Hyper-V manager. If the virtual network switch is not removed, the LAN driver may not be installed normally.
- The 1Gb LAN connection is forbidden when using the SR-IOV function. Before setting the SR-IOV function as "Enabled", the network switch has to be configured for 10Gb connection.
- SR-IOV is not supported on CNA firmware 11.1.*.* or later.

(1)UEFI configuration

Set **PCI Express Native Control** enabled by the following procedure.

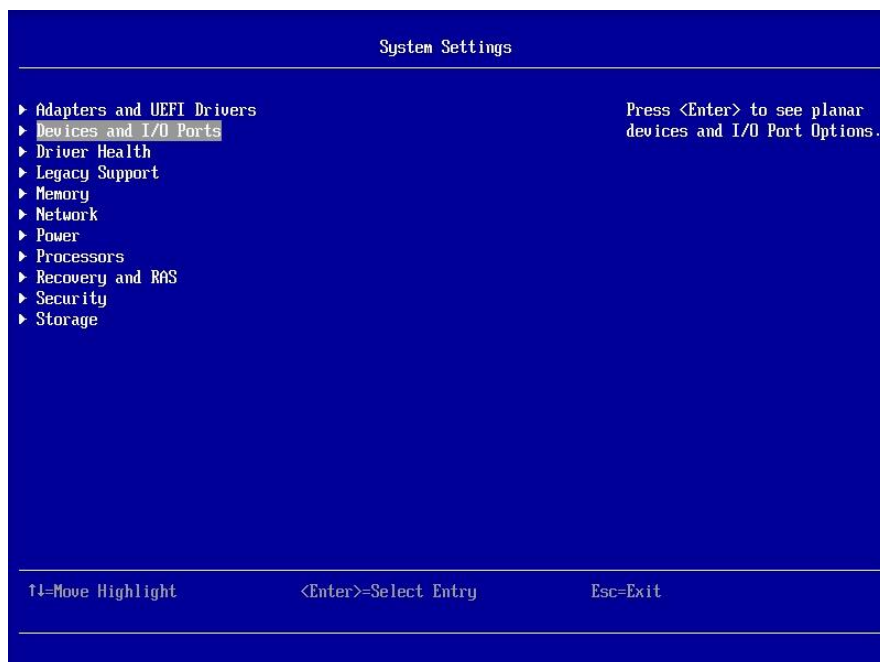
1. Turn on the remote console, then click **Power - Power On** in tool bar of the remote console to turn on the system. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



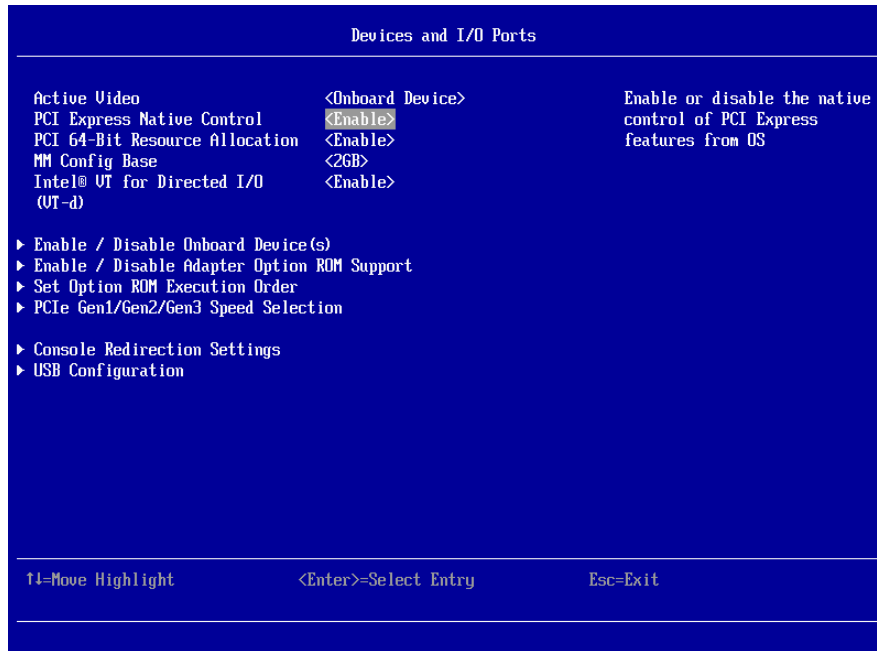
2. **System Configuration and Boot Management** screen opens. Then select **System Settings - Device and I/O Ports**.



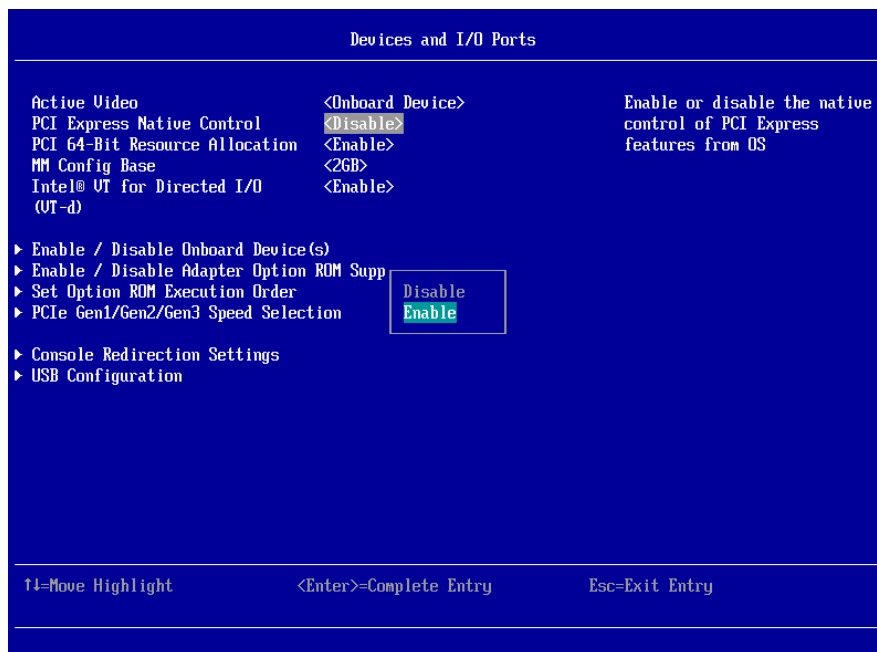
3. Select **Devices and I/O Ports**.



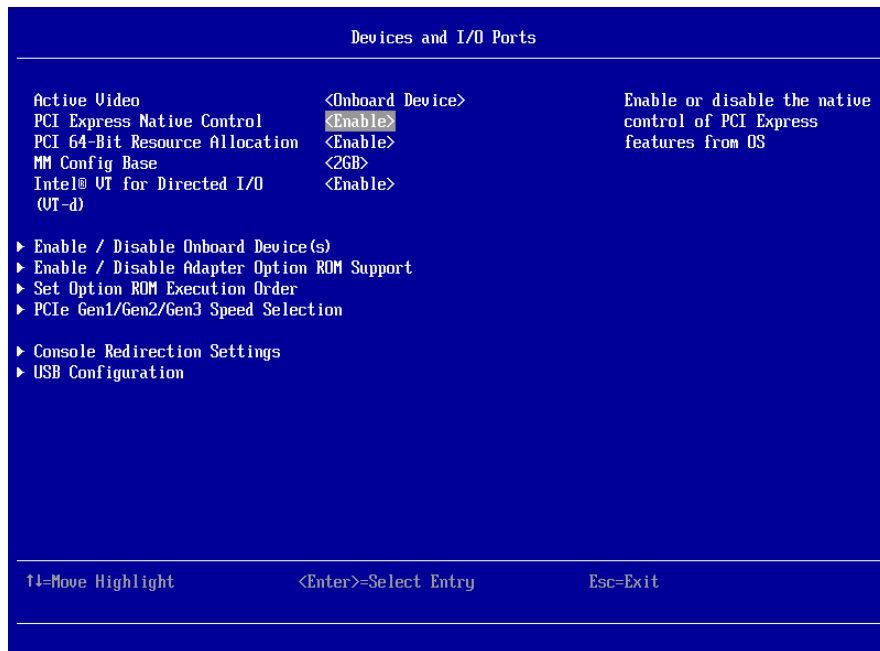
4. Confirm that the value of **PCI Express Native Control** is **Enable** in **Devices and I/O Ports** screen.



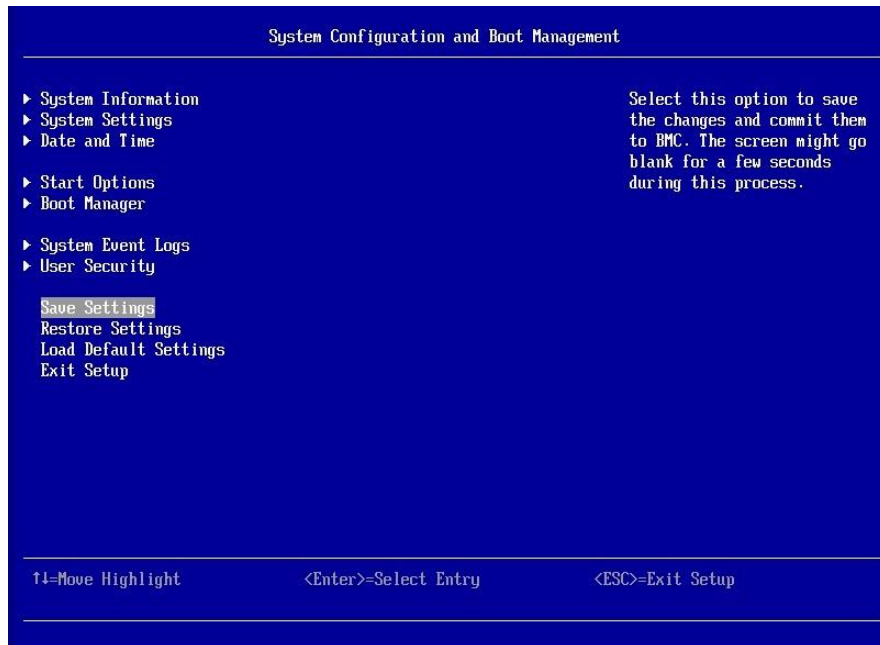
5. If the value is **Disable**, move the cursor to **<Disable>** and press Enter key and select **Enable**.



6. Confirm that the value of **Devices and I/O Ports** is **Enable**.



7. Return to the top menu (System Configuration and Boot Management).
Move the cursor to **Save Settings** and press **Enter** key.



8. Select **Exit Setup**. The message "**Do you want to exit Setup Utility?**" is displayed, then press **Y** key. And the message "**Settings have been changed, and a reboot is required to apply the settings**" is displayed, then press **Enter** key.

(2) Emulex UEFI settings

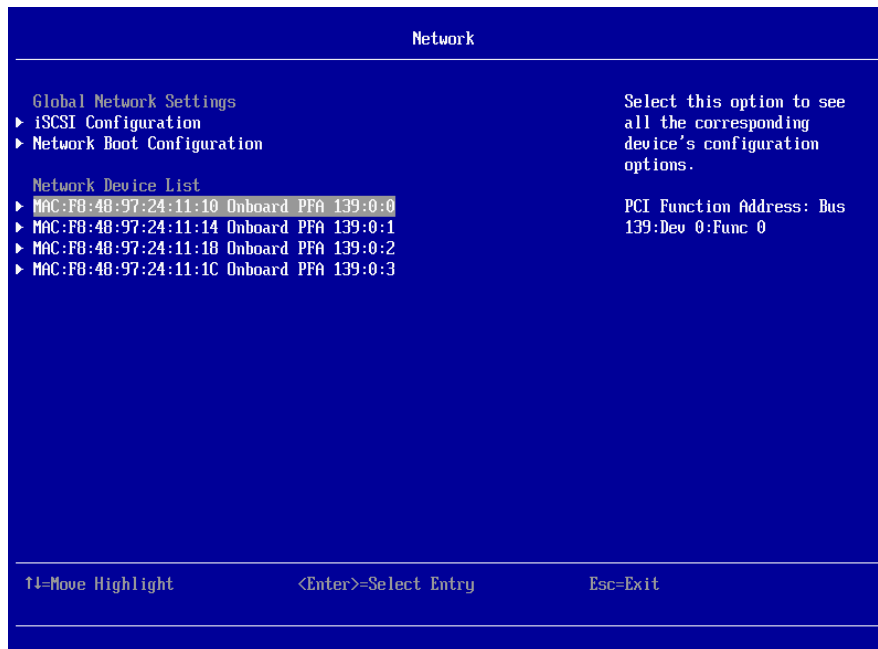
1. Turn on the remote console, then click Power - Power On in tool bar of the remote console to turn on the system. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



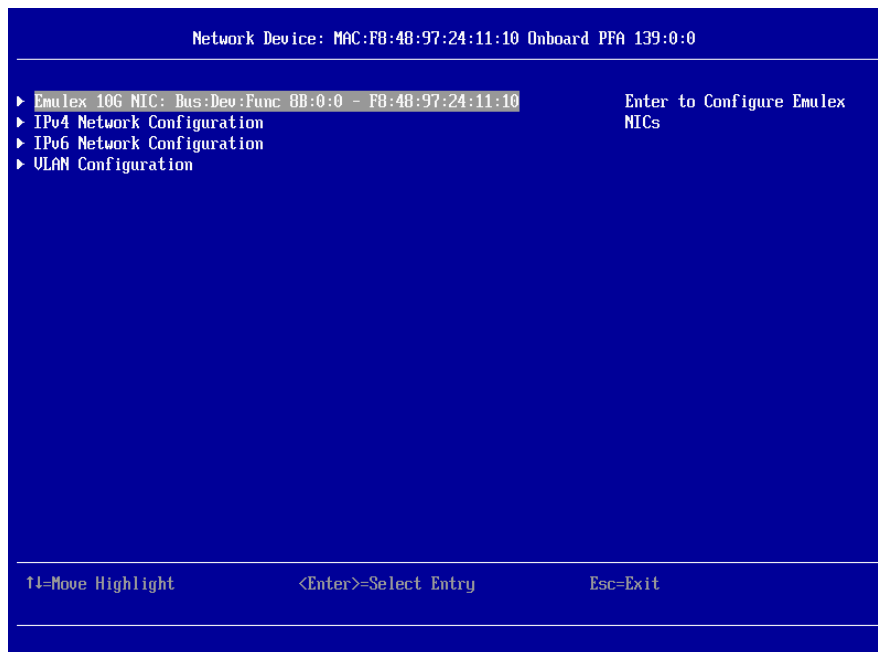
2. **System Configuration and Boot Management** screen opens. Then select **System Settings** then select **Network** in **System Settings** screen.



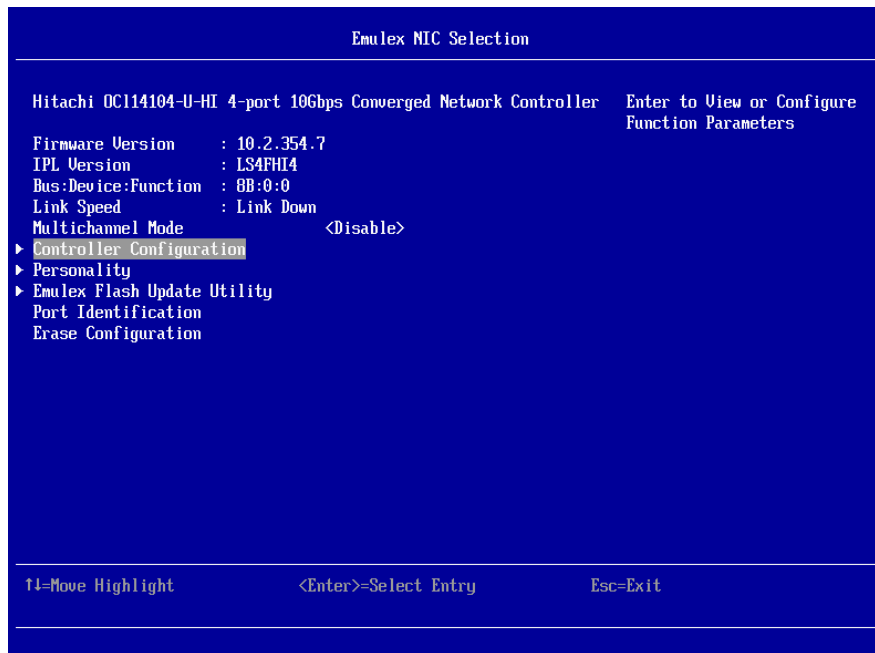
3. Select the port to be configured.



4. Enter to Configure Emulex NICs.



5. Select **Controller Configuration** and press [Enter] key.



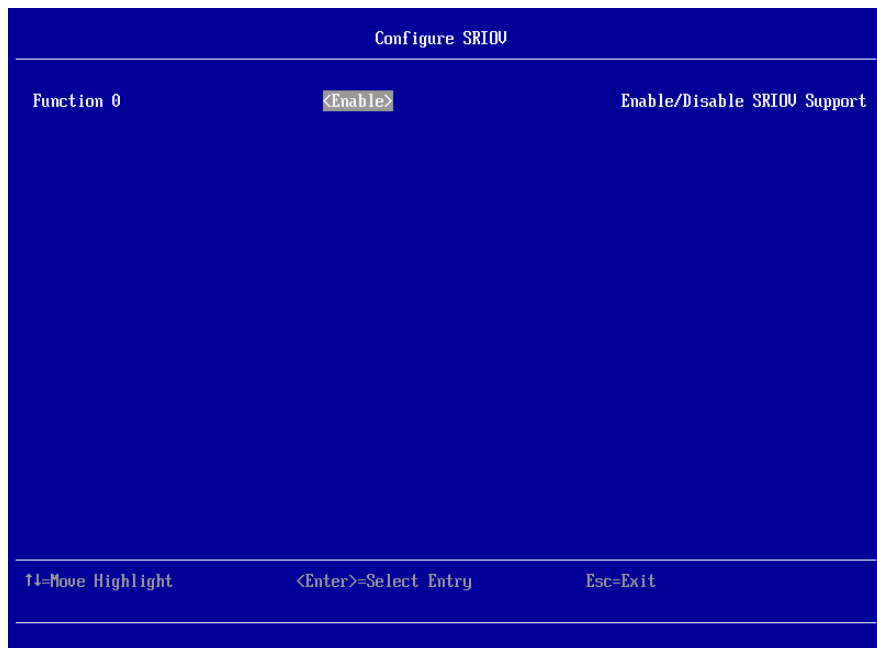
6. Select **Configure SRIOV** and press [Enter] key.



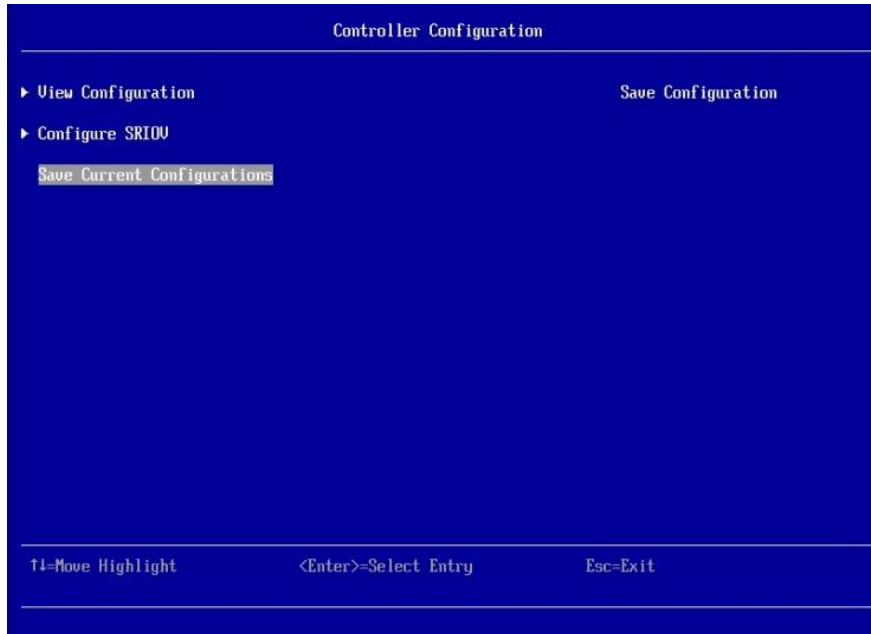
7. Select **<Disable>** and press [Enter] key, and then select **Enable**.



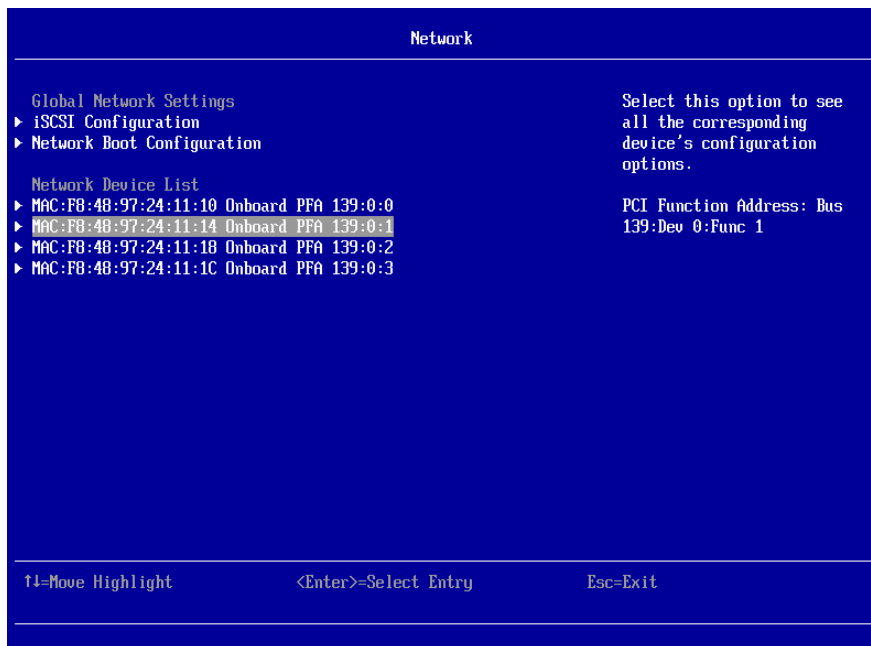
8. The value of **Function 0** changes to **<Enable>**. Press [Esc] key to return to "**Controller Configuration**" screen.



9. Select **Save Current Configuration** and press [Enter] key.

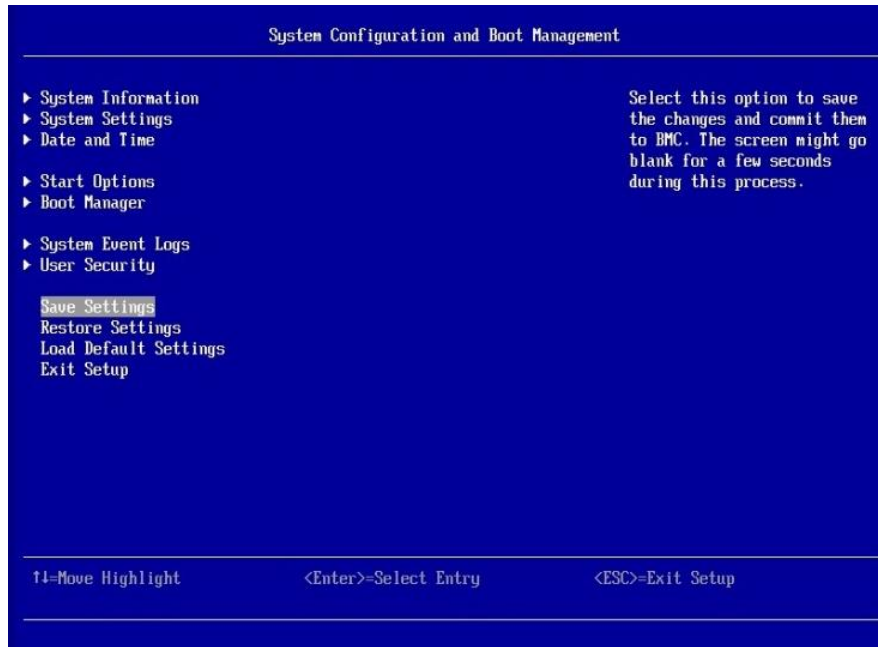


10. Press [Esc] key 3 times to return to "Network" screen. Configure all other ports that belong to a controller shown in "Network Device List" by the same procedure (from step 3 to step 9).



- When setting SR-IOV function to be enabled, all ports that belong to a controller have to be set enabled.
- The personality of the ports have to be NIC to set SR-IOV function to be enabled. The personality of iSCSI and FCoE are not supported for the SR-IOV function.

Press <ESC> key and **System Configuration and Boot Management** screen is displayed. And select **Save Settings**.



Select **Exit Setup**. The message "Do you want to exit Setup Utility?" is displayed, then press **Y** key. And the message "Settings have been changed, and a reboot is required to apply the settings" is displayed, then press **Enter**.

(3) Configuration on the host OS (Windows Server 2012 R2)



When changing the SR-IOV configuration or installing the LAN driver, the virtual network switch made by Emulex CNA or LAN device has to be removed by Hyper-V manager. If the virtual network switch is not removed, the LAN driver may not be installed normally.

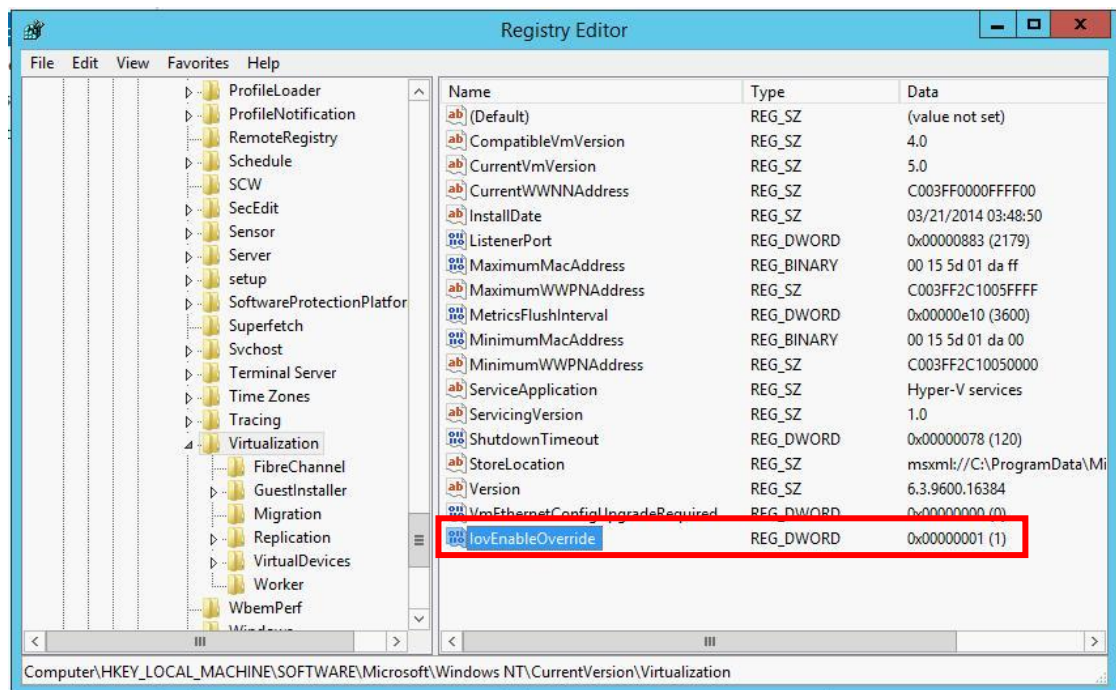
1. Boot the OS.
2. Open the registry editor.



Be careful sufficiently to edit the registry.

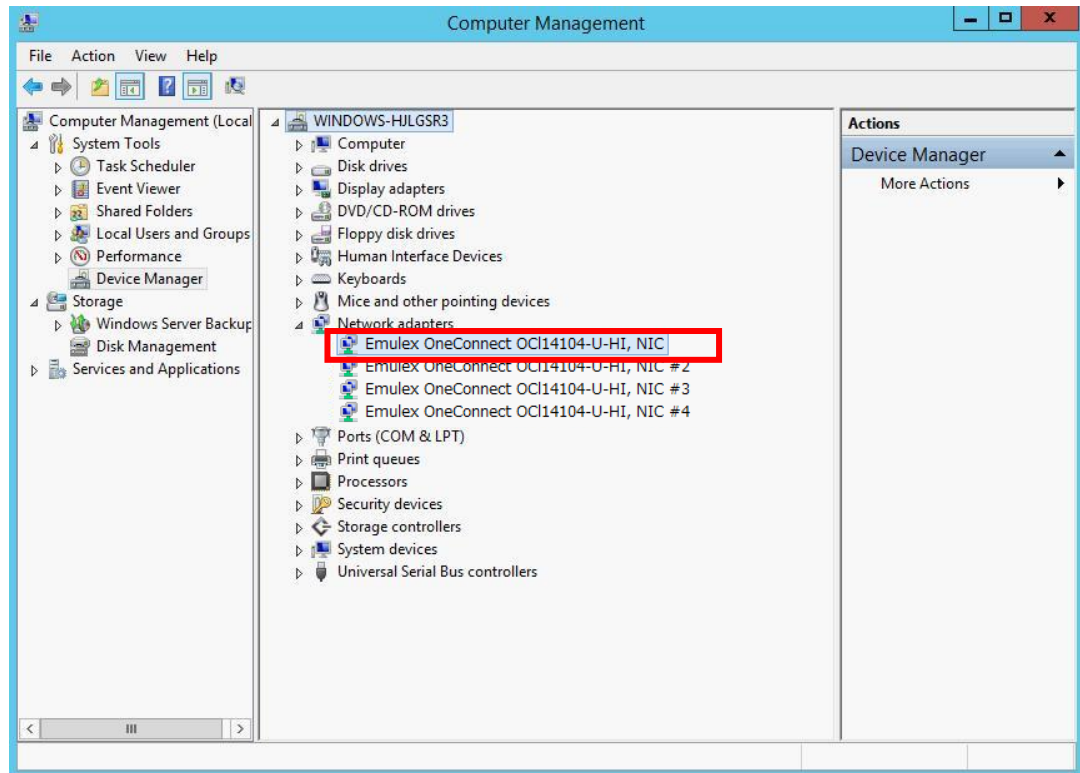
Confirm that "**IovEnableOverride**"(DWORD) is listed in
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Virtualization

If there is not "**IovEnableOverride**", add this and set the data **1**.

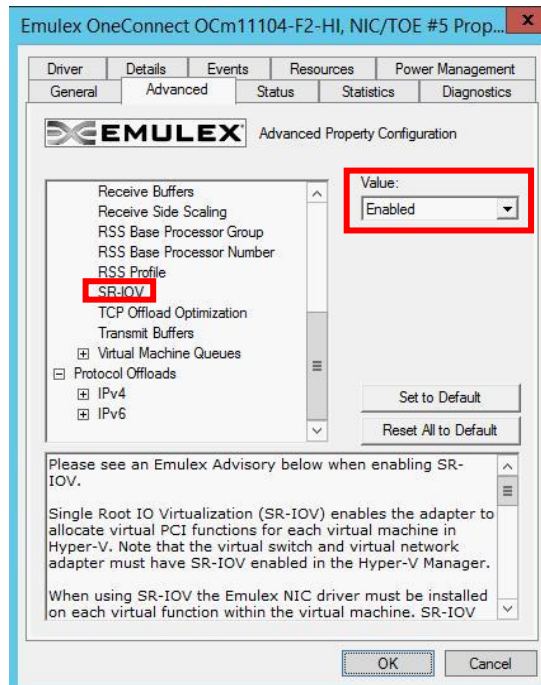


Close the registry editor after the setting above.

3. Select **Computer Management - System Tools - Device manager**. Double click **Emulex OneConnect OCx1xxxxx** under **Network adapters**. (xxx changes by devices.)



4. Click Advanced tab, and change the following settings.
Performance - SR-IOV : Disabled -> Enabled

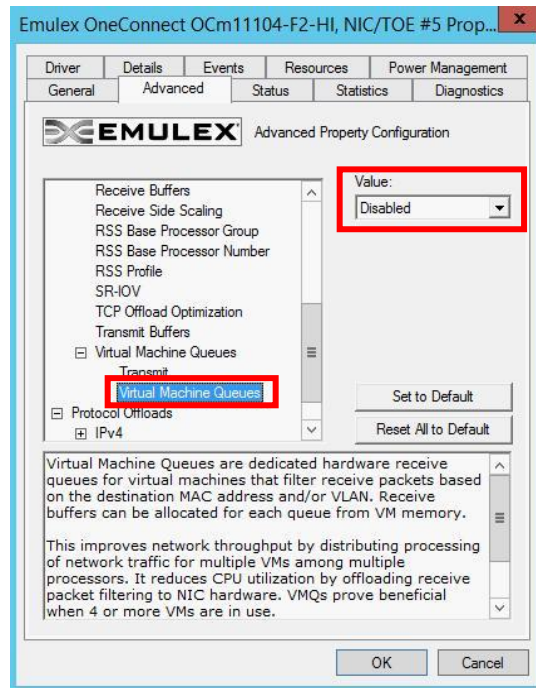


For CB500 series or CB2500 series(VMQ is not used.)

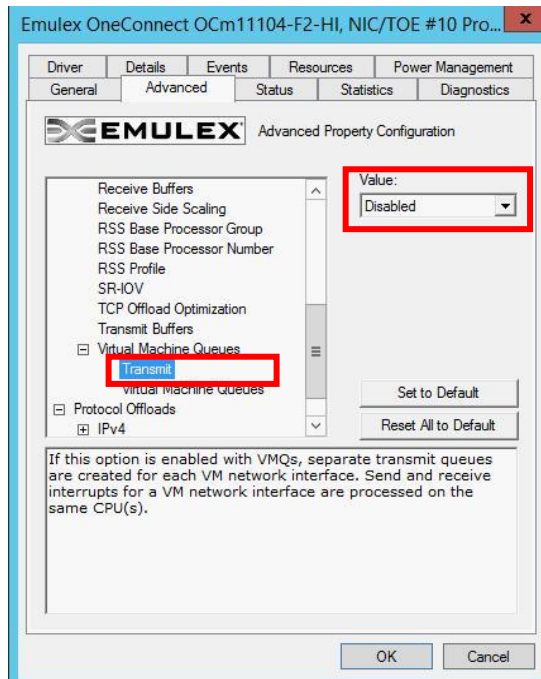
Performance - Virtual Machine Queues - Virtual Machine Queues : Enabled -> Disabled

For CB500 series or CB2500 series(VMQ is used. (NIC driver ver.10.2.478.1 or later.))

Performance - Virtual Machine Queues - Virtual Machine Queues : Enabled



Performance - Virtual Machine Queues - Transmit : Enabled -> Disabled



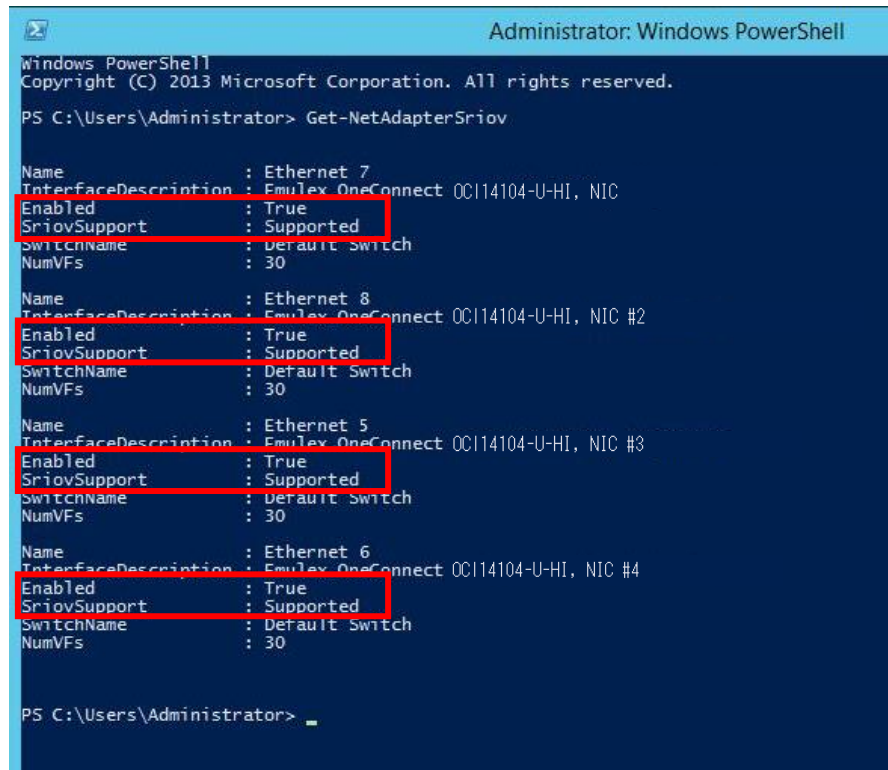
Do not generate or delete the virtual switch when the value of "**Virtual Machine Queues**" is "**Enabled**". In this case, change the value of "**Virtual Machine Queues**" to "**Disabled**".

5. Configure all Emulex 10Gb LAN devices by the step 3 ~ step 4 above. And reboot the OS.

6. Open **Windows PowerShell** after the OS boots.

7. Execute **Get-NetAdapterSriov** command. Confirm the following values.

Enabled : True
SriovSupport : Supported



```
Administrator: Windows PowerShell
Windows PowerShell
Copyright (C) 2013 Microsoft Corporation. All rights reserved.

PS C:\Users\Administrator> Get-NetAdapterSriov

Name                : Ethernet 7
InterfaceDescription : Emulex OneConnect OC114104-U-HI, NIC
Enabled              : True
SriovSupport          : Supported
SwitchName           : Default Switch
NumVFs                : 30

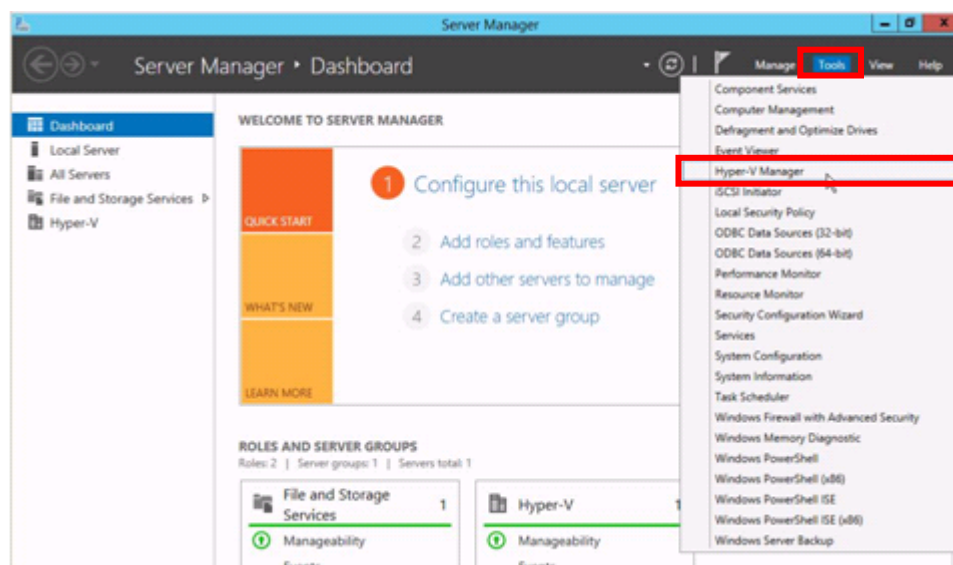
Name                : Ethernet 8
InterfaceDescription : Emulex OneConnect OC114104-U-HI, NIC #2
Enabled              : True
SriovSupport          : Supported
SwitchName           : Default Switch
NumVFs                : 30

Name                : Ethernet 5
InterfaceDescription : Emulex OneConnect OC114104-U-HI, NIC #3
Enabled              : True
SriovSupport          : Supported
SwitchName           : Default Switch
NumVFs                : 30

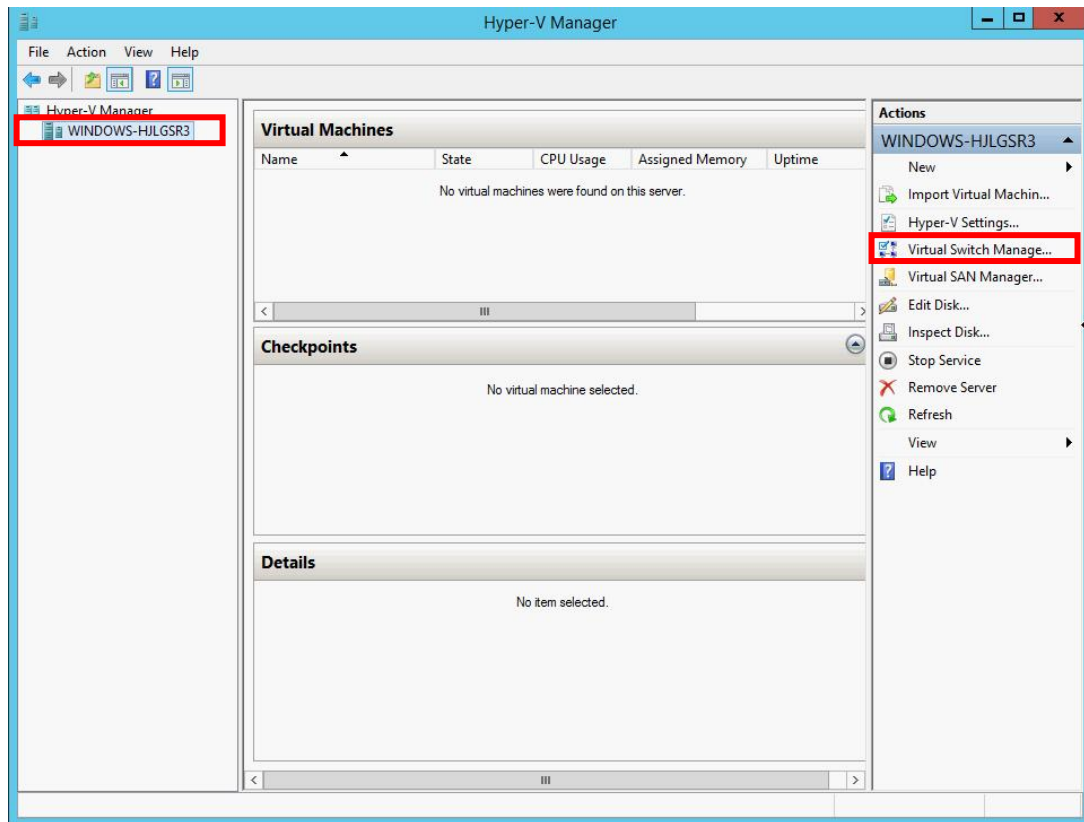
Name                : Ethernet 6
InterfaceDescription : Emulex OneConnect OC114104-U-HI, NIC #4
Enabled              : True
SriovSupport          : Supported
SwitchName           : Default Switch
NumVFs                : 30

PS C:\Users\Administrator>
```

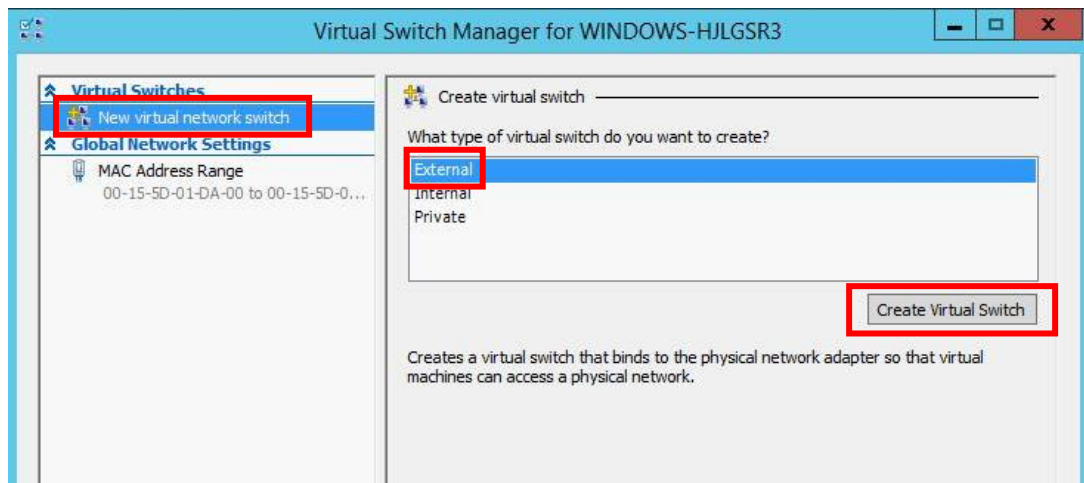
8. Click **Tools** -> **Hyper-V Manager** in Server Manager screen.



9. Click Computer Name, and click **Virtual Switch manager**.



10. Click **New virtual network switch** and select **External** and click **Create Virtual Switch**.



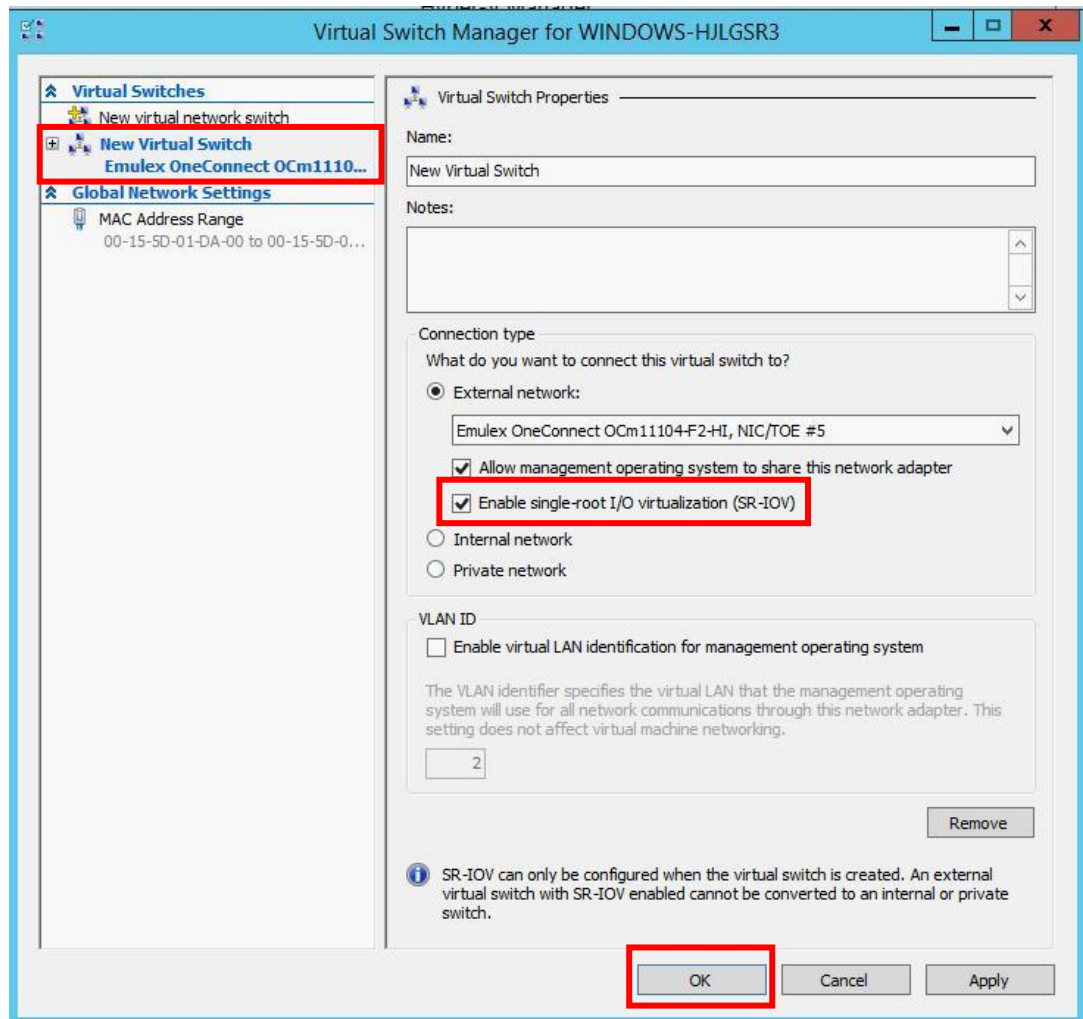
11. Select physical LAN device to assign to external network, and check the box of **Enable single-root I/O virtualization (SR-IOV)**. And click **OK**.



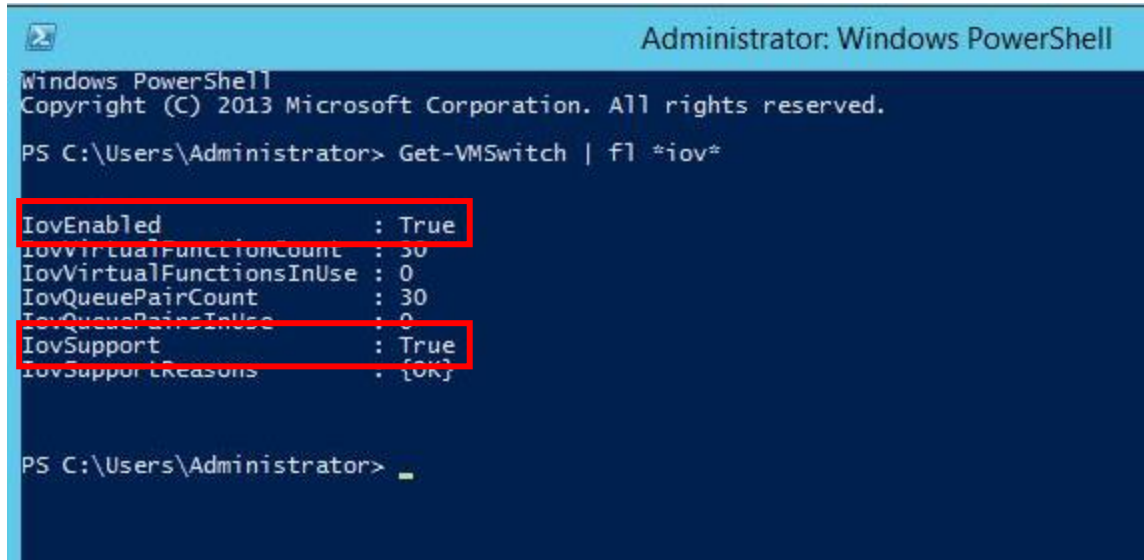
Any name can be set to **Name**:



Make sure to check the box of **Enable single-root I/O virtualization (SR-IOV)** before creating virtual switch. If the virtual switch has been created, the check box cannot be checked.



12. Execute **Get-VMSwitch | fl *iov*** command on Windows PowerShell, and confirm that **IovEnabled** and **IovSupport** are **True**.

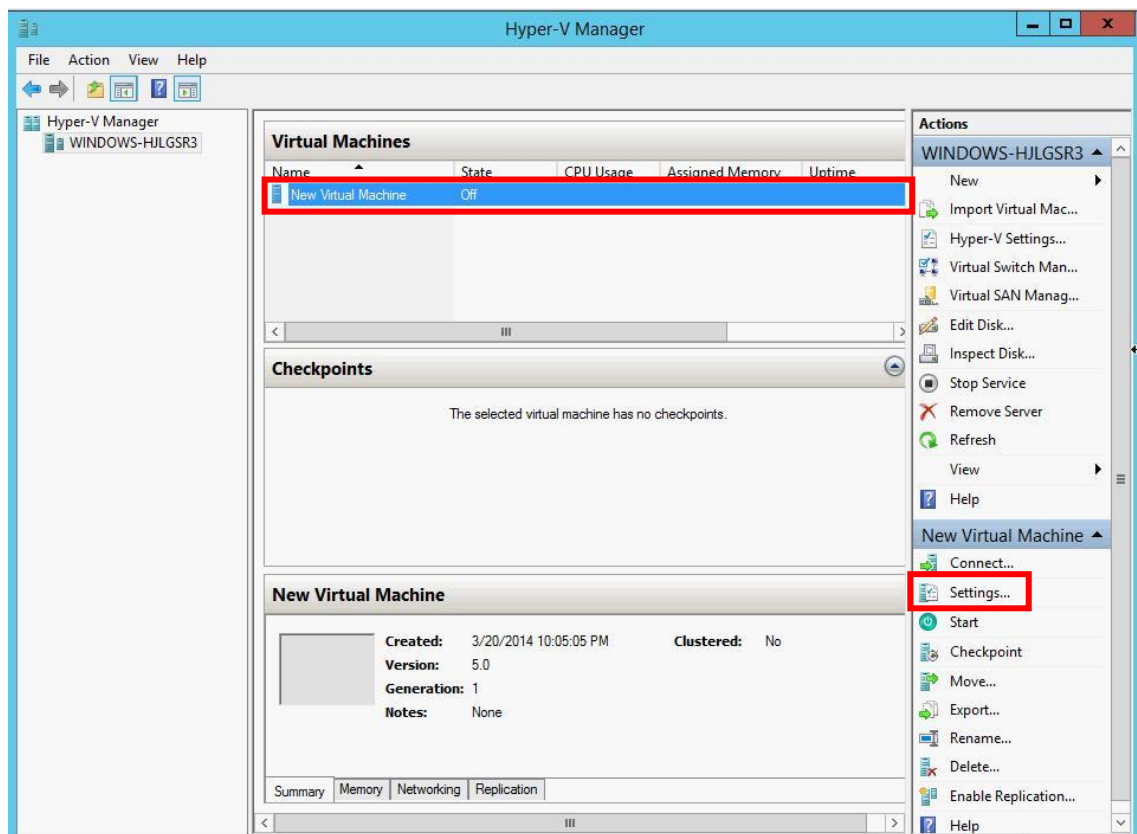


```
Administrator: Windows PowerShell
Windows PowerShell
Copyright (C) 2013 Microsoft Corporation. All rights reserved.

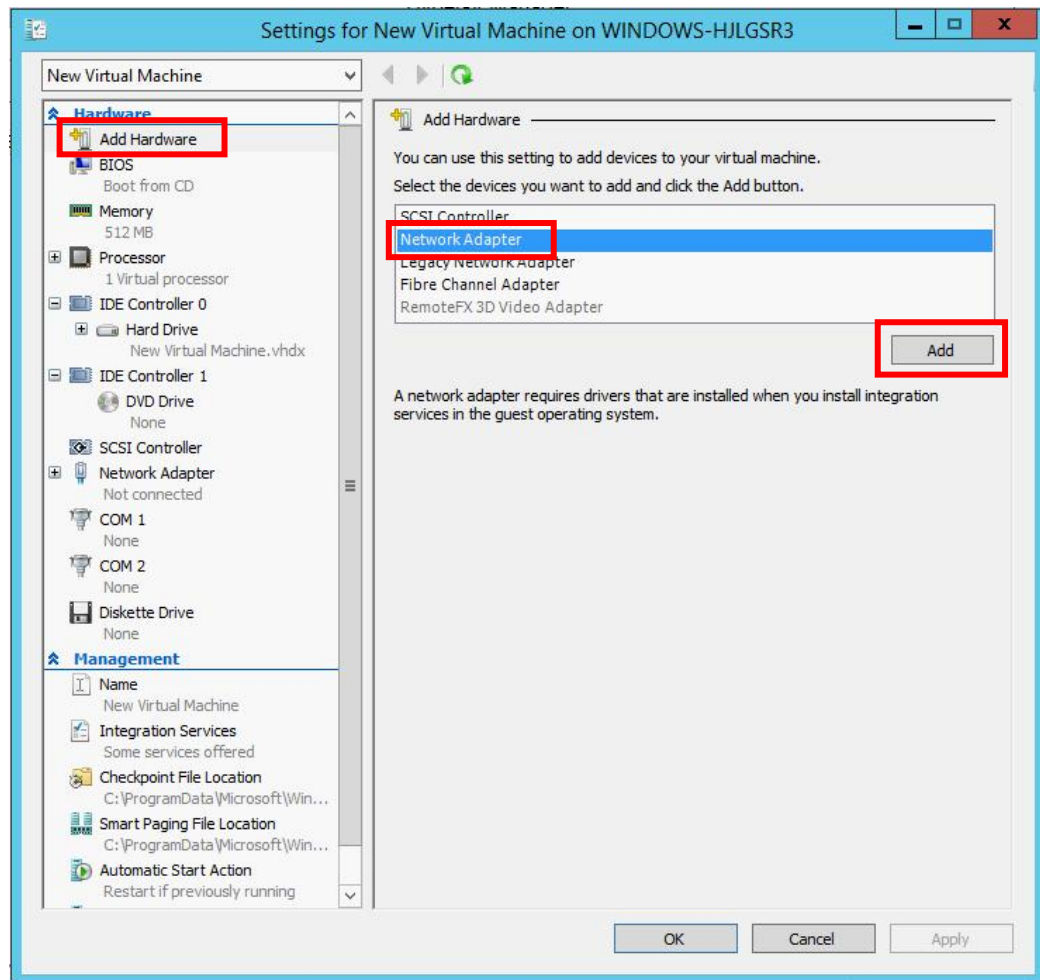
PS C:\Users\Administrator> Get-VMSwitch | fl *iov*

IovEnabled           : True
IovVirtualFunctionCount : 30
IovVirtualFunctionsInUse : 0
IovQueuePairCount    : 30
IovQueuePairsInUse    : 0
IovSupport            : True
IovSupportReasons     : {OK}
```

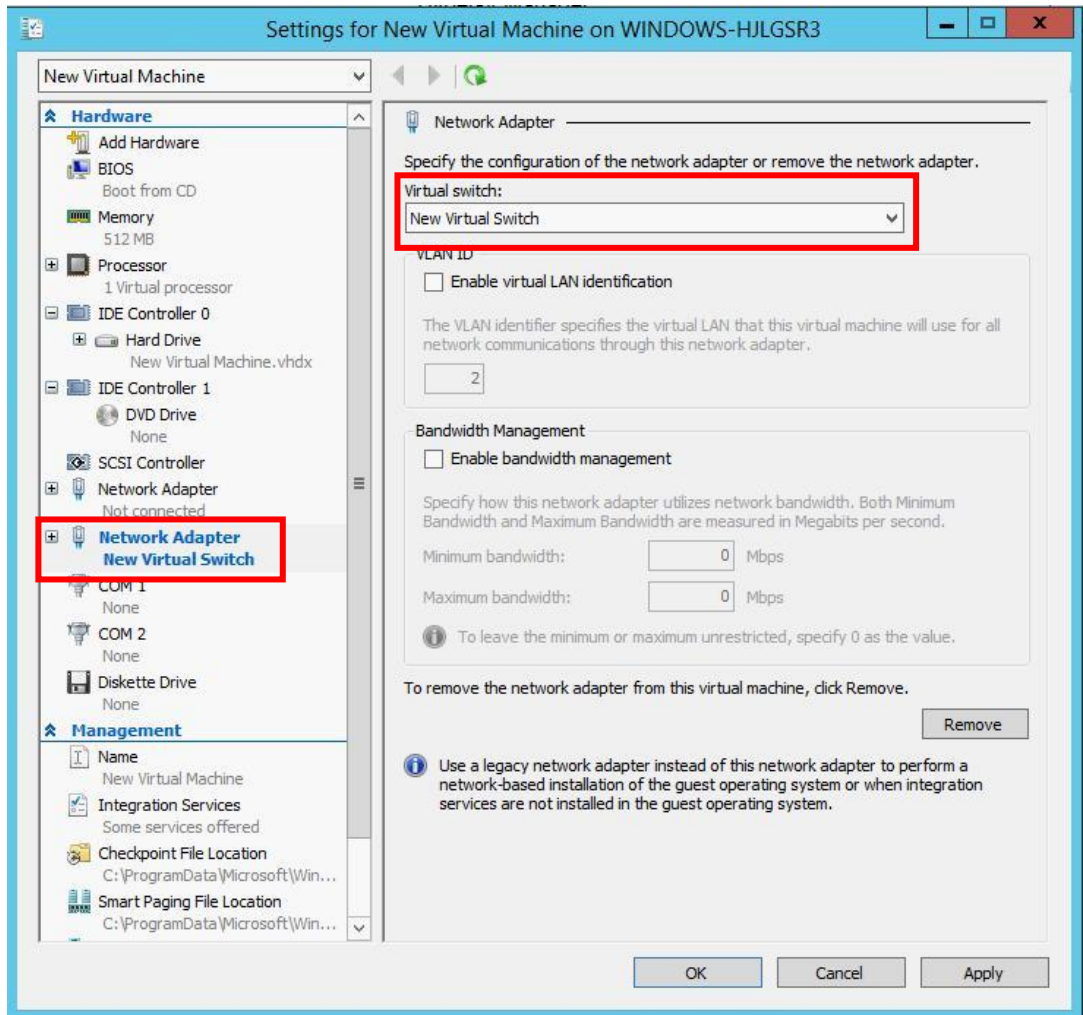
13. Select the virtual machine (guest OS) to assign the virtual switch, and click **Settings....**



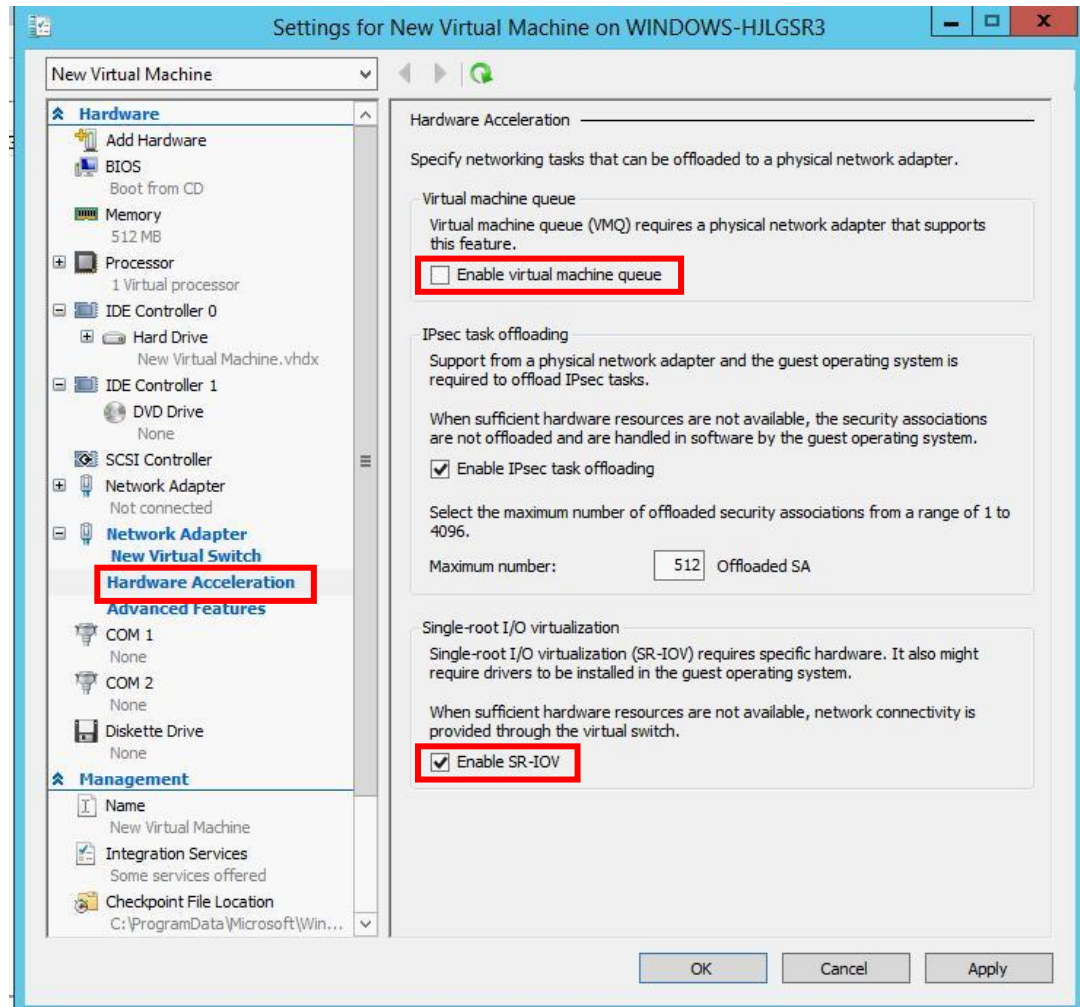
14. Click **Add Hardware**, click **Network Adapter**, and click **Add**.



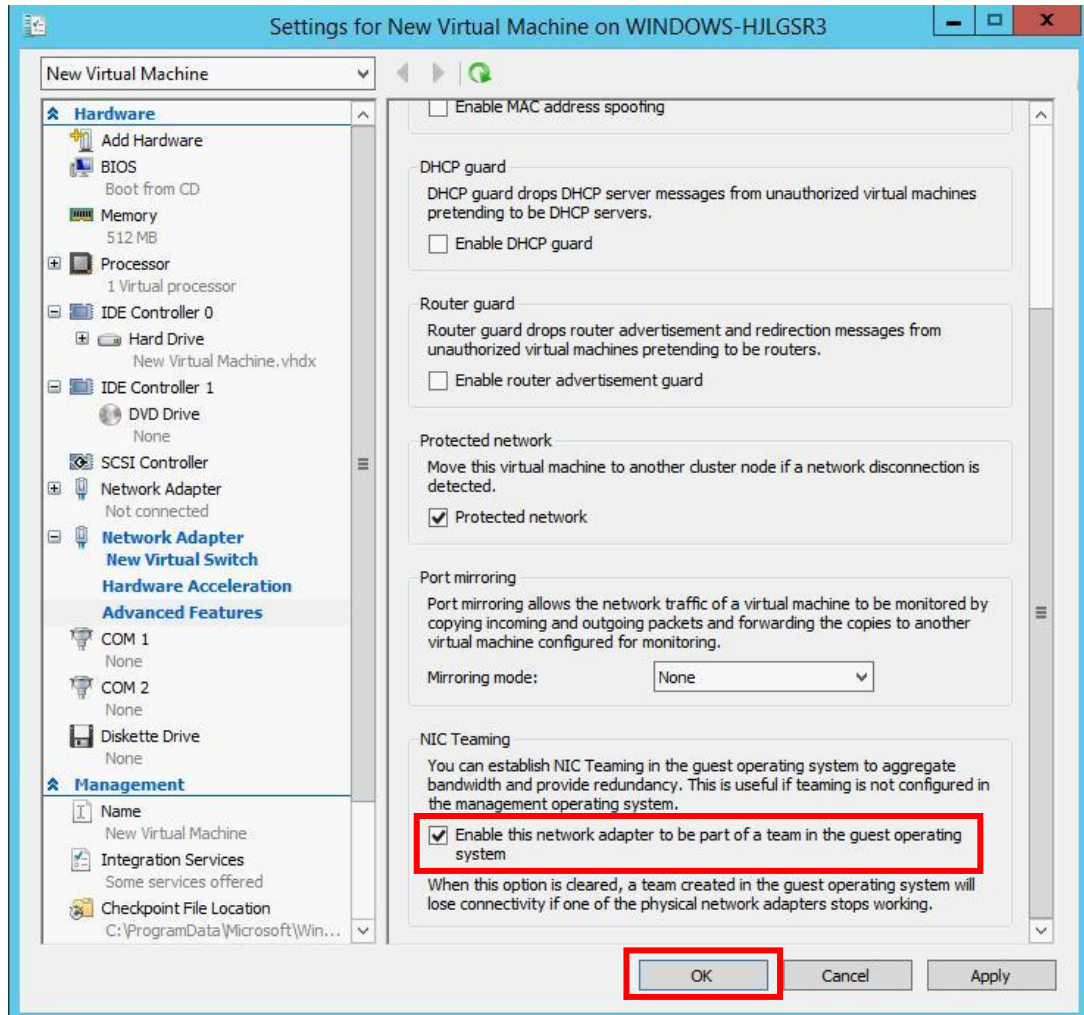
15. Select the virtual switch that has been created by **Virtual Switch Manager**.



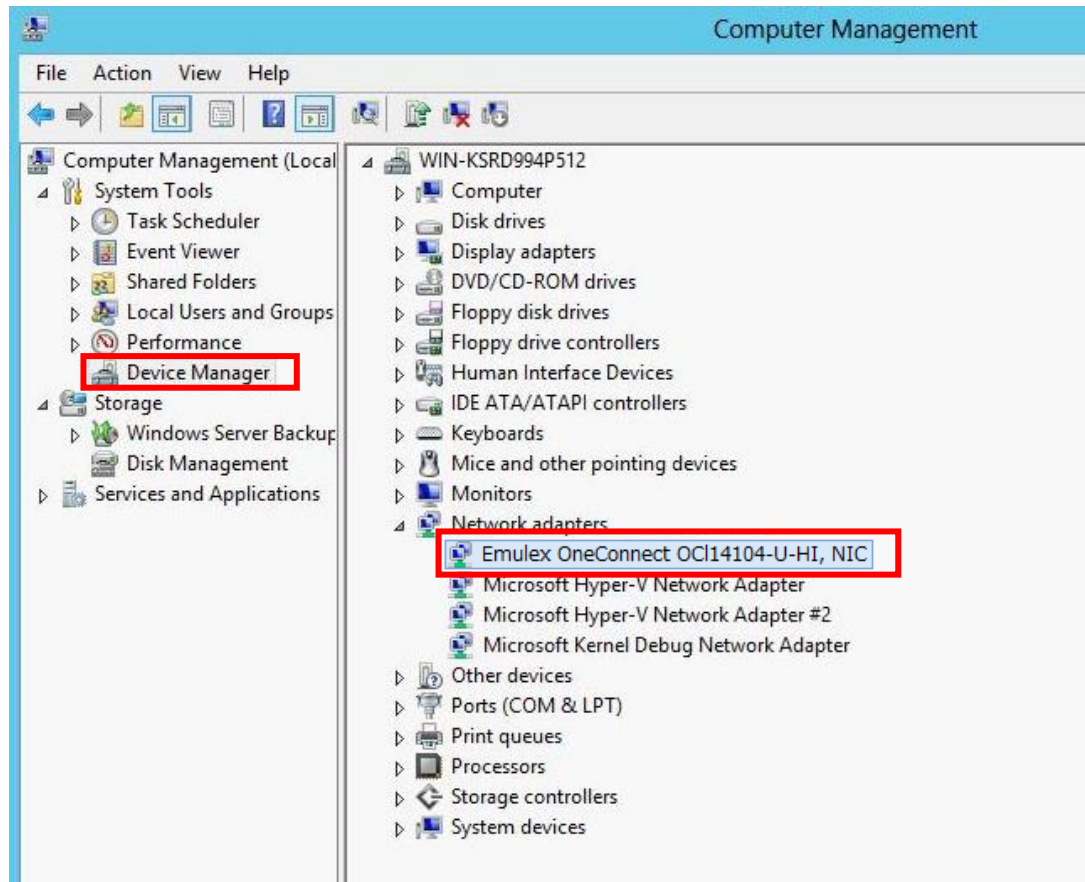
16. Click **Hardware Acceleration** under **Network Adapter**. Delete the check mark of **Enable virtual machine queue**, and check the box of **Enable SR-IOV**.



17. Check the box of **Enable this network adapter to be part of a team in the guest operate system**. And click **OK**.



18. Install the OS to the virtual machine, and open **Device Manager**. If **Emulex One Connect OCx1xxxx** is displayed under **Network adapters**, or **Network Controller** is displayed under **Other devices**, the virtual machine runs with SR-IOV function.



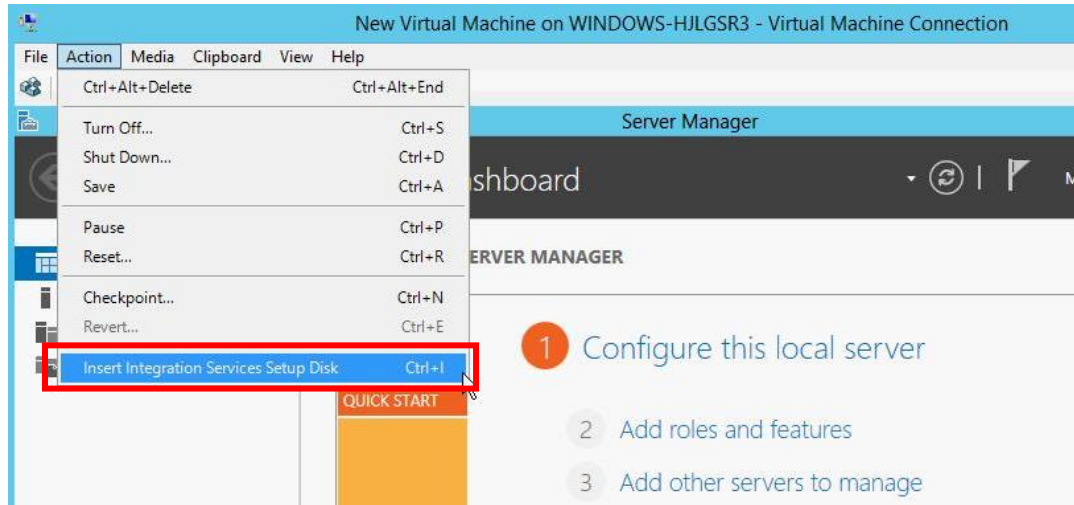
19. The LAN devices may not be recognized by the guest OS. In that case, the LAN devices are displayed in **Device Manager** window as Network Controller under **Other devices**. Or the LAN devices that are recognized on the virtual machine may run by the NIC driver bundled with the OS. In the both cases, the proper NIC drivers for SR-IOV function have to be installed. For the NIC drivers, see the manual : "Hitachi Compute Blade Emulex Adapter Use's Guide for Driver (MK-99COM103) rev.14 or higher".



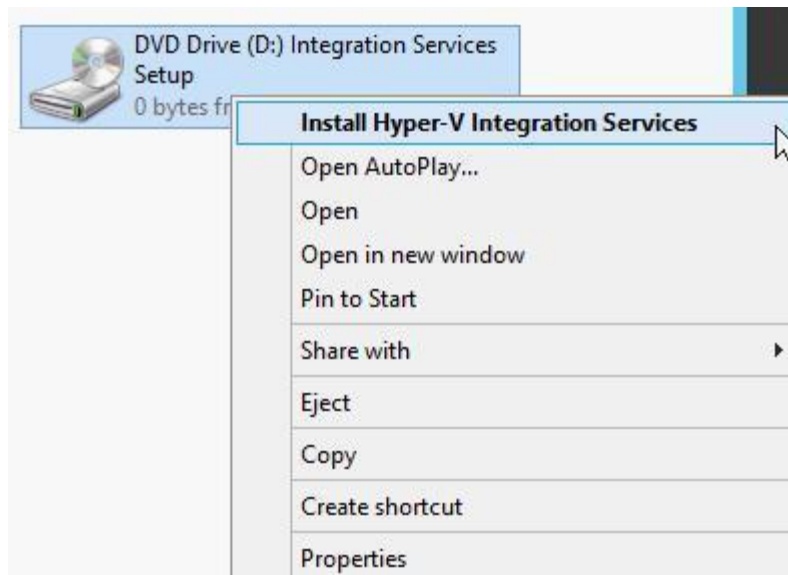
- If the guest OS is Windows Server 2012, apply the following fix provided by Microsoft. If the fix is not applied to the OS, the NIC driver can not be installed.
<http://support.microsoft.com/kb/2846340>

(4) Required settings for configuring LAN device redundancy on the virtual machine whose OS is Windows Server 2012.

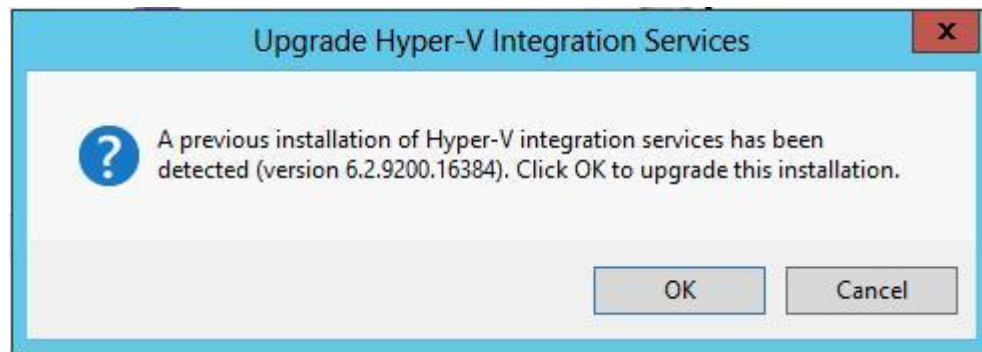
1. Select **Action - Insert Integration Services Setup Disk** in **Virtual Machine Connection** window.



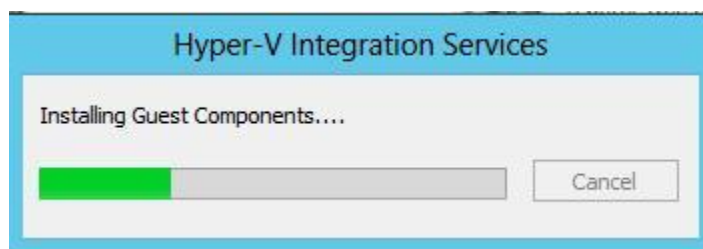
2. Right click **Integration Services Setup** installed in virtual DVD drive, click **Install Hyper-V Integration Services**.



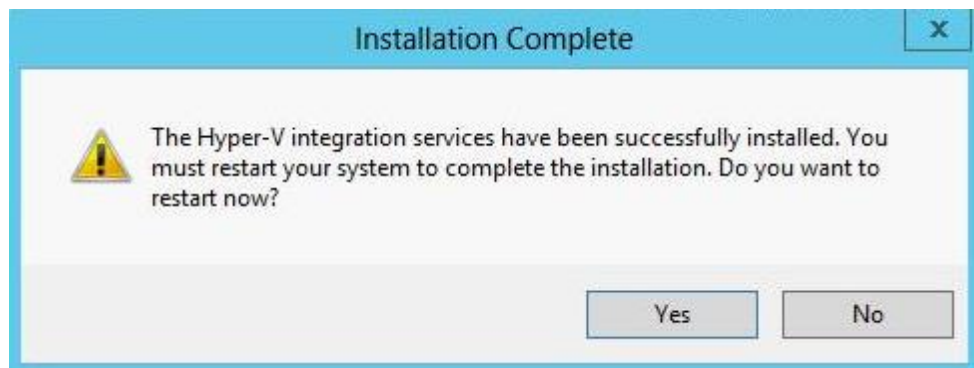
If the following window is displayed, click OK.



3. **Hyper-V Integration Services** installation starts..



4. The following window is displayed when the installation is complete. Click **Yes** and reboot the OS.



5. Select **Media - Eject vmguest.iso** in **Virtual Machine Connection** window



The settings are complete.

4.2.7 SR-IOV configuration (LPAR manager Environment)

This section describes the procedure to configure the SR-IOV function in LPAR manager environment on CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4.

In LPAR manager environment, SR-IOV (Single Root I/O Virtualization) function can be used. The specification of the SR-IOV function in LPAR manager environment, see "Hitachi Compute Blade 500 Series Logical partitioning manager User's Guide (MK-91CB500068)" for CB500 series, or "Hitachi Compute Blade 2500 Series Logical partitioning manager User Guide (MK-99CB2500006)" for CB2500 series.

To use SR-IOV function in LPAR manager environment, the NIC driver for SR-IOV has to be installed to the guest OS. For the NIC driver and CNA firmware, see "Hitachi Compute Blade Emulex Adapter User's Guide for Driver (MK-99COM103) (rev.14 or higher), 4.1 Driver Installation (Onboard CNA / CNA expansion card / LAN expansion card / CNA board)".



- The 1Gb LAN connection is forbidden when using the SR-IOV function. Before setting the SR-IOV function as "Enabled", the network switch has to be configured for 10Gb connection.
- Configure the SR-IOV function in non-virtualized environment.
- The LPAR manager model that is supported by CB520X B1, CB520X B2 or CB520H B3 is essential model only.

(1) Emulex UEFI settings

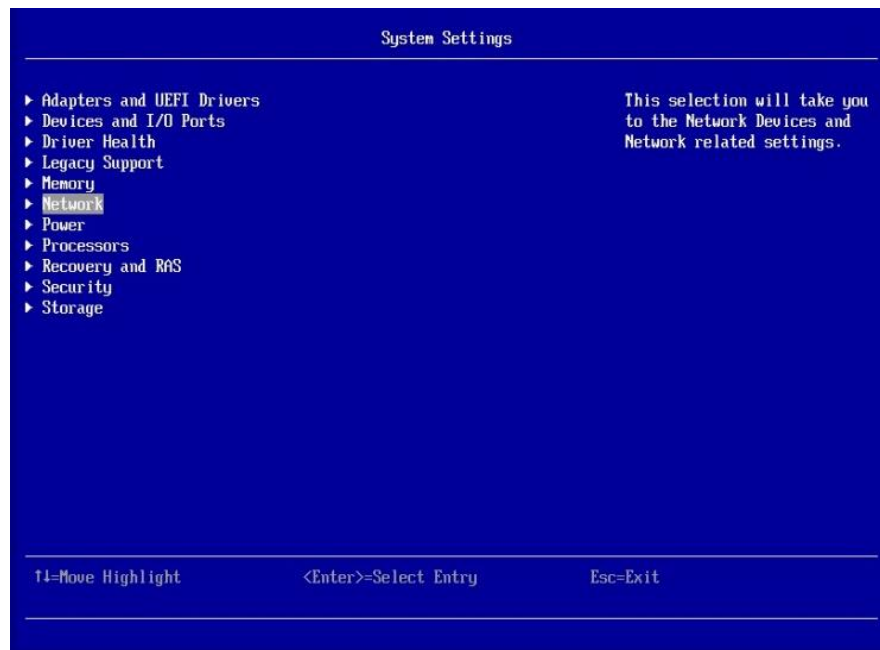


- If configuring SR-IOV, SR-IOV function have to be configured to all ports of the controller.
- The personality of a port whose SR-IOV function is enabled supports NIC only.

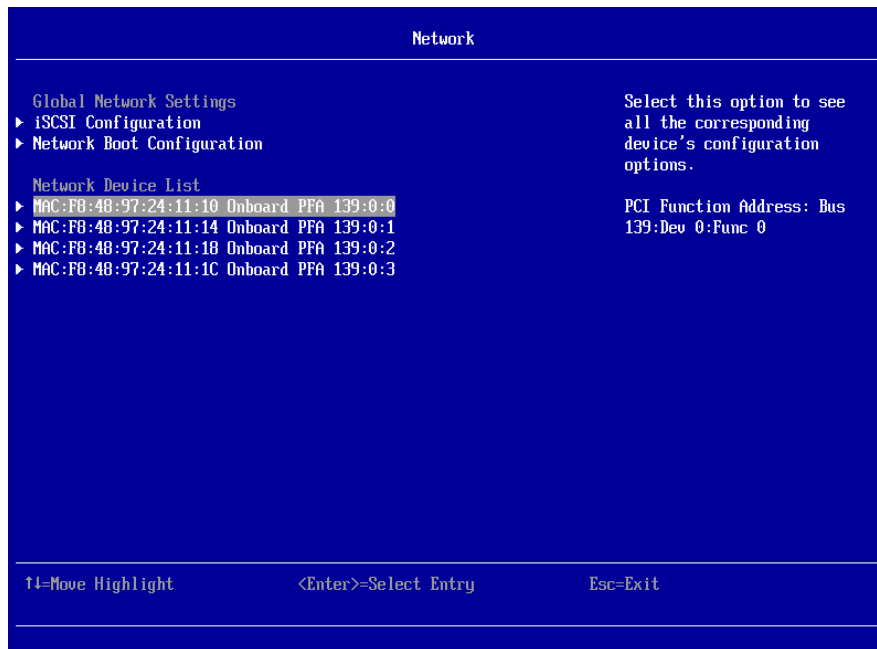
1. Turn on the remote console, then click Power - Power On in tool bar of the remote console to turn on the system. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



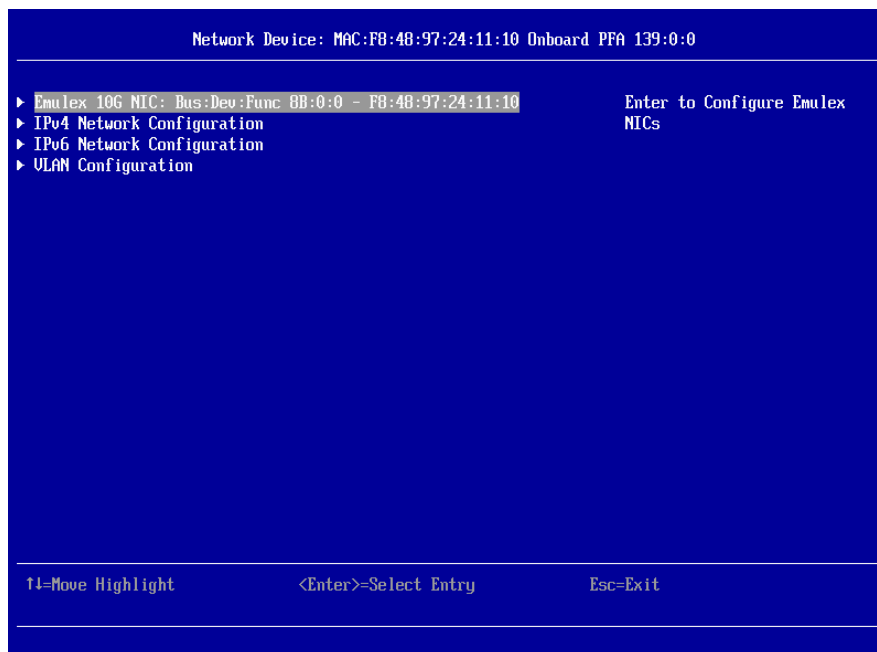
2. **System Configuration and Boot Management** screen opens. Then select **System Settings - Network**.



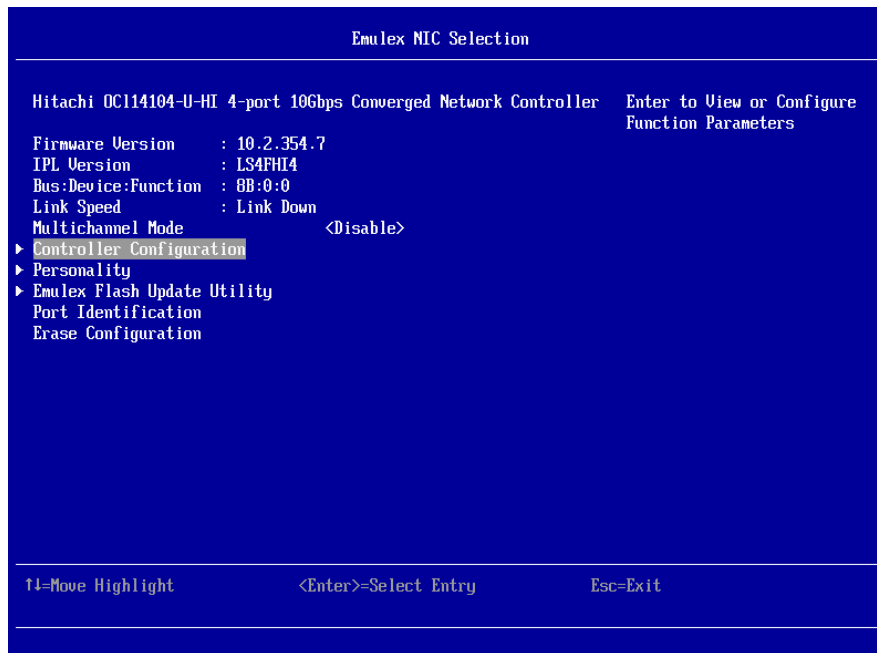
3. Select the port to be configured.



4. Enter to Configure Emulex NICs.



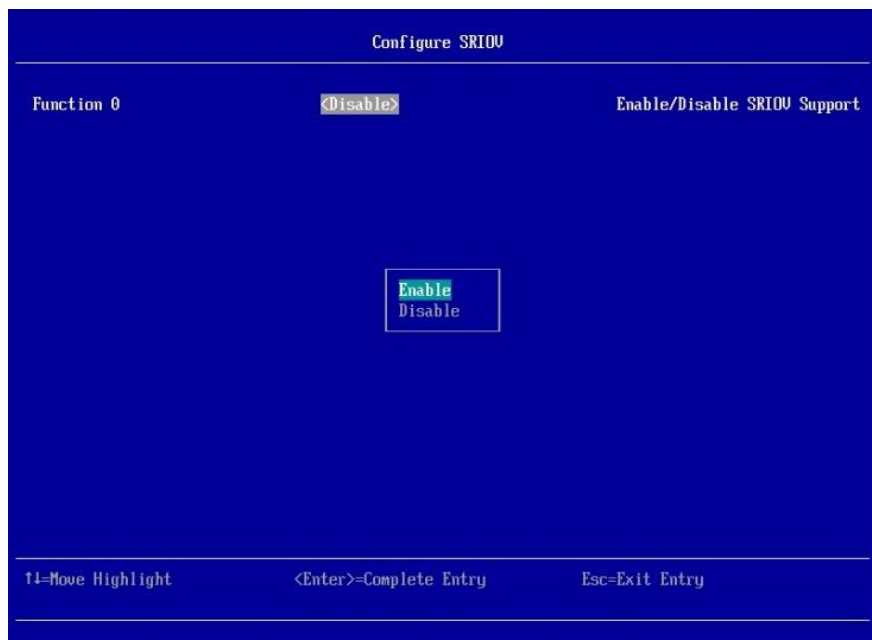
5. Select **Controller Configuration** and press [Enter] key.



6. Select **Configure SRIOV** and press [Enter] key.



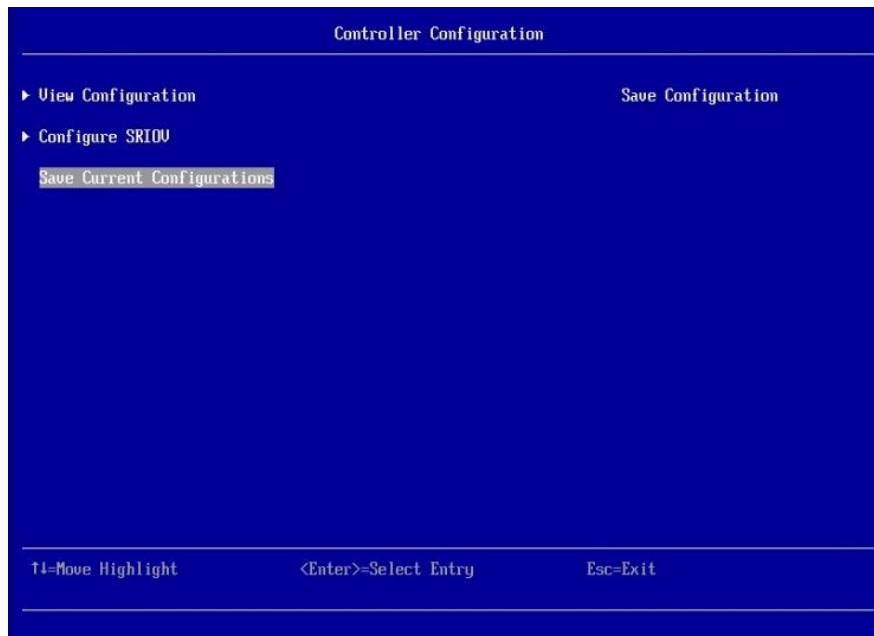
7. Select **<Disable>** and press [Enter] key, and then select **Enable**.



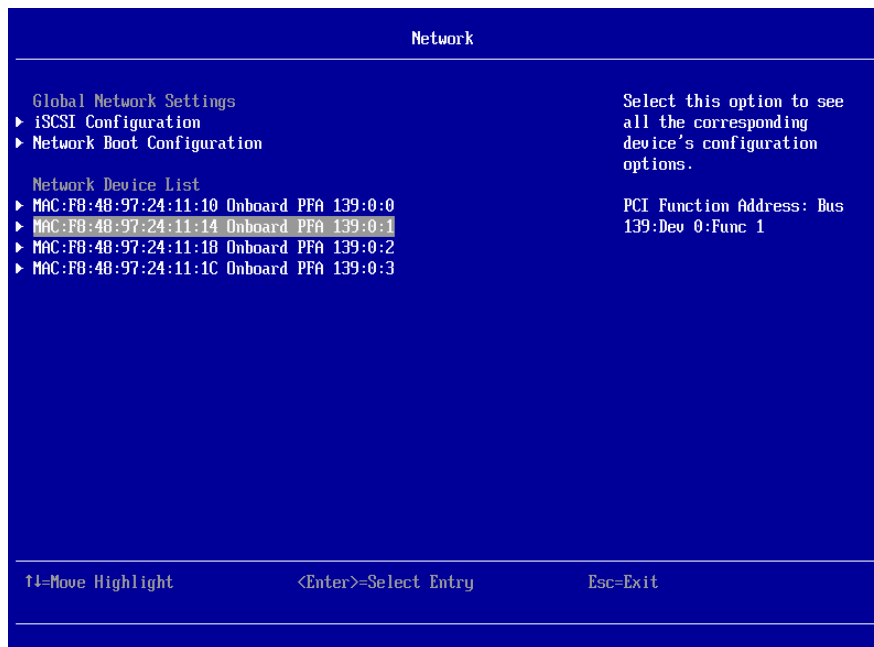
8. The value of Function 0 changes to **<Enable>**. Press [Esc] key to return to **Controller Configuration** screen.



9. Select **Save Current Configuration** and press [Enter] key.



10. Press [Esc] key 3 times to return to **Network** screen. Configure all other ports that belong to a controller shown in **Network Device List** by the same procedure (from step 3 to step 9).



- When setting SR-IOV function to be enabled, all ports that belong to a controller have to be set enabled.
- The personality of the ports have to be NIC to set SR-IOV function to be enabled. The personality of iSCSI and FCoE are not supported for the SR-IOV function.

11. Press <ESC> key to return to "System Configuration and Boot Management" screen. Select **Save Settings**.



12. Select **Exit Setup**. The message "Do you want to exit Setup Utility?" is displayed, then press **Y** key. And the message "Settings have been changed, and a reboot is required to apply the settings" is displayed, then press **Enter**.

4.3 Procedure of configuration for CNA expansion card / LAN expansion card / CNA board (UEFI on CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4)

4.3.1 PXE configuration (UEFI)

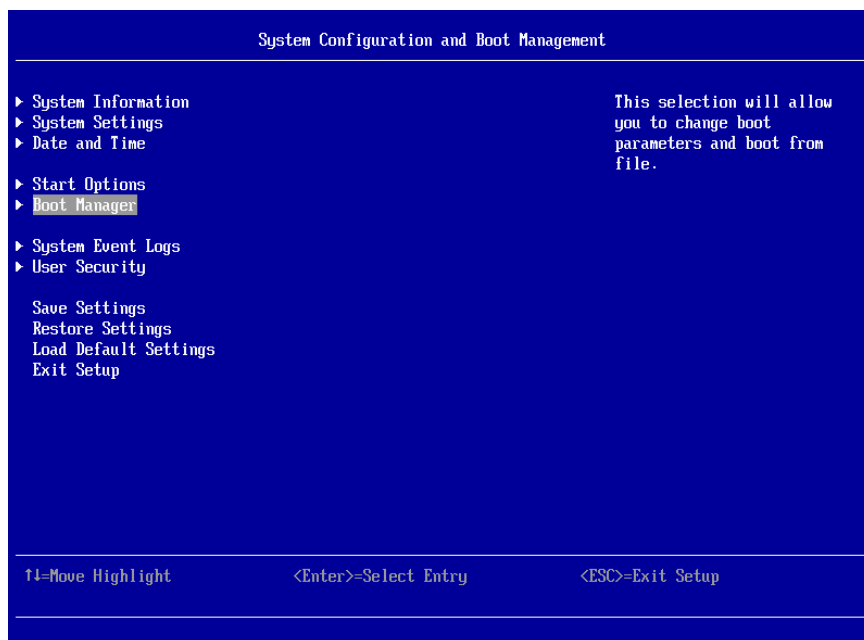
The PXE boot function is supported by CNA expansion card, LAN expansion card and CNA board.

(1) Enabling the PXE function

1. Turn on the remote console, then click **Power - Power On** in tool bar of the remote console to turn on the system.
2. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



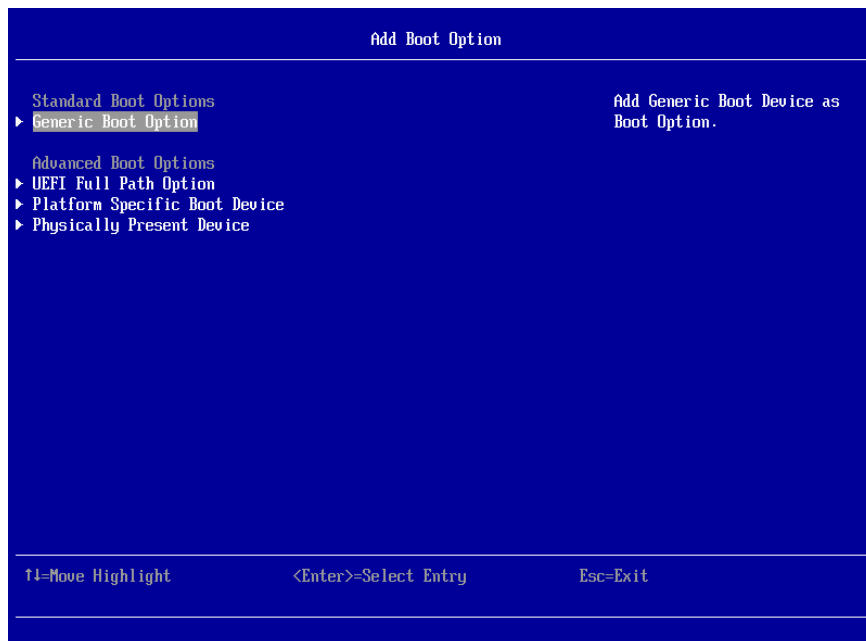
3. Select **Boot Manager** in **System Configuration and Boot Management** screen.



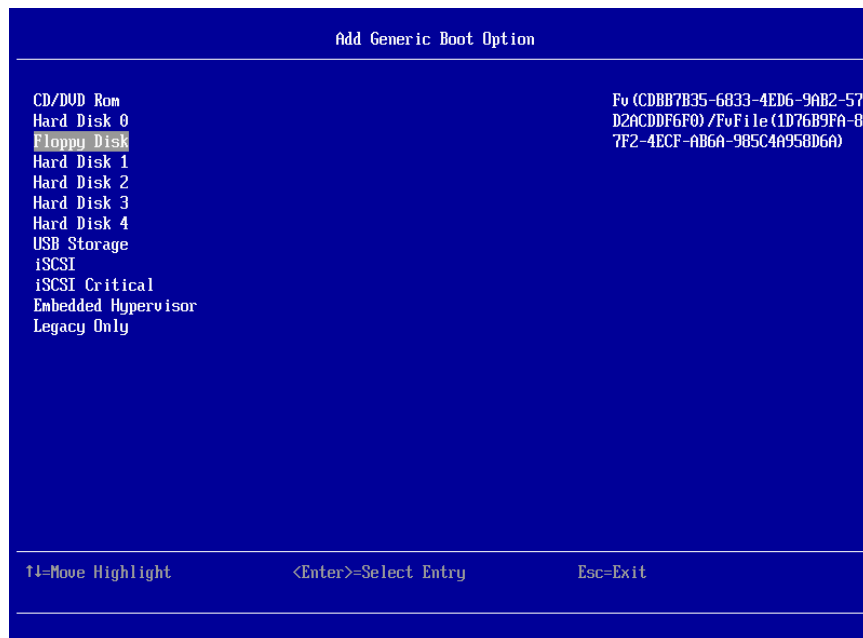
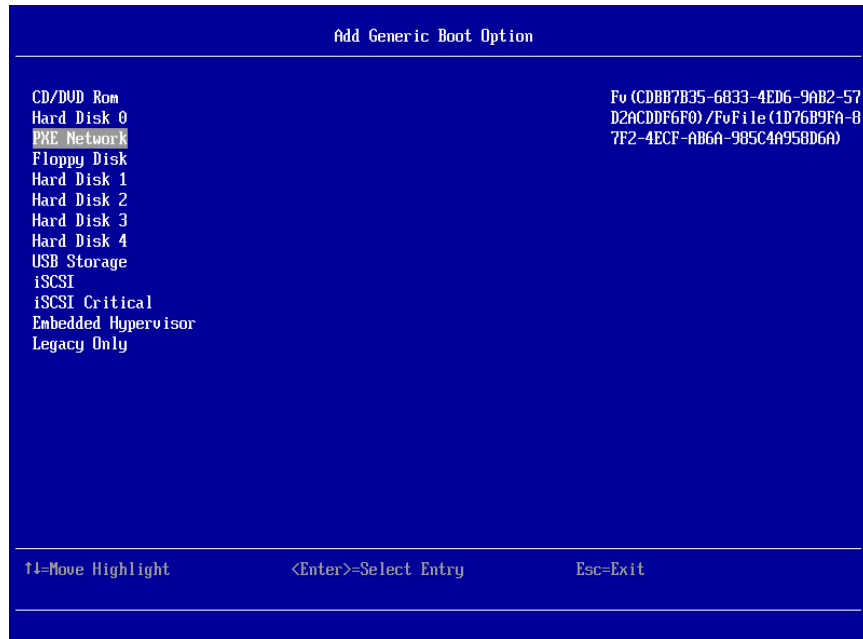
4. Select **Add Boot Option** in **Boot Manager** screen.



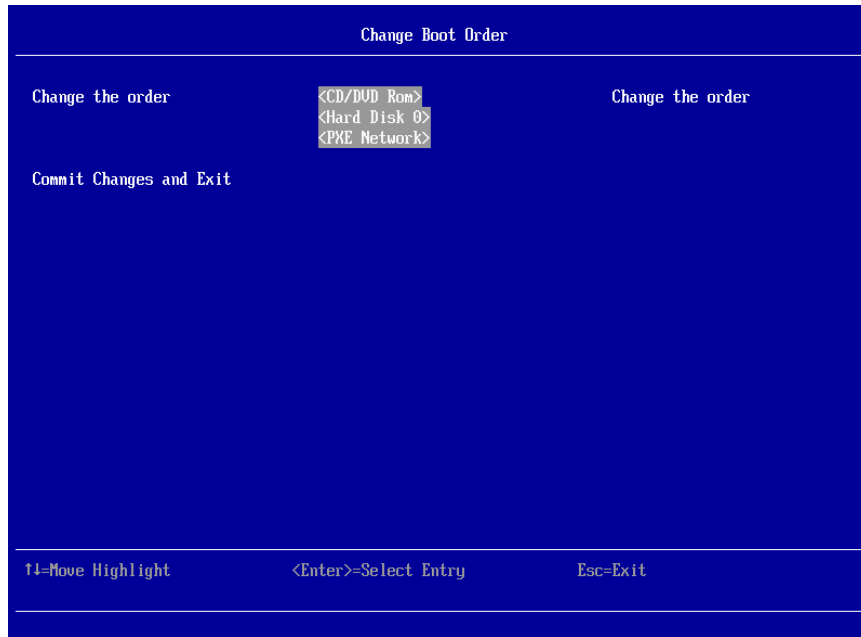
5. Select **Generic Boot Option** in **Add Boot Option** screen.



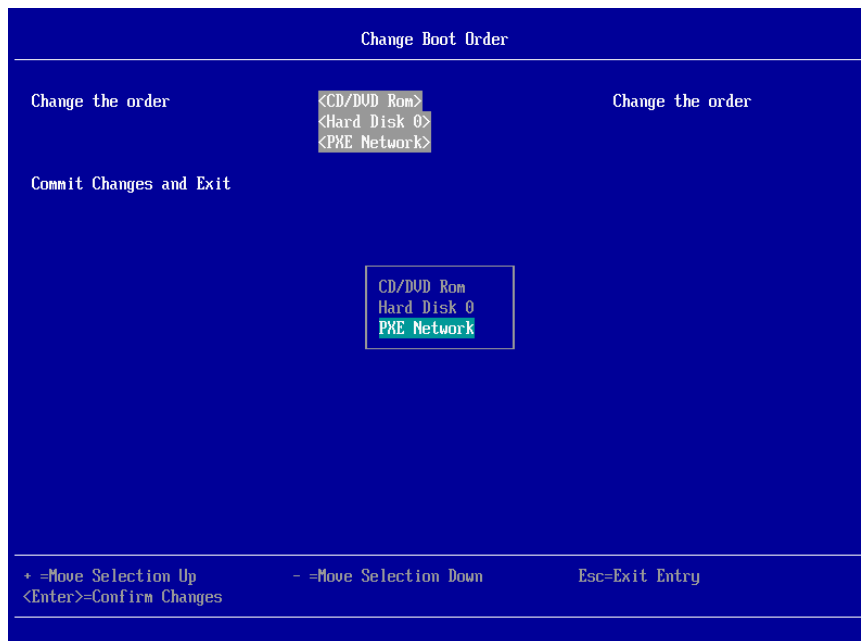
6. Select **PXE Network** in **Add Generic Boot Option** screen and press <Enter>. And **PXE Network** disappears from the screen.



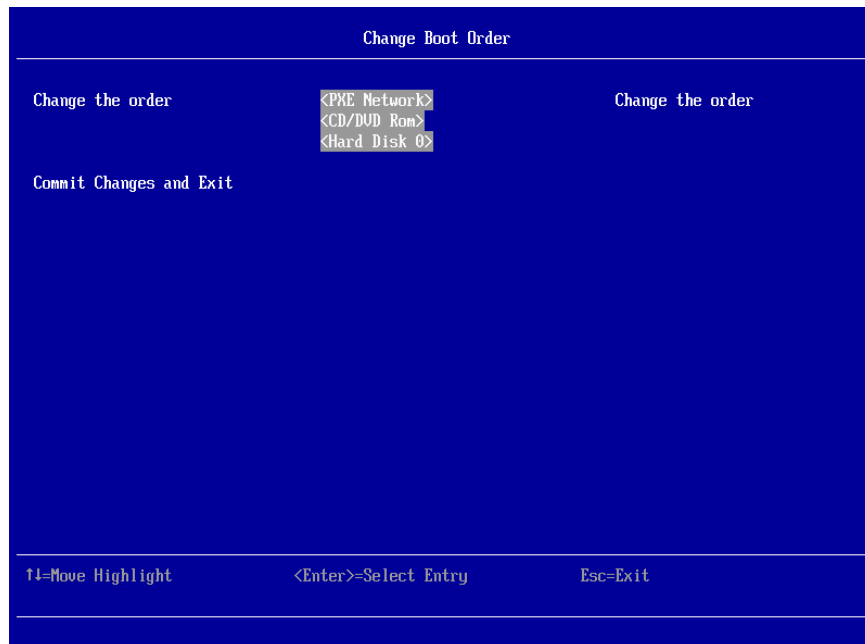
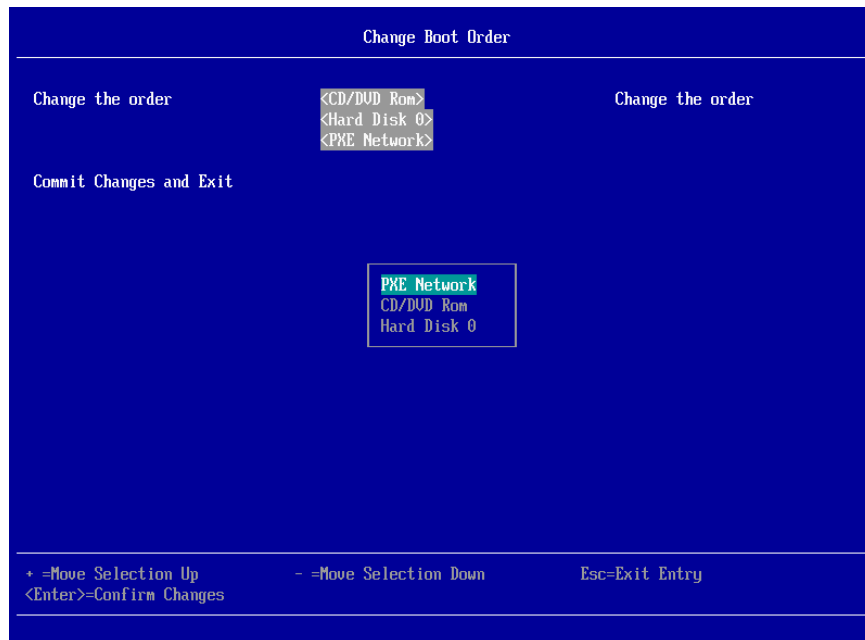
7. Return to **Boot Manager** screen with ESC key. Select **Change Boot Order**.



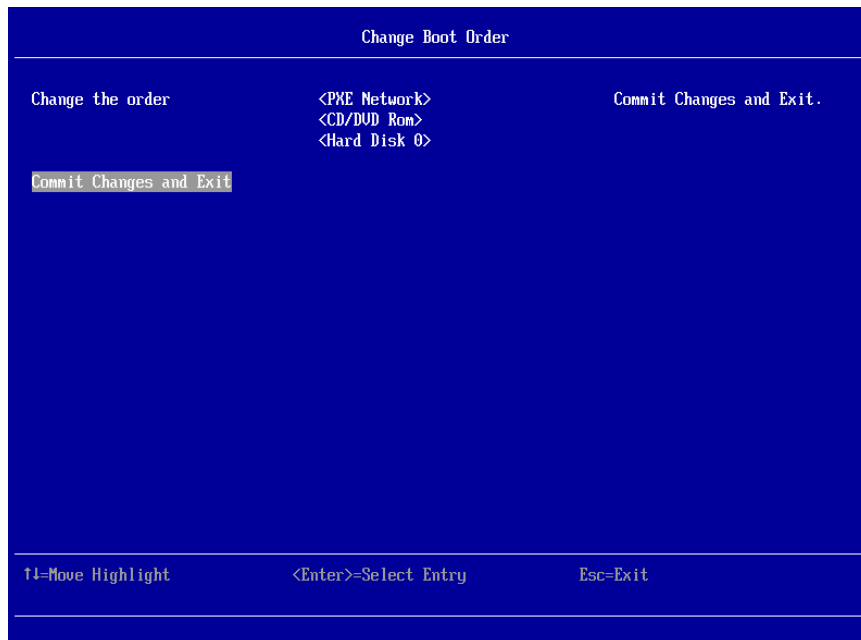
8. Press <Enter> key and select **PXE Network** with arrow keys.



9. Move **PXE Network** to the top of the list with **+** key and press **<Enter>**.



10. Select **Commit Changes and Exit**.



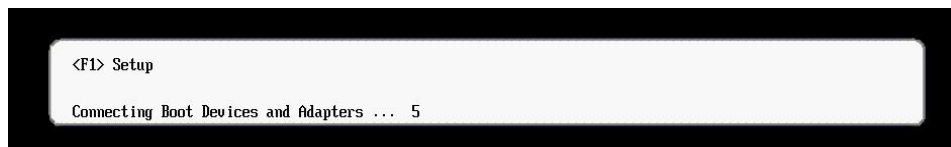
11. Return to **System Configuration and Boot Management** screen with ESC key.

12. Select **Save Settings**.

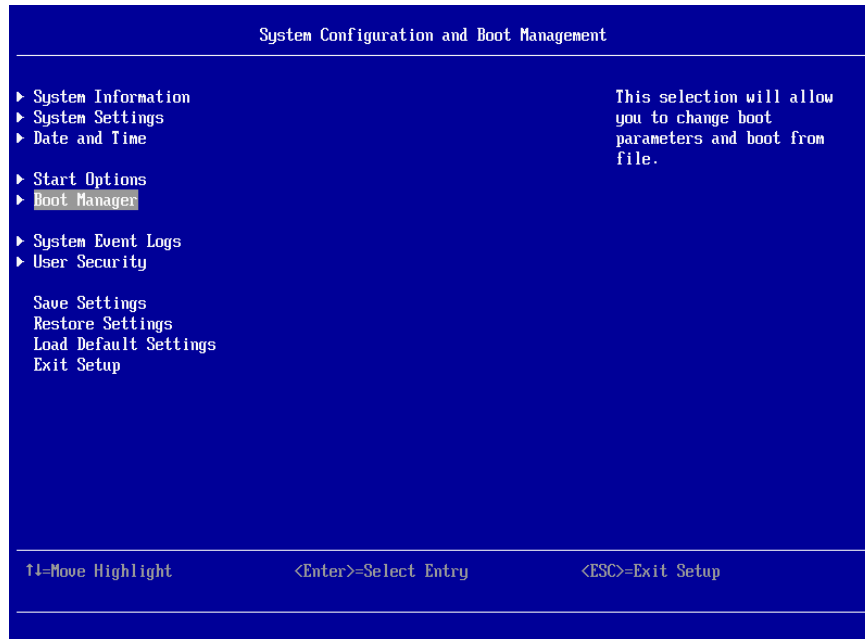
13. Select **Exit Setup**.

(2) Disabling the PXE function

1. Turn on the remote console, then click **Power - Power On** in tool bar of the remote console to turn on the system.
2. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



3. Select **Boot Manaer** in **System Configuration and Boot Managemet** screen.



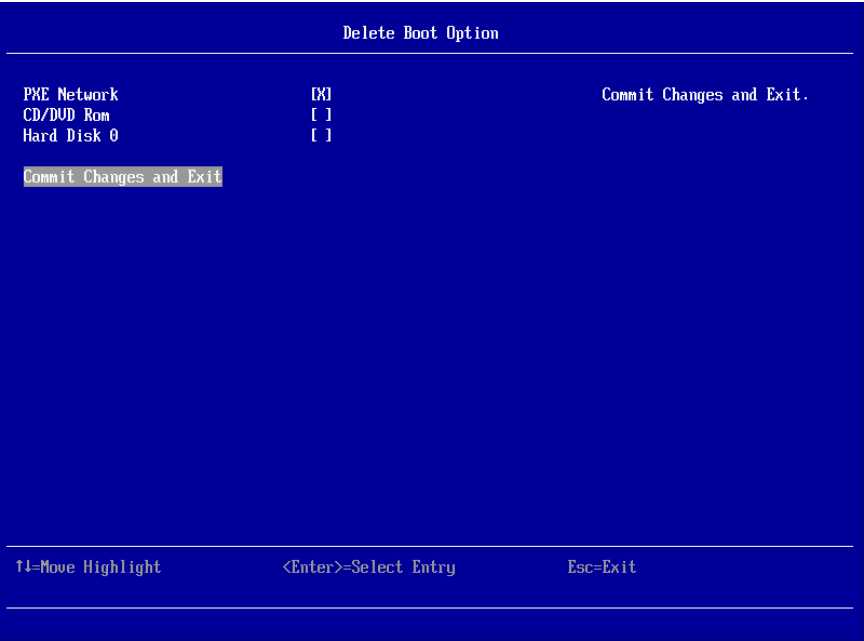
4. Select **Delete Boot Option**.



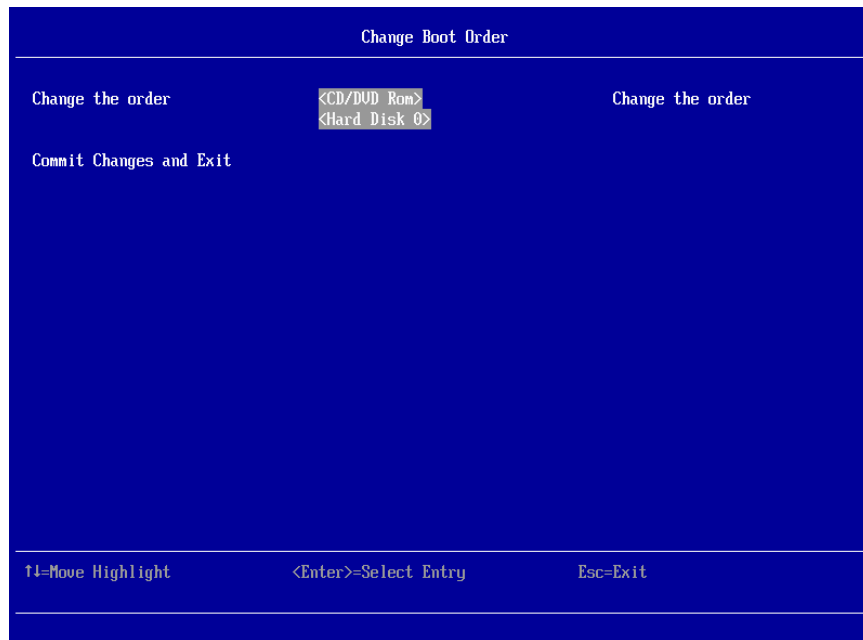
5. Select **PXE Network** with space key.



6. Select **Commit Changes and Exit**.



7. Confirm that **PXE Network** is deleted in the order list.



8. Select **Commit Changes and Exit**.

9. Return to **System Configuration and Boot Management** screen with ESC key.

10. Select **Save Settings**.

11. Select **Exit Setup**.

4.3.2 Personality configuration (UEFI)

CNA adapters can be used as NIC only or NIC+Storage(iSCSI or FCoE) adapter by changing the personality.



See the section "4.3.3 Multichannel Configuration" for personality configuration on enabled Multichannel Mode

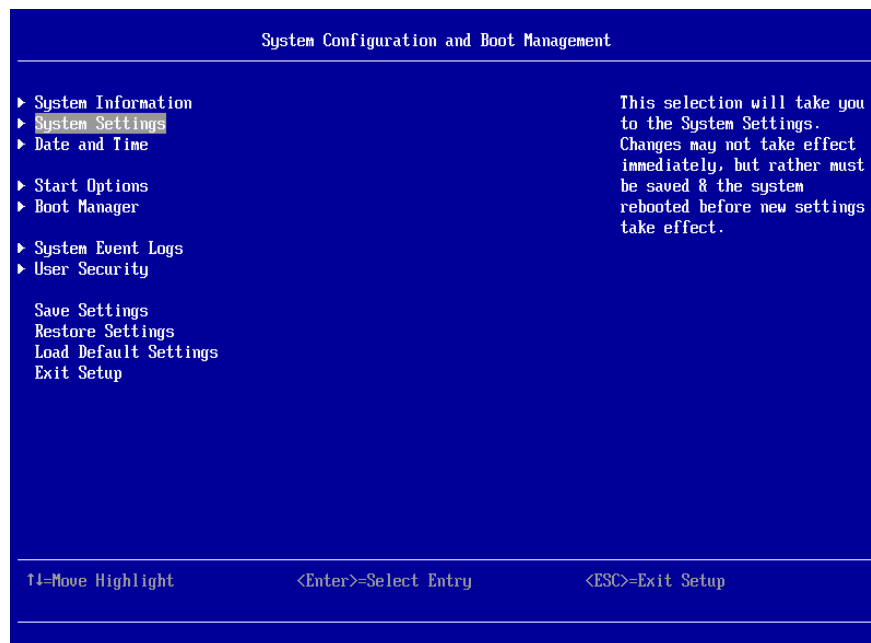


Examples of screen in this chapter are based on FW10.2.*.*. Following procedures are common among supported firmware versions.

1. Turn on the remote console, then click **Power - Power On** in tool bar of the remote console to turn on the system.
2. When the following screen appears during the startup of the system, press <F1> key before **Connecting Boot Devices and Adapters ...** counter expires.



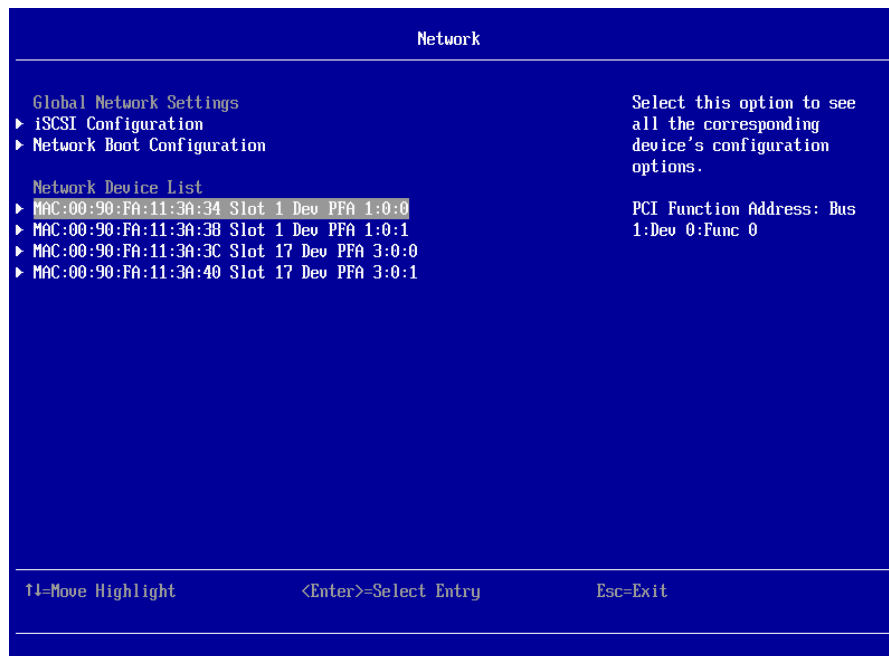
3. **System Configuration and Boot Management** screen opens, and select **System Settings** and press **Enter**.



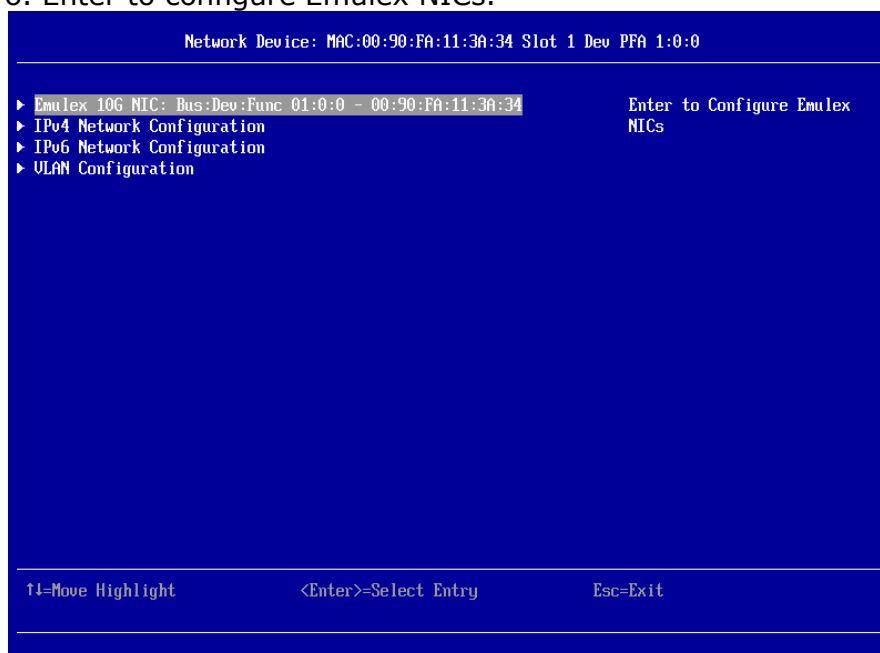
4. In **System Setting** screen, Select **Network** and press **Enter** key.



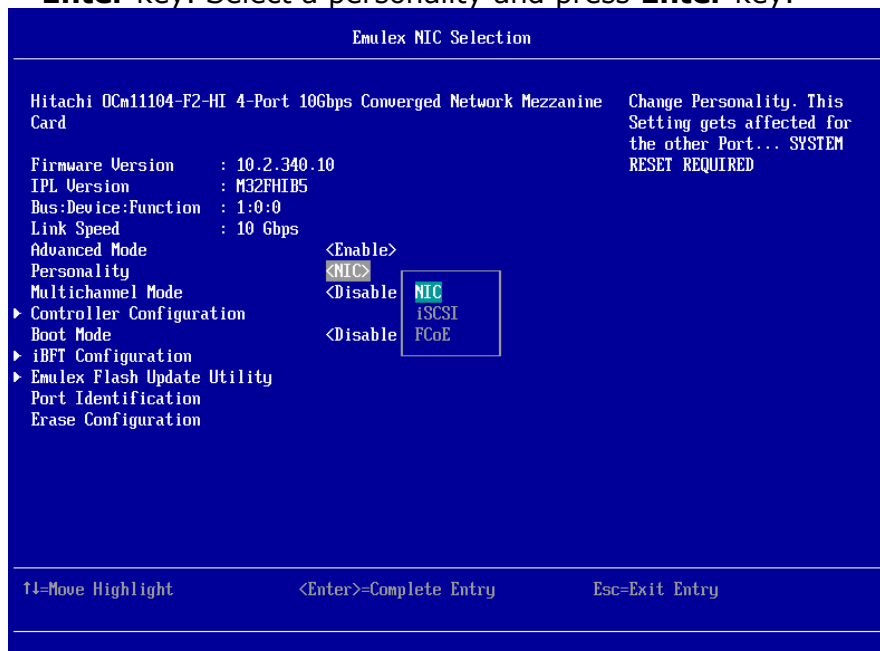
5. Select the network device in **Network Device List** area in **Network** screen, and press **Enter** key.



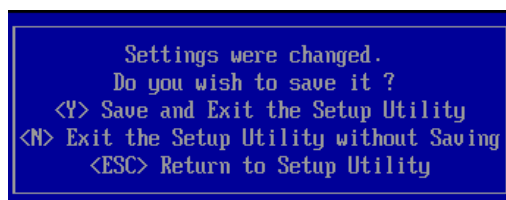
6. Enter to configure Emulex NICs.



7. Select **Personality** value in **Emulex NIC Selection** screen, and press **Enter** key. Select a personality and press **Enter** key.



8. Press **Esc** key 4 times, select **Exit Setup** in **System Configuration and Boot Management** screen of step 3. When the following is displayed, press **Y** key. The system reboots.



4.3.3 MultiChannel configuration (UEFI)

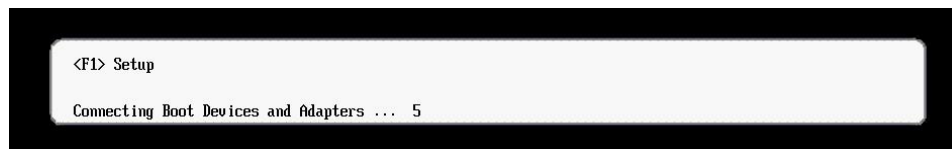
This section describes multichannel function of CNA controller (BE3), and how to configure it. multichannel function provides port partitioning and traffic management capabilities to optimize bandwidth allocation.



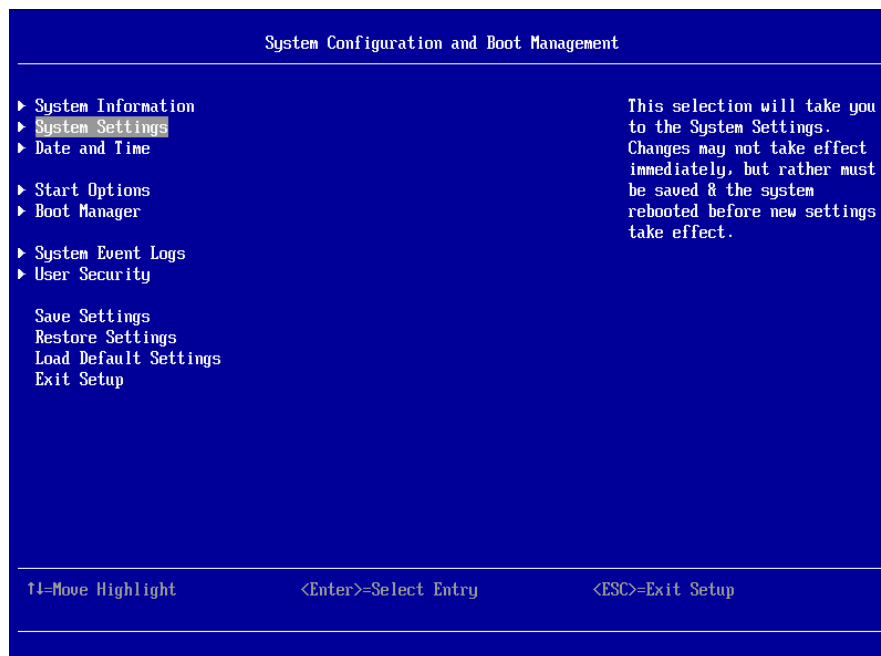
Examples of screen in this chapter are based on FW10.2.*.*. Following procedures are common among supported firmware versions.

(1) Enabling the multichannel function (UEFI)

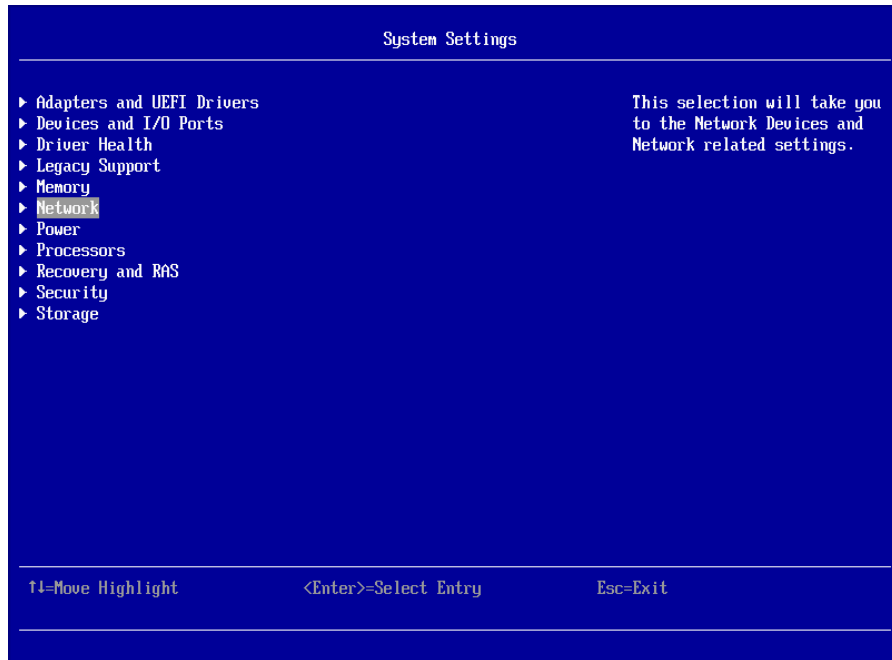
1. Turn on the remote console, then click **Power - Power On** in tool bar of the remote console to turn on the system.
2. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



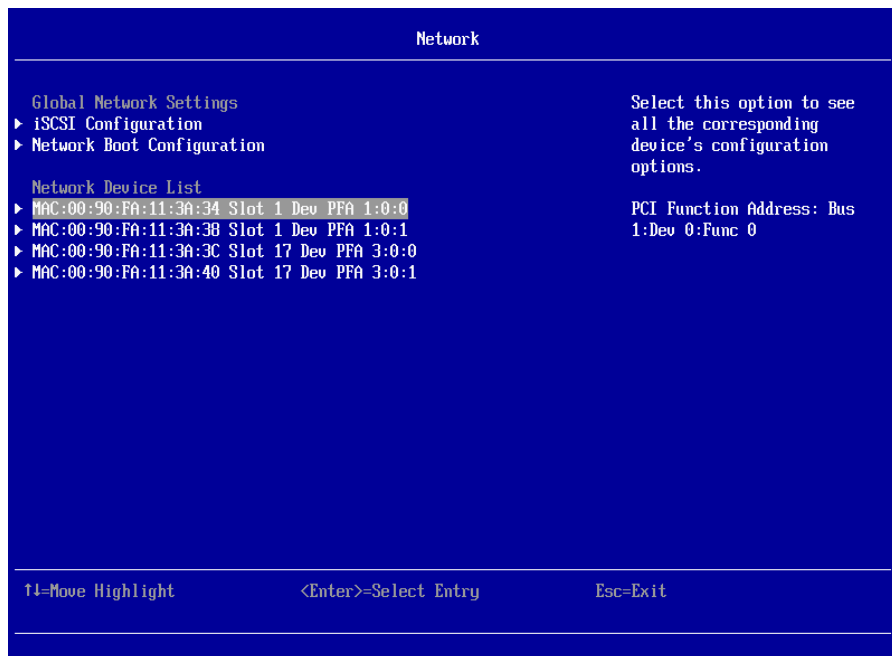
3. **System Configuration and Boot Management** opens, and select **System Settings** and press **Enter**.



4. In **System Setting** screen, move the cursor to **Network** and press **Enter** key.

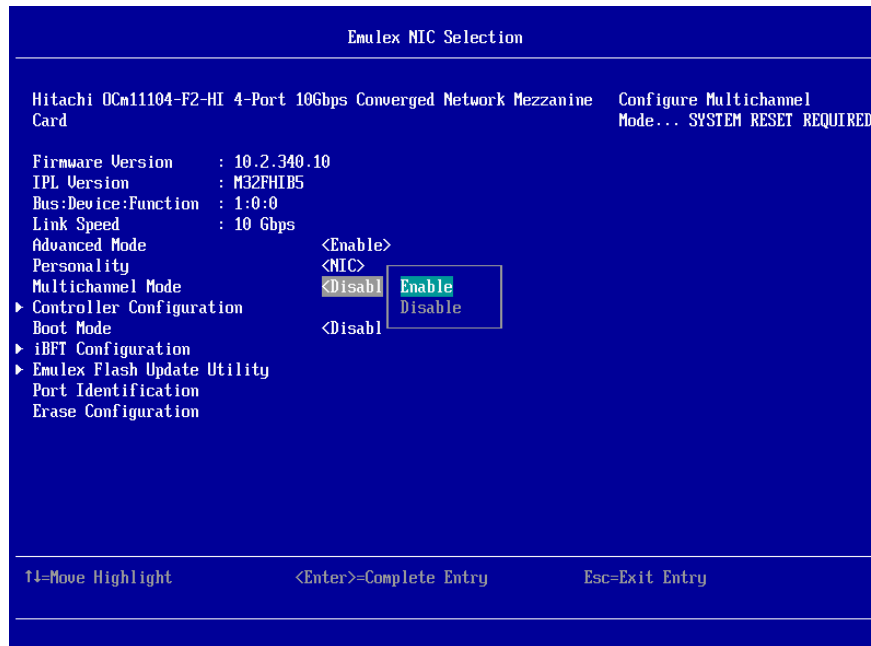


5. Select the network device in **Network Device List** area in **Network** screen, and press **Enter** key.



- **Network Boot Configuration** function is not supported.
- **iSCSI Configuration** function is not supported.

6. Move the cursor to **Multichannel Mode** in **Emulex NIC Selection** screen, press **Enter** key. Select **Enable** and press **Enter** key. move cursor to **Controller Configuration**, press **Enter** key.

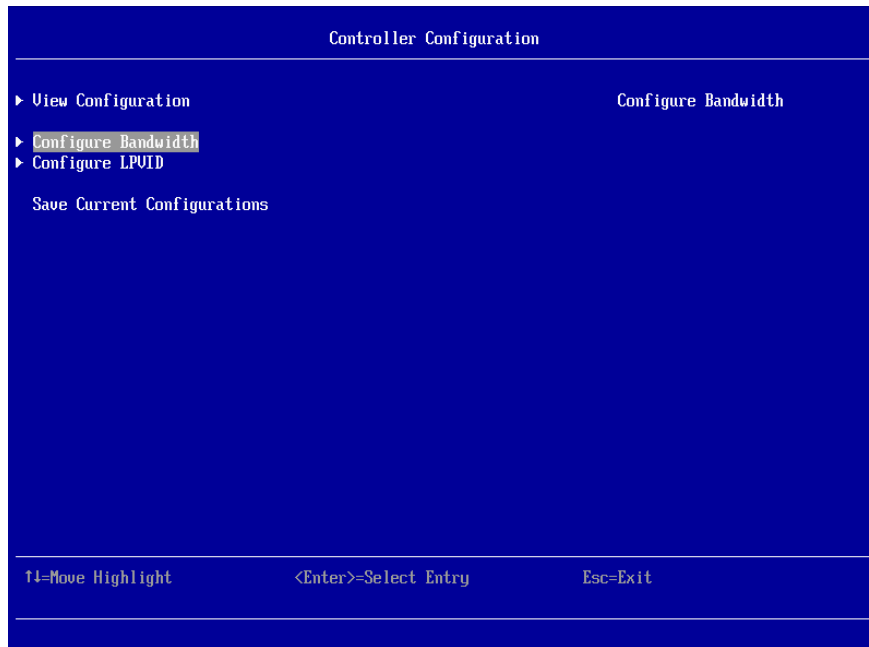


In the following cases, set "Enabled" to [Advanced Mode]. Otherwise, set "Disabled".

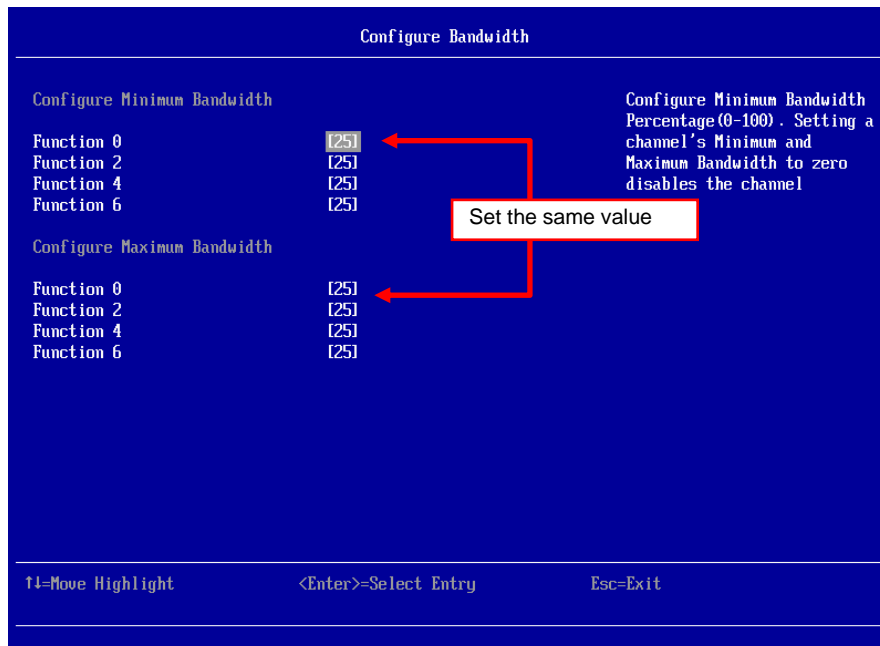
- using SR-IOV function in Hyper-V environment.
- bare metal environment with CNA FW version 10.6 or higher (recommend).
- using on LPAR manager with CNA FW version 10.6 or higher

Emulex Flash Update Utility function is not supported.

7. Move the cursor to **Configure Bandwidth** in **Controller Configuration** screen, and press **Enter** key.



8. Move the cursor to **Function#** value in **Configure Bandwidth** screen, press **Enter** key. The sum of each Function# value must be 100. Set the same value to Function# of **Minimum Bandwidth** and Function# of **Maximum Bandwidth**.



9. Move the cursor to **Configure LPVID** in **Controller Configuration** screen, press **Enter** key. Input LPVID. LPVID values must be unique and must be set as 2-4094 even if the bandwidth is 0%. If Type is **iSCSI** or **FCoE**, it is not necessary to input the LPVID value.

Configure LPVID

Function 0	0	Configure Logical Port VLAN ID (2-4094)
Function 2	0	
Function 4	0	
Function 6	0	

↑=Move Highlight <Enter>=Select Entry Esc=Exit

10. If the following message is displayed, check the configuration.

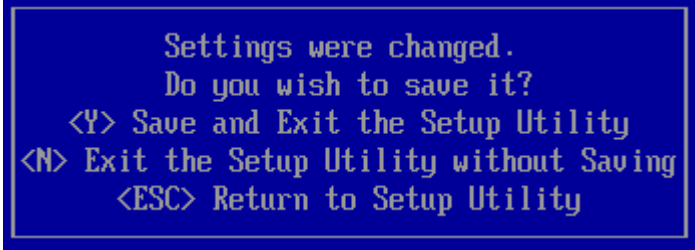
- LPVID already in use. Enter a new value
- Logical Port VLAN ID must be set to a valid value

11. Press **Esc** key, and move the cursor to **Save Current Configuration** in **Controller Current Configuration** screen of step 7, press **Enter** key.

If the error message is displayed, check the configured value and save again. The error message can be disappeared by pressing any key.

- If the sum of Bandwidth of Func#'s is not 100%, the error message is displayed.
- If the LPVID is not set or is multiple, the error message is displayed.
- If the LPVID is not in the range of 2-4094, the error message is displayed.

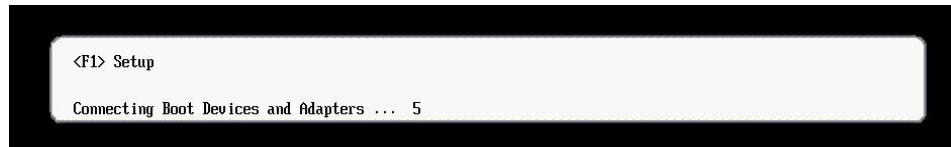
12. Press **Esc** key 4 times, select **Exit Setup** in **System Configuration and Boot Management** screen of step 3. When the following is displayed, press **Y** key. The system reboots. This procedure is complete.



```
Settings were changed.  
Do you wish to save it?  
<Y> Save and Exit the Setup Utility  
<N> Exit the Setup Utility without Saving  
<ESC> Return to Setup Utility
```

(2) Disabling the multichannel function (UEFI)

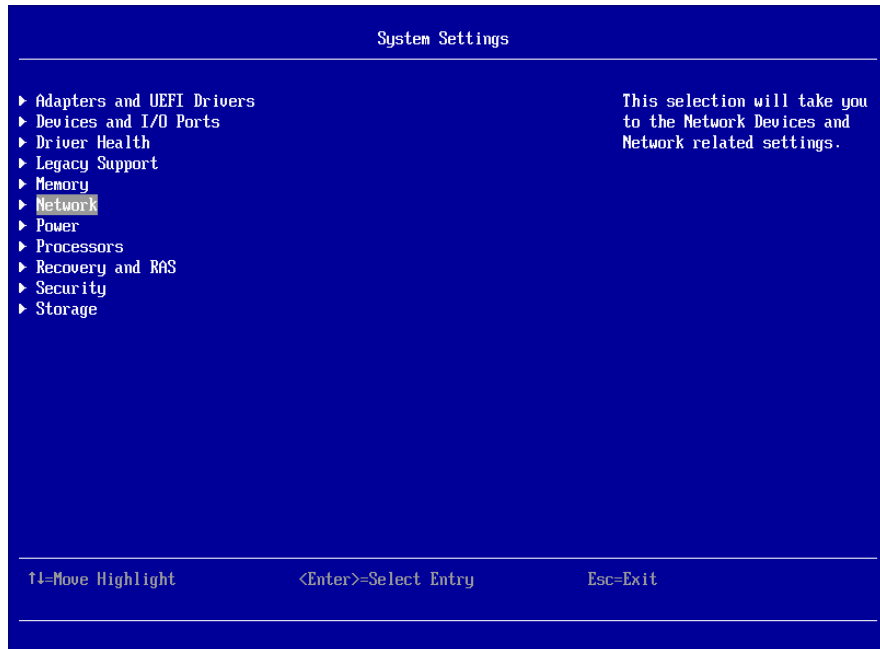
1. Turn on the remote console, then click **Power - Power On** in tool bar of the remote console to turn on the system.
2. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



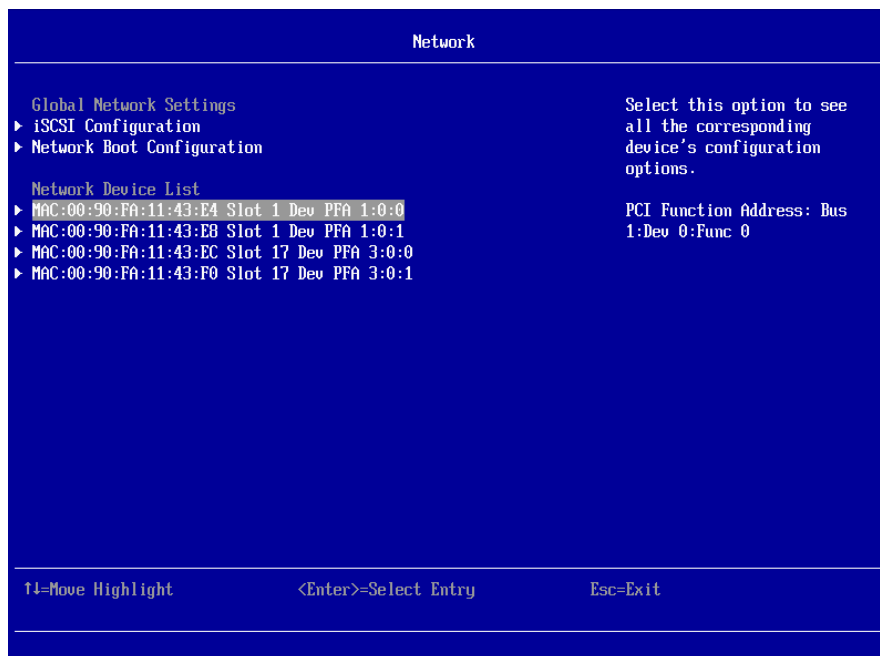
3. **System Configuration and Boot Management** screen opens, and select **System Settings** and press **Enter** key.



4. In **System Setting** screen, move the cursor to **Network** and press **Enter** key.



5. Select the network device in **Network Device List** area in **Network** screen, and press **Enter** key.

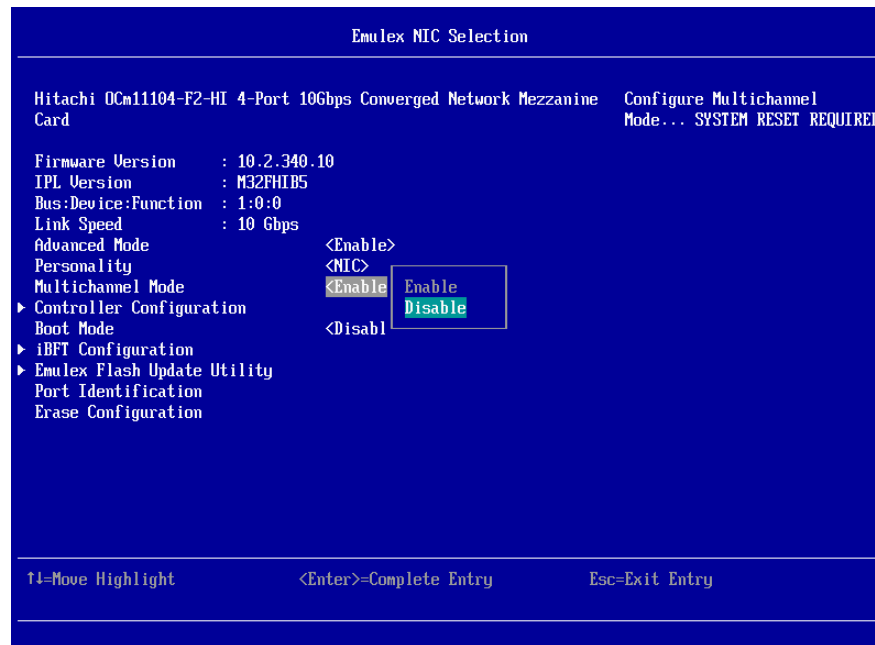


- **Network Boot Configuration** function is not supported.
- **iSCSI Configuration** function is not supported.



- **Network Boot Configuration** function is not supported.
- **iSCSI Configuration** function is not supported.

6. Move the cursor to **Multichannel Mode** in **Emulex NIC Selection** screen, press **Enter** key. Select **Disable** and press **Enter** key. move cursor to **Controller Configuration**, press **Enter** key.

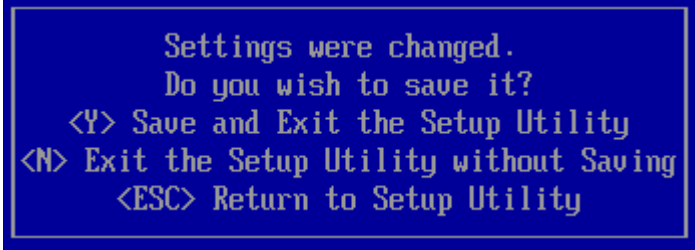


In the following cases, set "Enabled" to [Advanced Mode]. Otherwise, set "Disabled".

- using SR-IOV function in Hyper-V environment.
- bare metal environment with CNA FW version 10.6 or higher (recommend).
- using on LPAR manager with CNA FW version 10.6 or higher

Emulex Flash Update Utility function is not supported.

7. Press **Esc** key 4 times, select **Exit Setup** in **System Configuration and Boot Management** screen of step 3. When the following is displayed, press **Y** key. The system reboots. This procedure is complete.



```
Settings were changed.  
Do you wish to save it?  
<Y> Save and Exit the Setup Utility  
<N> Exit the Setup Utility without Saving  
<ESC> Return to Setup Utility
```

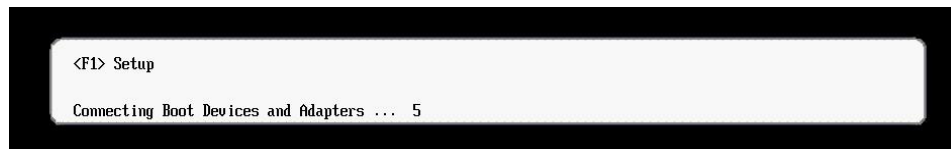
4.3.4 iSCSI configuration (UEFI)



- iSCSI is not supported on RHEL6.7 or later, RHEL7.1 or later, Windows Server 2016 or later, VMware6.0 U3 or later and VMware6.5 or later.

(1) iSCSI initiator configuration

1. Set the personality of the port as iSCSI by the procedure in the section 4.3.1 Personality configuration (UEFI).
2. Turn on the remote console, then click **Power - Power On** in tool bar of the remote console to turn on the system. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



3. **System Configuration and Boot Management** opens, and select **System Settings** and press **Enter**.



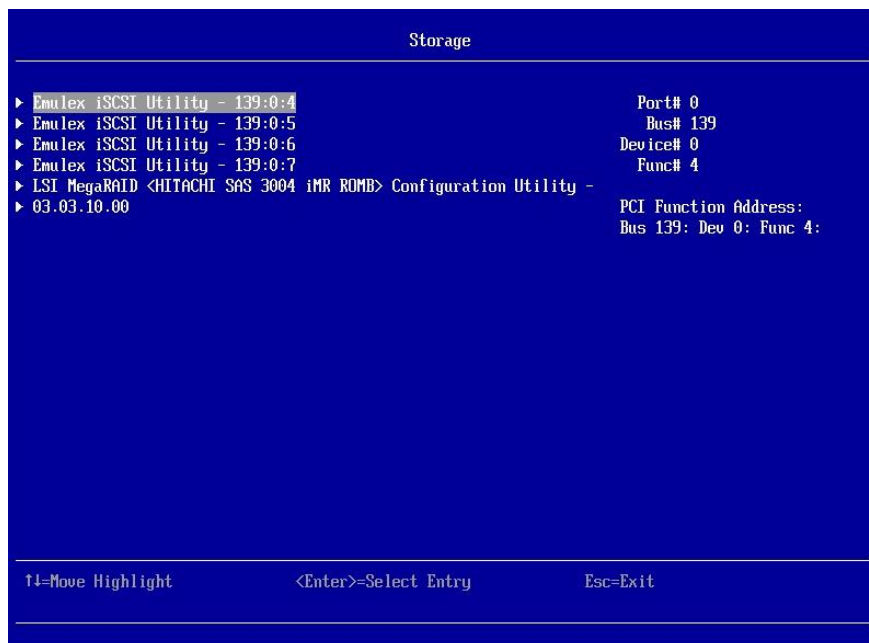
4. Move the cursor to **Storage** in **System Settings** screen, press **Enter** key.



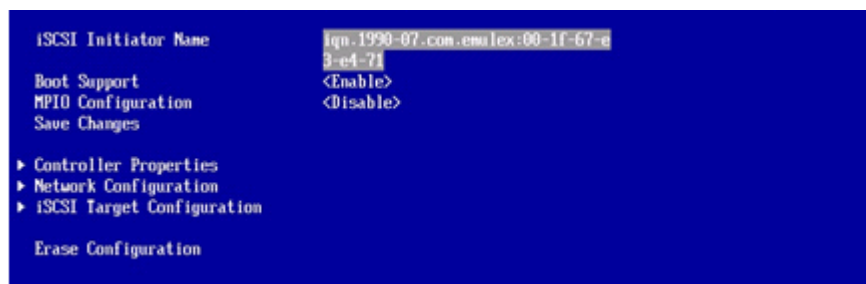
In the case that there are multiple iSCSI ports, all of the ports are displayed in this menu.

The PCI ID's (Bus#, Dev#) of each controller changes depending on the I/O device installed in the system. Confirm the I/O device installed in the system before the selection.

5. Select a port to be configured.



6. Move the cursor to **iSCSI Initiator Name** in **Controller Configuration Menu** screen. Press **Enter** key to input iSCSI Initiator name.



The initial value of **iSCSI Initiator Name** is **iqn.1990-07.com.emulex:xx-xx-xx-xx-xx-xx**.
(xx-xx-xx-xx-xx-xx is MAC address.)

7. Move the cursor to **Boot Support**, if the port is used for boot, press **Enter** key and select **Enable** or if the port is used for data device, select **Disable**.

```
iSCSI Initiator Name      iqn.1990-07.com.emulex:00-1f-67-e
                          3-e4-71
Boot Support              <Enable>
MPIO Configuration       <Disable>
Save Changes

▶ Controller Properties
▶ Network Configuration
▶ iSCSI Target Configuration

Erase Configuration
```

8. Move the cursor to **Save changes**, press **Enter** key to save the configuration.

9. Move the cursor to **Network Configuration**, press **Enter** key.

```
iSCSI Initiator Name      iqn.1990-07.com.emulex:00-1f-67-e
                          3-e4-71
Boot Support              <Enable>
MPIO Configuration       <Disable>
Save Changes

▶ Controller Properties
▶ Network Configuration
▶ iSCSI Target Configuration

Erase Configuration
```


10. Move the cursor to **Configure Static IP Address**, press **Enter** key.

Network Configuration		
MAC Address	00-1F-67-E3-E4-71	Configure IPV4 Address
Port Speed	10 Gbps	
Link Status	Link Up	
IP Version	<DUAL MODE>	
▶ Configure IPV4 Address		
▶ Configure IPV6 Address		
▶ Configure VLAN ID/Priority		
↑↓=Move Highlight <Enter>=Select Entry Esc=Exit		



- **Configure VLAN ID/Priority** is not supported.

11. Move the cursor to **Configure Static IPV4 Address**, press **Enter** key.

Configure IPV4 Address		
Initiator IP via DHCP	<Disable>	Configure Static IPV4 Address
Save DHCP Settings		
▶ Configure Static IPV4 Address		
▶ Ping		
↑↓=Move Highlight <Enter>=Select Entry Esc=Exit		

12. Input the value to **IP Address** and **Subnet Mask** . Then, select **Save Change** and press **Enter** key.

```
Configure Static IP Address

IP Address      192.168.0.198      Enter the IP Address
Subnet Mask     255.255.255.0
Default Gateway 0.0.0.0

Save Changes

↑↓=Move Highlight    <Enter>=Select Entry    Esc=Exit
```



- Do not configure **Default Gateway**.

(2) iSCSI target (Boot device) configuration

1. Select **iSCSI Target Configuration** in **Controller Configuration Menu** screen, press **Enter** key.
2. Select **Add Target**, press **Enter** key.
3. Set the target information in **Add/Ping iSCSI Target** screen. Input the value to **iSCSI Target IP Address**, select **Save/Login**, press **Enter** key.



- The following functions are not supported.
ISID Qualifier, Header Digest, Data Digest, Authentication Method



If the IP address of **iSCSI Target IP Address** does not exist or can not be accessed, the message **Loginto portal xxx.xxx.xxx.xxx:xxxx failed.** is displayed.

4. Select the target in **Discovered Targets**, press **Space** key to input the check mark **X**. After the input, select **Save Target**, press **Enter** key.
5. Select the target in **iSCSI Target Configuration** screen, press **Enter** key. Select **Boot Target** in **Edit/Ping Target** screen to change to **Yes** or **Primay**. After the input, select **Save/Login**, press **Enter** key.
6. Press **Esc** key 4 times, select **Exit Setup** in **System Configuration and Boot Management** screen. When the message **Settings were changed. Do you wish to save it ?** is displayed, press **Y** key. The system reboots. This procedure is complete.



If the boot OS is Windows Server 2012 R2 or 2012 or 2008 R2, and the iSCSI driver be2iscsi.sys version is 10.2.254.0, make sure to configure a setting to produce a page file to the internal HDD. If not, the memory dump cannot be collected. See Appendix, A.3 Memory dump settings for the procedure of the configuration.

(3) iSCSI target (Data device) configuration

1. Select **iSCSI Target Configuration** in **Controller Configuration Menu** screen, press **Enter** key.
2. Select **Add Target**, press **Enter** key.
3. Set the target information in **Add/Ping iSCSI Target** screen. Input the value to **iSCSI Target IP Address**, select **Save/Login**, press **Enter** key.



- The following functions are not supported.
ISID Qualifier, Header Digest, Data Digest, Authentication Method



If the IP address of **iSCSI Target IP Address** does not exist or can not be accessed, the message **Loginto portal xxx.xxx.xxx.xxx:xxxx failed.** is displayed.

4. Select the target in [**Discovered Targets**], press [**Space**] key. After the input, select [**Save/Login**], press [**Enter**] key.
5. Press **Esc** key 4 times, select **Exit Setup** in **System Configuration and Boot Management** screen. When the message **Settings were changed. Do you wish to save it ?** is displayed, press **Y** key. The system reboots. This procedure is complete.

(4) Disconnecting iSCSI Boot Device



Although the iSCSI configuration in Emulex iSCSISelect Utility is deleted, the configuration is enabled by the utility of "OneCommand Manger" settings. To disable the configuration, OneCommand Manager configuration must be disabled. See "Hitachi Compute Blade Emulex Adapter Use's Guide for Utility", chapter 3 - "Configuring by OCM" - "iSCSI Target Setting" - "(2) Disconnecting the iSCSI target".

1. At step 6 in "4.3.4 iSCSI configuration (UEFI)" - "(2) iSCSI target (Boot device) configuration", change the value of **Boot Target** from **Yes** or **Primary** to **No**.



- The following functions are not supported.
ISID Qualifier, Header Digest, Data Digest, Authentication Method



If **Boot Target** value is **Yes**, the iSCSI target can not be deleted, and the following message is displayed.

Operation Failed: An iSCSI target configured for boot cannot be deleted. If you wish to delete this target, please remove the boot attribute.

2. Move the cursor to **Delete Target**, press **Enter** key, and the iSCSI target is deleted. Then, reboot the system.

(5) Disconnecting iSCSI Data Device



Although the iSCSI configuration in Emulex iSCSISelect Utility is deleted, the configuration is enabled by the utility of "OneCommand Manger" settings. To disable the configuration, OneCommand Manager configuration must be disabled. See "Hitachi Compute Blade Emulex Adapter Use's Guide for Utility", chapter 3 - "Configuring by OCM" - "iSCSI Target Setting" - "(2) Disconnecting the iSCSI target".

1. At step 6 in "4.3.4 iSCSI configuration (UEFI)" - "(2) iSCSI target (Boot device) configuration", move cursor to **Delete Target**, press **Enter** key, and the iSCSI target is deleted. Then, reboot the system.



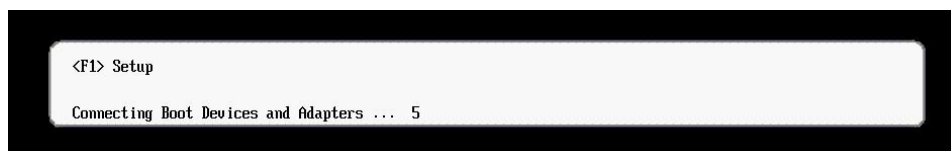
- The following functions are not supported.
ISID Qualifier, Header Digest, Data Digest, Authentication Method

4.3.5 FCoE configuration (UEFI)

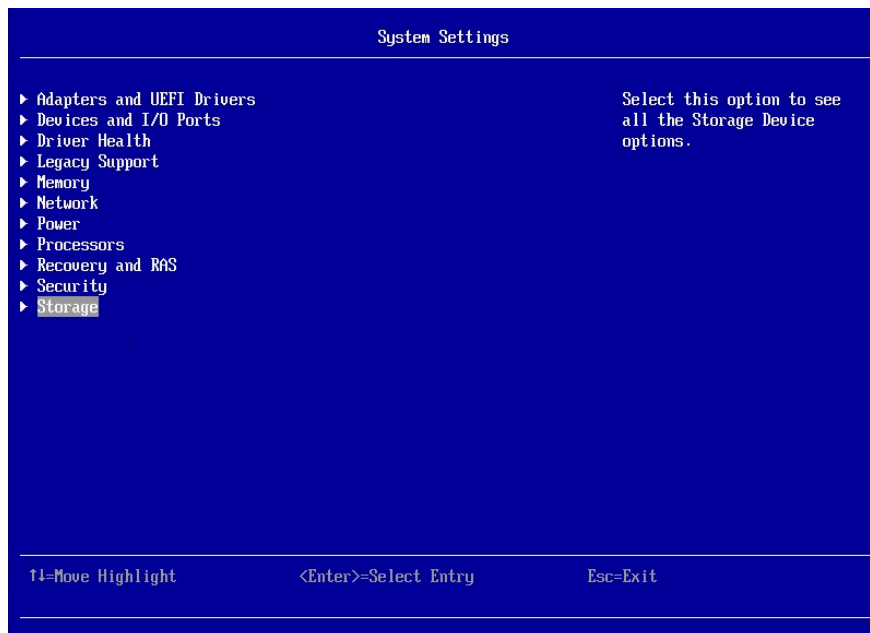


- FCoE is not supported on RHEL6.8 or later, RHEL7.3 or later, Windows Server 2016 or later, VMware6.0 U3 or later and VMware6.5 or later.

1. Set the personality of the port as FCoE by the procedure in the section 4.3.1 Personality configuration (UEFI).
2. Turn on the remote console, then click **Power - Power On** in tool bar of the remote console to turn on the system. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



3. **System Configuration and Boot Management** screen opens. Select **System Settings** and press **Enter**. Move the cursor to **Storage** in **System Settings** screen, press **Enter** key.



4. In **Storage** screen, Select **<Adapter name> Function X - FCoE** (X is a number.) which will be configured.

5. **<Adapter name> Function X - FCoE** (X is a number.) screen opens. Select a value of **Set Boot from SAN**, if the port will be used for boot, press **Enter** key and select **Enable**, if the port will be connected to a data device, select **Disable**.

```
Back to Display Adapters and RECONNECT DEVICES
Set Boot from SAN          <Disable>
Configure DCBX Mode        <CEE>
▶ CEE FCF Parameters
▶ Scan for Fibre Devices
▶ Add Boot Device          Disable
▶ Delete Boot Device        Enable
▶ Change Boot Device Order
▶ Configure HBA and Boot Parameters
▶ Set Emulex Adapter to Default Settings
▶ Display Adapter Info
```

6. Select **Add Boot Device**.

7. **SAN Discovery Target List** screen opens. Select **0001: XXXXXX** (XXXXXX is the storage device name.)

```
▶ Go to Configuration Main Menu
▶ 0001: HITACHI DF600F 0000
```

8. Select **LUN:0000 Mode: Peripheral dev** in **<Adapter name> Node Name : XXXXXXXXXXXXXXXXXX** (X is a number.) screen.

```
▶ Return to Previous Page
▶ LUN:0000 Mode: Peripheral dev
▶ LUN:0001 Mode: Peripheral dev
▶ LUN:0002 Mode: Peripheral dev
```

9. Select **Commit Changes** in **SAN Discovery Target List** screen.

```
▶ Commit Changes
▶ Discard Changes
```

10. Select **Return to Previous Page** in **<Adapter name> Node Name : XXXXXXXXXXXXXXXXXX** (X is a number.) screen. Check the WWN value that is the WWN of the storage device port

```
WWN: 50060E80 10339463
▶ Return to Previous Page
▶ LUN:0000 Mode: Peripheral dev
▶ LUN:0001 Mode: Peripheral dev
▶ LUN:0002 Mode: Peripheral dev
```

11. Select **Go to Configuration Main Menu** in **SAN Discovery Target List** screen.

```
▶ Go to Configuration Main Menu
0001: HITACHI DF600F 0000
```

12. Select **Change Boot Device Order** in **<Adapter name> Function X - FCoE** (X is a number.) screen.

```
Back to Display Adapters and RECONNECT DEVICES
Set Boot from SAN          <Enable>
Configure DCBK Mode        <CEE>
▶ CEE FCF Parameters
▶ Scan for Fibre Devices
▶ Add Boot Device
▶ Delete Boot Device
▶ Change Boot Device Order
▶ Configure HBA and Boot Parameters
▶ Set Emulex Adapter to Default Settings
▶ Display Adapter Info
```

13. Confirm that the WWN of the storage device is located at top of the list. The WWN is displayed in step 10.

```
▶ Discard Changes
▶ Commit Changes
  Boot Device Order
```

<01:	WWN:50060E80	10339463>
<02:	WWN:00000000	00000000>
<03:	WWN:00000000	00000000>
<04:	WWN:00000000	00000000>
<05:	WWN:00000000	00000000>
<06:	WWN:00000000	00000000>
<07:	WWN:00000000	00000000>
<08:	WWN:00000000	00000000>

4.3.6 SR-IOV configuration (Hyper-V Environment)

This section describes the procedure to configure the SR-IOV function in Hyper-V environment.

For CNA/LAN expansion card of CB520X B1, CB520X B2, CB520X B3, CB520H B3 or CB520H B4, SR-IOV (Single Root I/O Virtualization) function can be set on Windows Server 2012 R2 Hyper-V environment. For the guest OS, Windows Server 2012 or Windows Server 2012 R2 can be used.

To use SR-IOV function in Hyper-V environment, the NIC driver for SR-IOV has to be installed to the host OS and guest OS. For the NIC driver and CNA firmware, see "Hitachi Compute Blade Emulex Adapter User's Guide for Driver (MK-99COM103) (rev.14 or higher), 4.1 Driver Installation (Onboard CNA / CNA expansion card / LAN expansion card / CNA board)".



- When changing the SR-IOV configuration or installing the LAN driver, the virtual network switch made by Emulex CNA or LAN device has to be removed by Hyper-V manager. If the virtual network switch is not removed, the LAN driver may not be installed normally.
- The 1Gb LAN connection is forbidden when using the SR-IOV function. Before setting the SR-IOV function as "Enabled", the network switch has to be configured for 10Gb connection.
- SR-IOV is not supported on CNA firmware 11.1.*.* or later.

(1)UEFI configuration



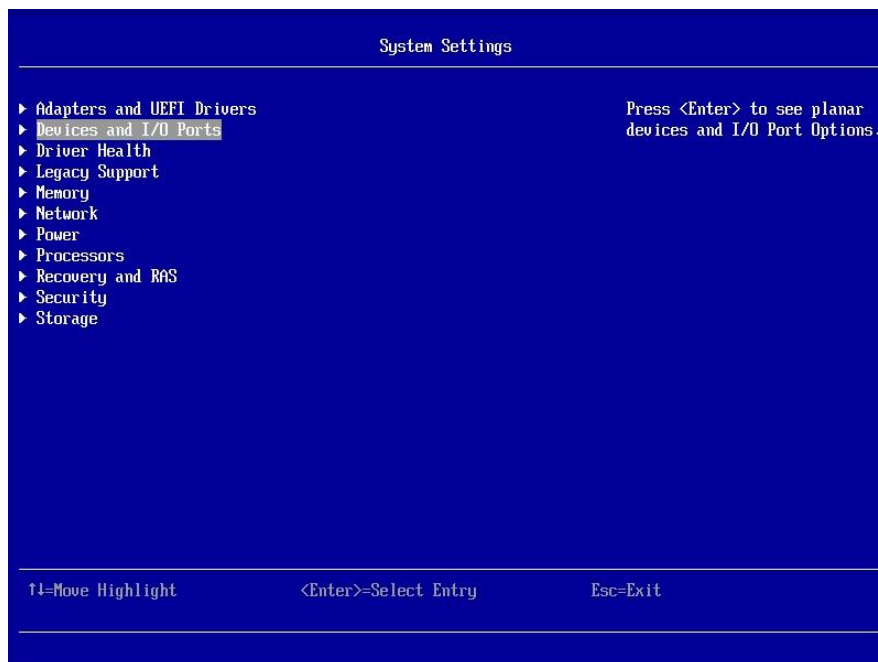
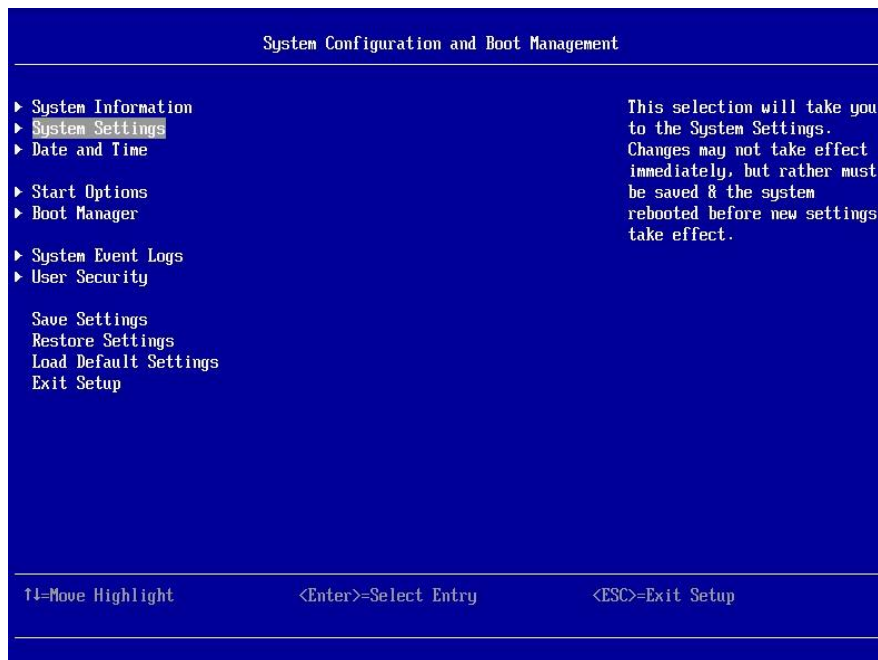
- If configuring SR-IOV, SR-IOV function have to be configured to all ports of the controller.
- The personality of a port whose SR-IOV function is enabled supports NIC only.
- When configuring SR-IOV, Multichannel mode has to be disabled.

Set **PCI Express Native Control** enabled by the following procedure..

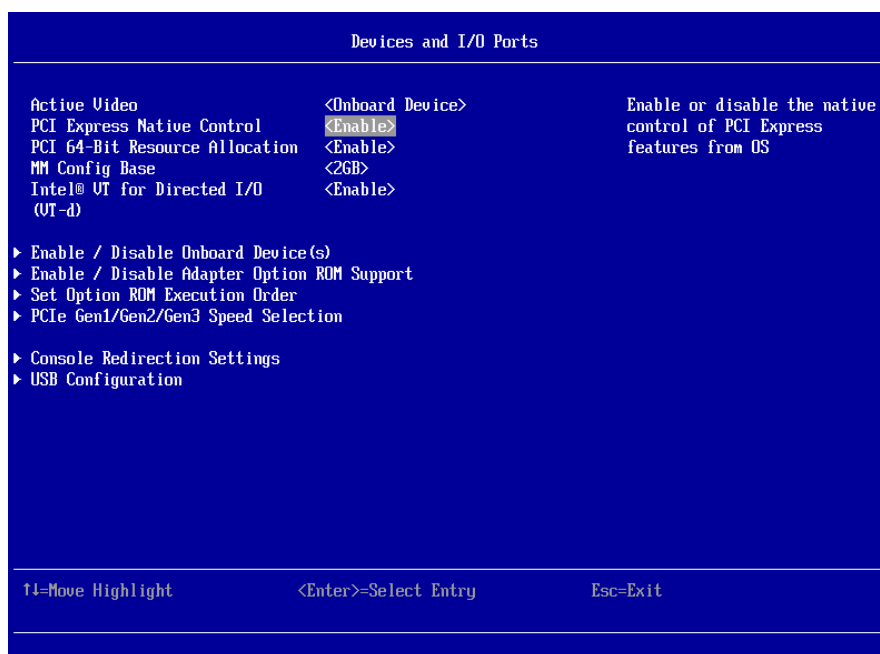
1. Turn on the remote console, then click Power - Power On in tool bar of the remote console to turn on the system. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



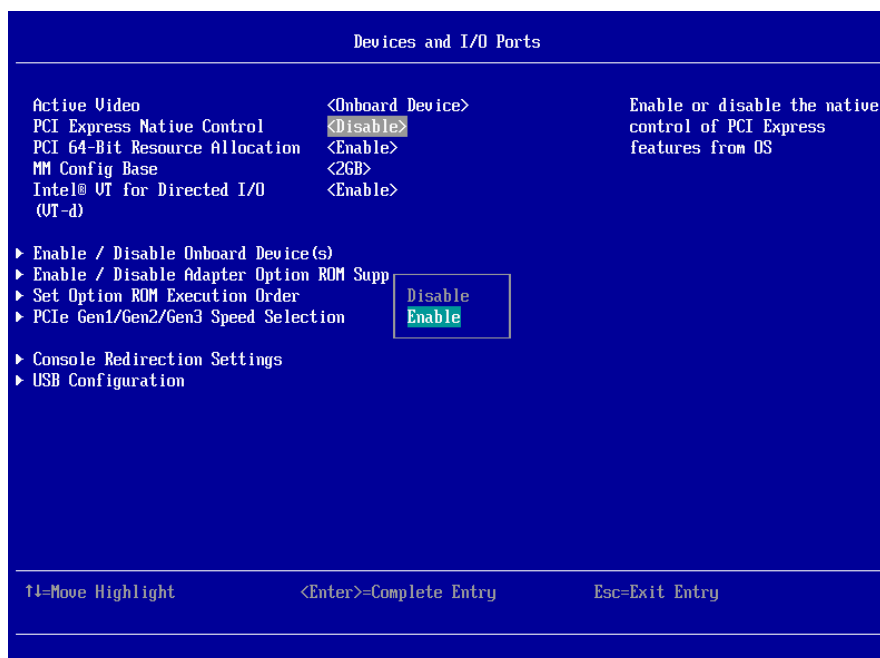
System Configuration and BootManagement screen opens. Then select **System Settings - Device and I/O Ports**.



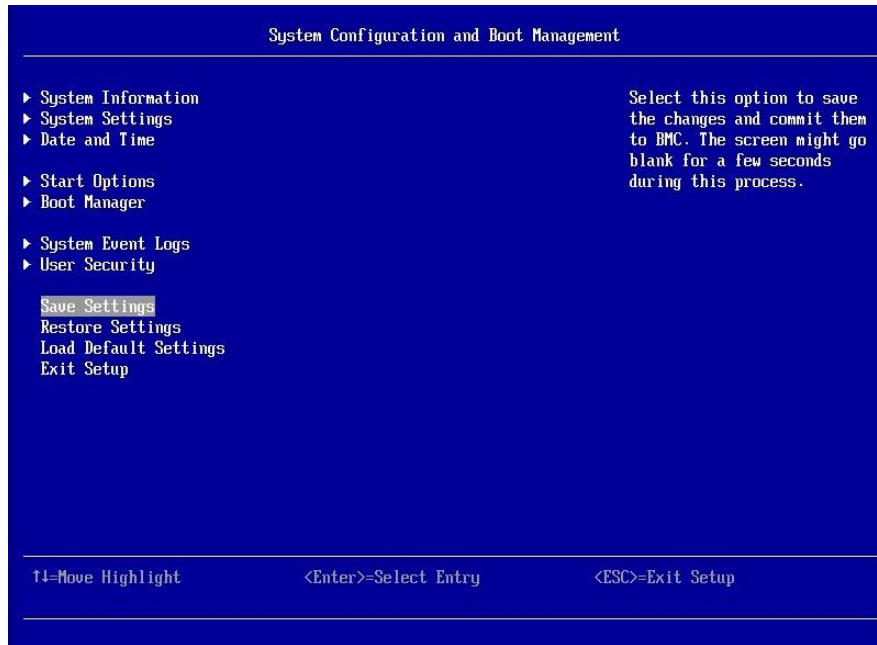
2. Confirm that the value of **PCI Express Native Control** is **<Enable>** in **Devices and I/O Ports** screen.



If the value is **<Disable>**, move the cursor to **<Disable>** and press **Enter** key and select **Enable**.



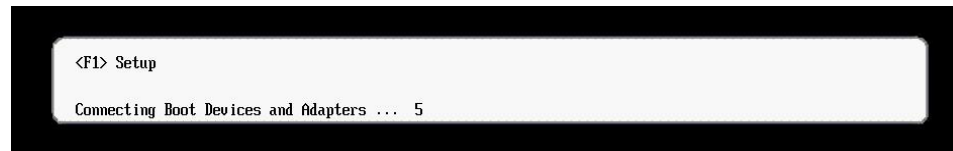
3. Return to the top menu (System Configuration and Boot Management). Move the cursor to **Save Settings** and press **Enter** key.



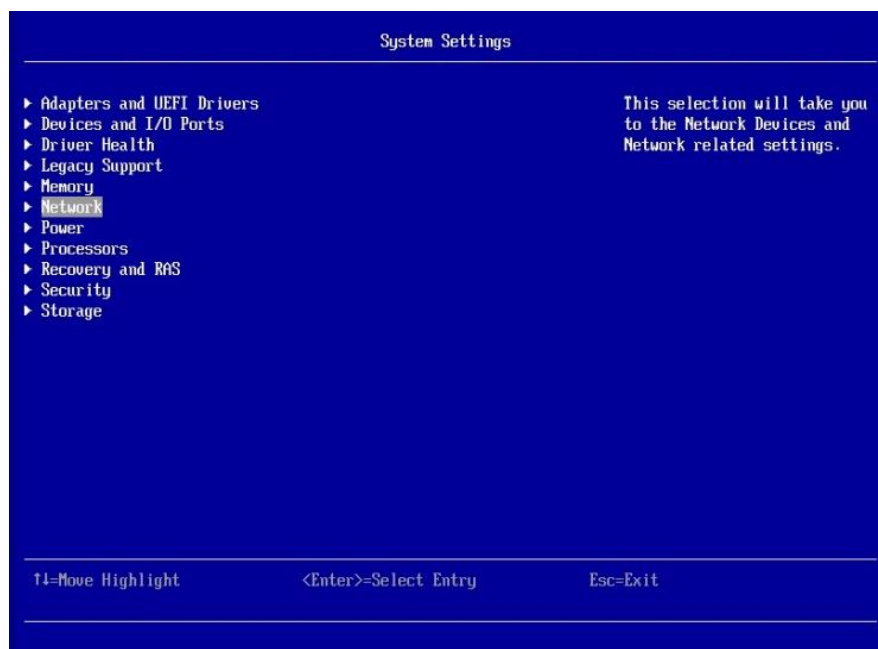
Select **Exit Setup**. The message "Do you want to exit Setup Utility?" is displayed, then press **Y** key. And the message "Settings have been changed, and a reboot is required to apply the settings" is displayed, then press **Enter**.

(2) Emulex UEFI settings

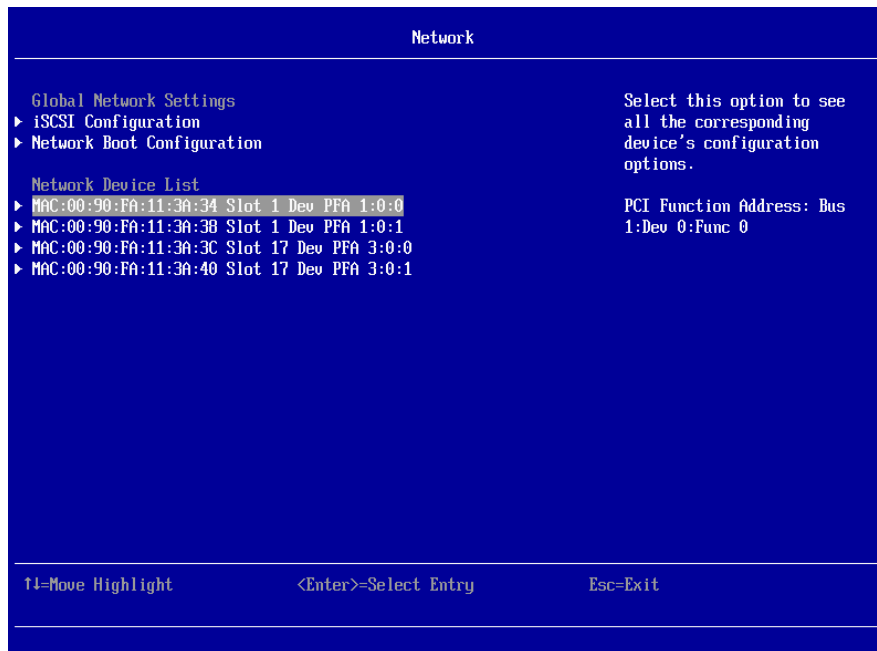
1. Turn on the remote console, then click **Power - Power On** in tool bar of the remote console to turn on the system. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



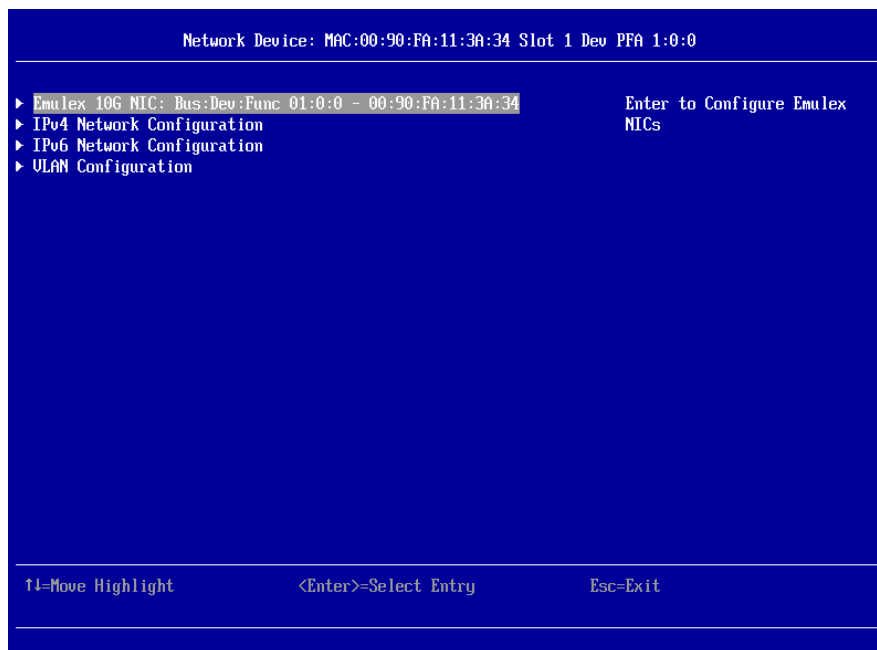
2. "**System Configuration and Boot Management**" screen opens. Then select **System Settings** and select **Network**.



3. Select the port to be configured.



4. Enter to Configure Emulex NICs.



5. Select **Advanced Mode** and select **Enable**.

Emulex NIC Selection	
Hitachi OCm11104-F2-HI 4-Port 10Gbps Converged Network Mezzanine Card	Enable/Disable Advanced Mode. This Setting gets affected for the other Port... SYSTEM RESET REQUIRED
Firmware Version : 10.2.340.10	
IPL Version : M32FHIB5	
Bus:Device:Function : 1:0:0	
Link Speed : 10 Gbps	
Advanced Mode	<Disable>
Personality	<NIC>
Multichannel Mode	<Disabl
▶ Controller Configuration	<div>Enable Disable</div>
▶ Boot Mode	<Disabl
▶ iBFT Configuration	
▶ Emulex Flash Update Utility	
▶ Port Identification	
▶ Erase Configuration	
↑↓=Move Highlight <Enter>=Complete Entry Esc=Exit Entry	

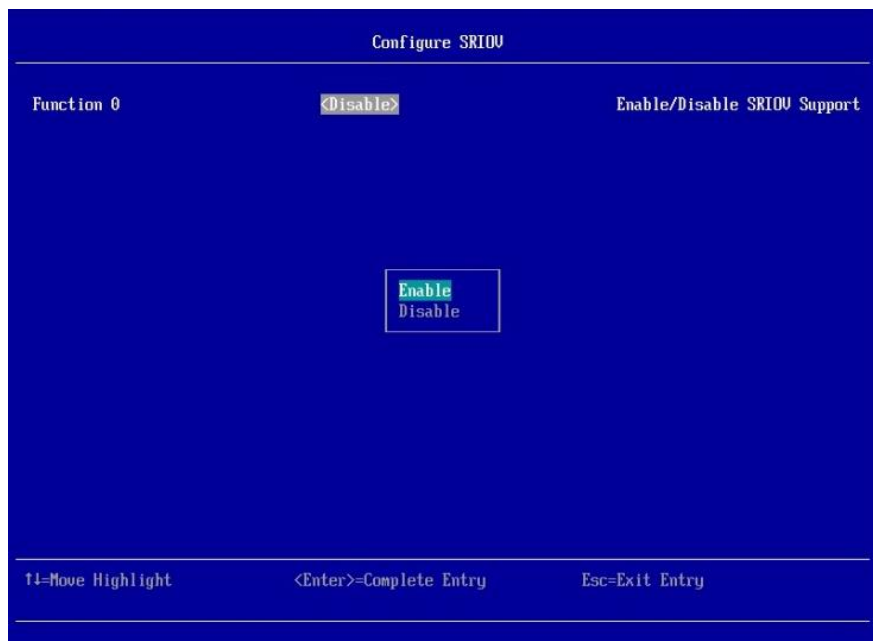
6. Select **Controller Configuration**.

Emulex NIC Selection	
Hitachi OCm11104-F2-HI 4-Port 10Gbps Converged Network Mezzanine Card	Enter to View or Configure Function Parameters
Firmware Version : 10.2.340.10	
IPL Version : M32FHIB5	
Bus:Device:Function : 1:0:0	
Link Speed : 10 Gbps	
Advanced Mode	<Enable>
Personality	<NIC>
Multichannel Mode	<Disable>
▶ Controller Configuration	
▶ Boot Mode	<Disable>
▶ iBFT Configuration	
▶ Emulex Flash Update Utility	
▶ Port Identification	
▶ Erase Configuration	
↑↓=Move Highlight <Enter>=Select Entry Esc=Exit	

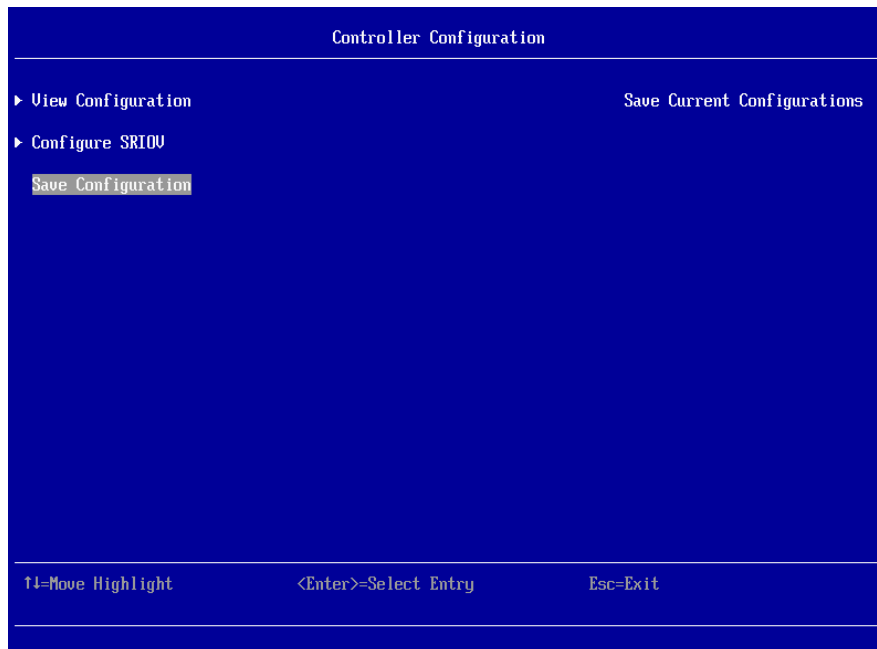
7. Select **Configure SRIOV** and press [Enter].



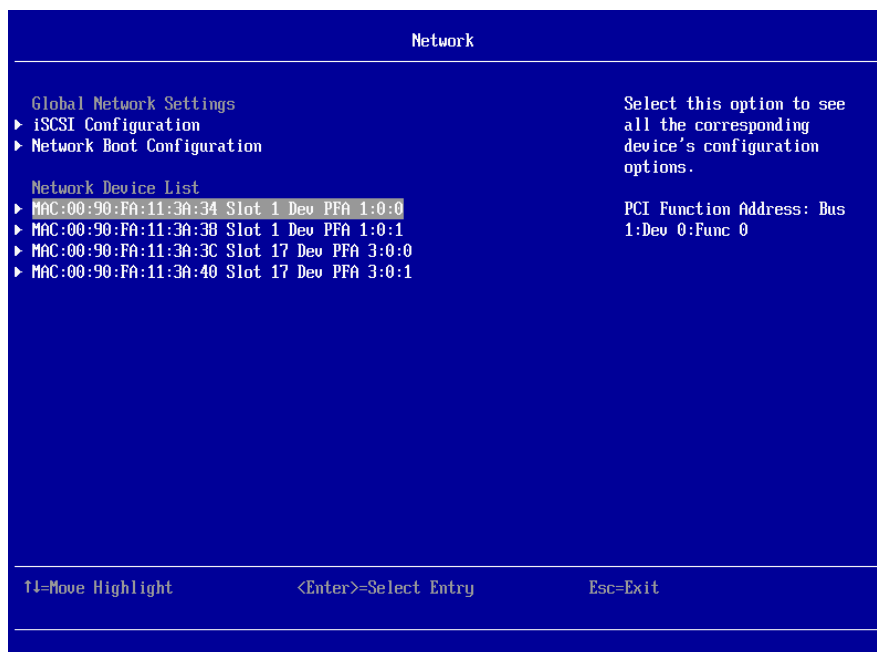
8. Select <Disable> and press [Enter] key. And then select **Enable**.



9. Select **Save Configuration** and press [Enter] key.

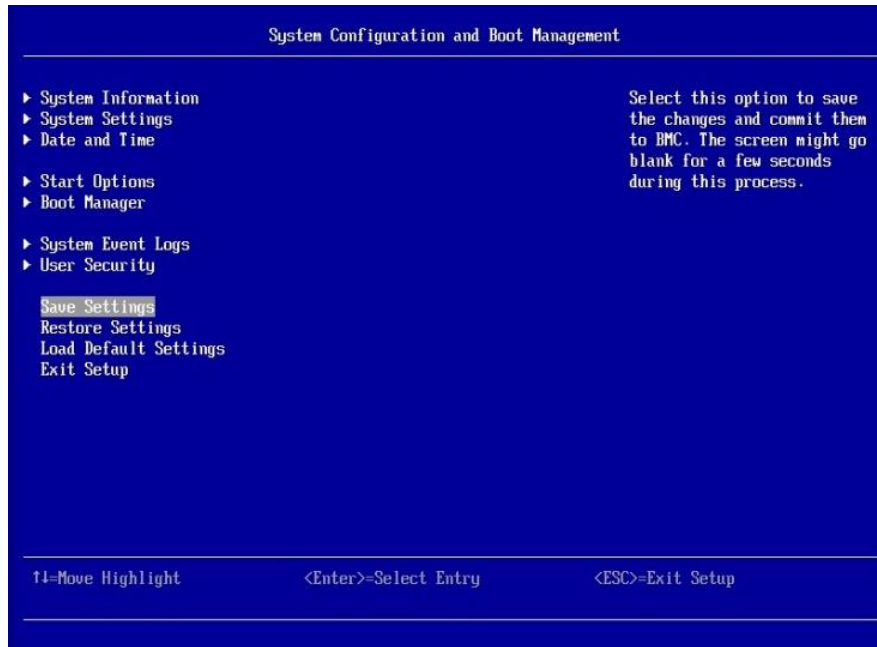


10. Press [Esc] key 3 times to return to "Network" screen. Configure all other ports that belong to a controller shown in "Network Device List" by the same procedure (from step 3 to step 9).



- When setting SR-IOV function to be enabled, all ports that belong to a controller have to be enabled.
- The personality of the ports have to be NIC to set SR-IOV function to be enabled. The personality of iSCSI and FCoE are not supported for the SR-IOV function.

11. Press <ESC> key to return to "System Configuration and Boot Management" screen. Select **Save Settings**.



12. Select **Exit Setup**. The message "Do you want to exit Setup Utility?" is displayed, then press **Y** key. And the message "Settings have been changed, and a reboot is required to apply the settings" is displayed, then press **Enter**.

(3) Configuration on the host OS (Windows Server 2012 R2)



When changing the SR-IOV configuration or installing the LAN driver, the virtual network switch made by Emulex CNA or LAN device has to be removed by Hyper-V manager. If the virtual network switch is not removed, the LAN driver may not be installed normally.

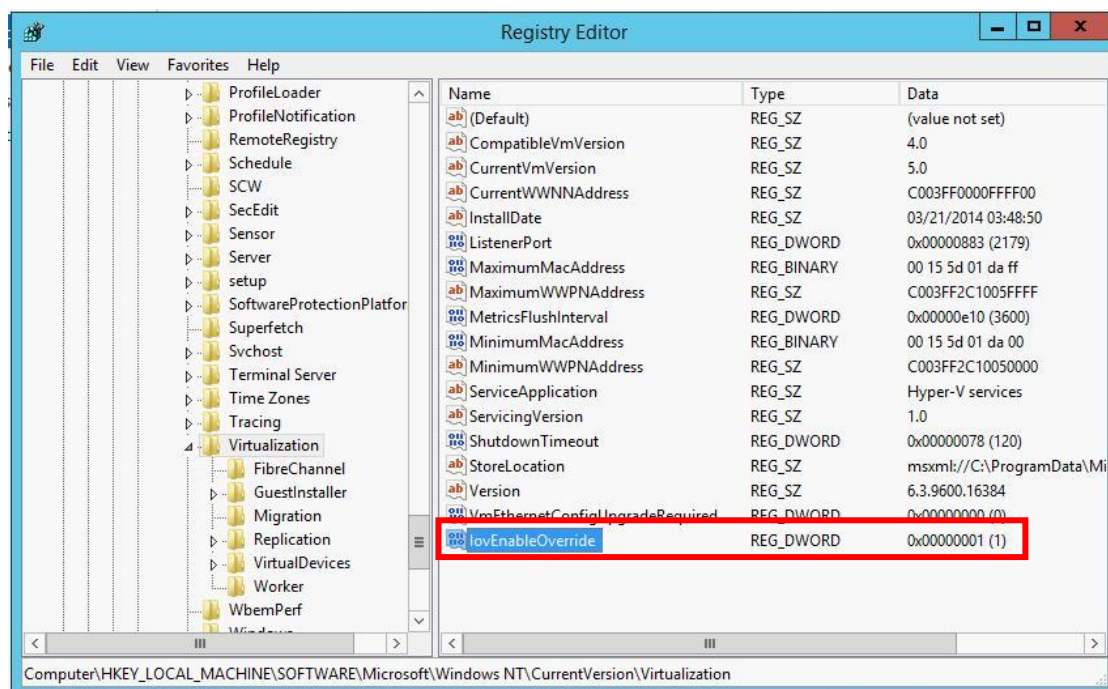
1. Boot the OS.
2. Open the registry editor.



Be careful sufficiently to edit the registry.

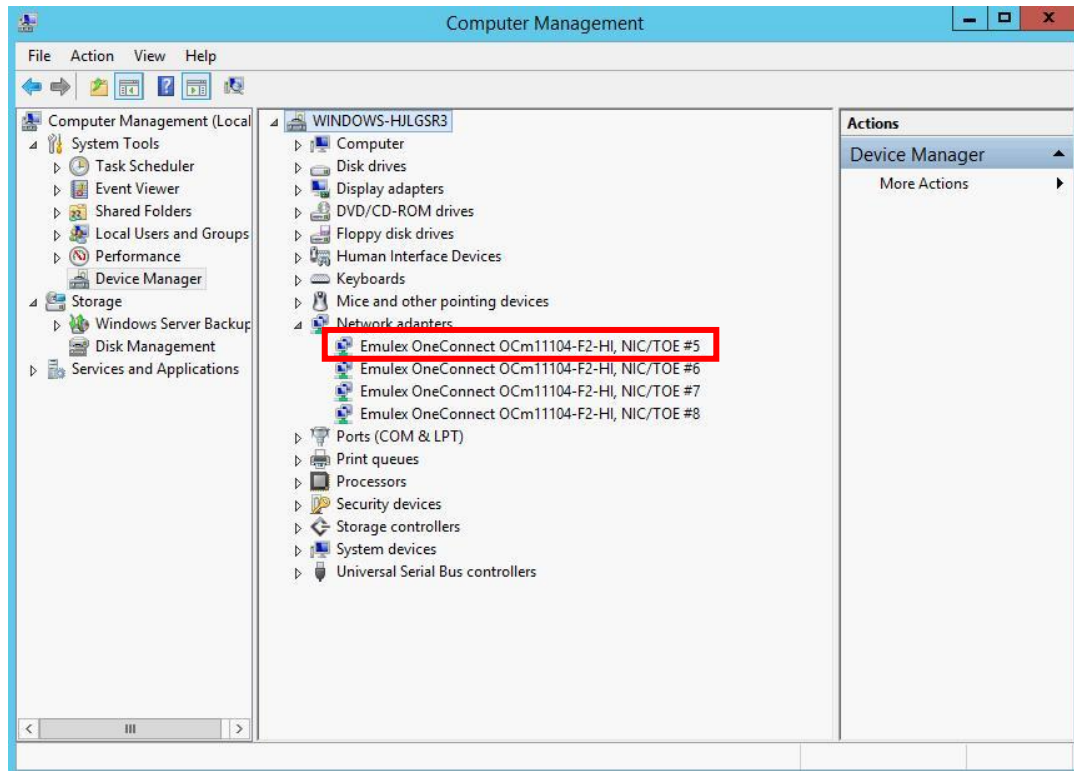
Confirm that "**IovEnableOverride**"(DWORD) is listed in
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Virtualization

If there is not "**IovEnableOverride**", add this and set the data **1**.

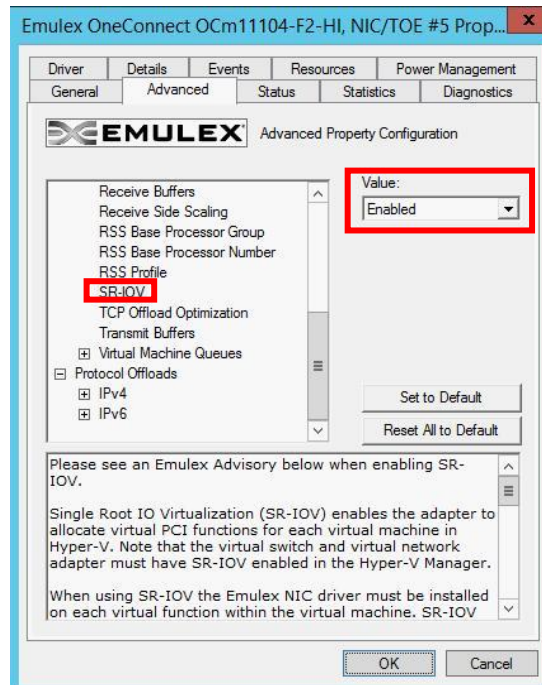


Close the registry editor after the setting above.

3. Select **Computer Management - System Tools - Device manager**. Double click **Emulex OneConnect OCx111xxx** under **Network adapters**. (xxx changes by devices.)



4. Click Advanced tab, and change the following settings.
Performance - SR-IOV : Disabled -> Enabled

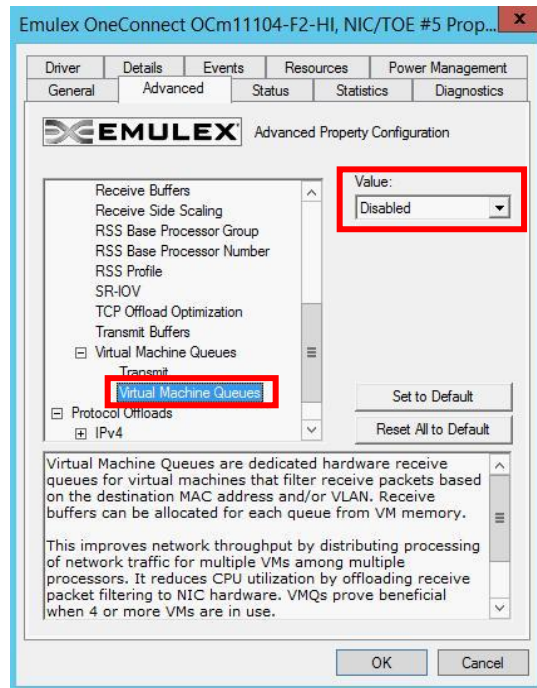


For CB500 series or CB2500 series (VMQ is not used.)

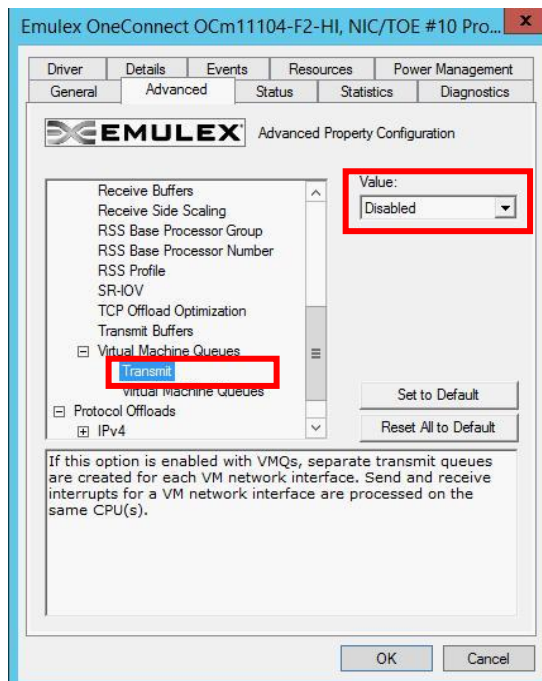
Performance - Virtual Machine Queues - Virtual Machine Queues : Enabled -> Disabled

For CB500 series or CB2500 series (VMQ is used.)

Performance - Virtual Machine Queues - Virtual Machine Queues : Enabled



Performance - Virtual Machine Queues - Transmit : Enabled -> Disabled



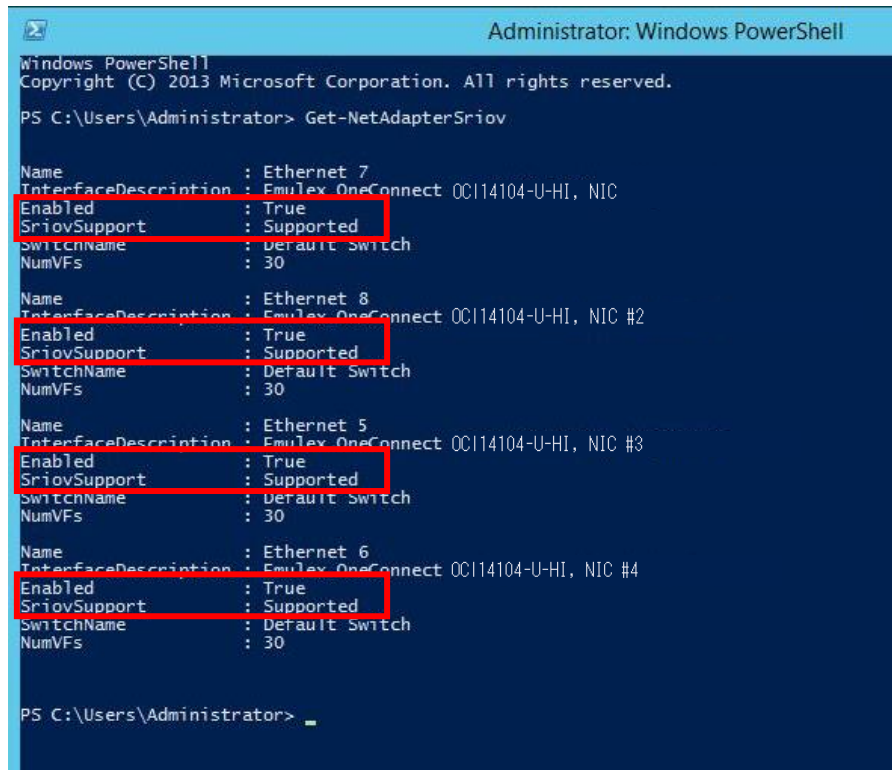
Do not generate or delete the virtual switch when the value of "**Virtual Machine Queues**" is "**Enabled**". In this case, change the value of "**Virtual Machine Queues**" to "**Disabled**".

5. Configure all Emulex 10Gb LAN devices by the step 3 ~ step 4 above. And reboot the OS.

6. Open **Windows PowerShell** after the OS boots.

7. Execute **Get-NetAdapterSriov** command. Confirm the following values.

Enabled : True
SriovSupport : Supported



```
Administrator: Windows PowerShell
Windows PowerShell
Copyright (C) 2013 Microsoft Corporation. All rights reserved.

PS C:\Users\Administrator> Get-NetAdapterSriov

Name                : Ethernet 7
InterfaceDescription : Emulex OneConnect OC114104-U-HI, NIC
Enabled              : True
SriovSupport          : Supported
SwitchName           : Default Switch
NumVFs               : 30

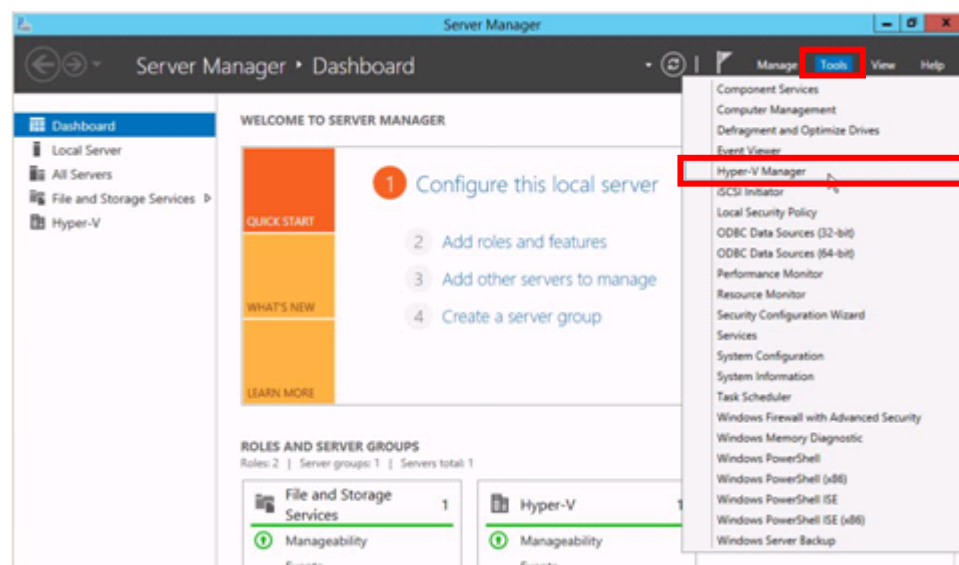
Name                : Ethernet 8
InterfaceDescription : Emulex OneConnect OC114104-U-HI, NIC #2
Enabled              : True
SriovSupport          : Supported
SwitchName           : Default Switch
NumVFs               : 30

Name                : Ethernet 5
InterfaceDescription : Emulex OneConnect OC114104-U-HI, NIC #3
Enabled              : True
SriovSupport          : Supported
SwitchName           : Default Switch
NumVFs               : 30

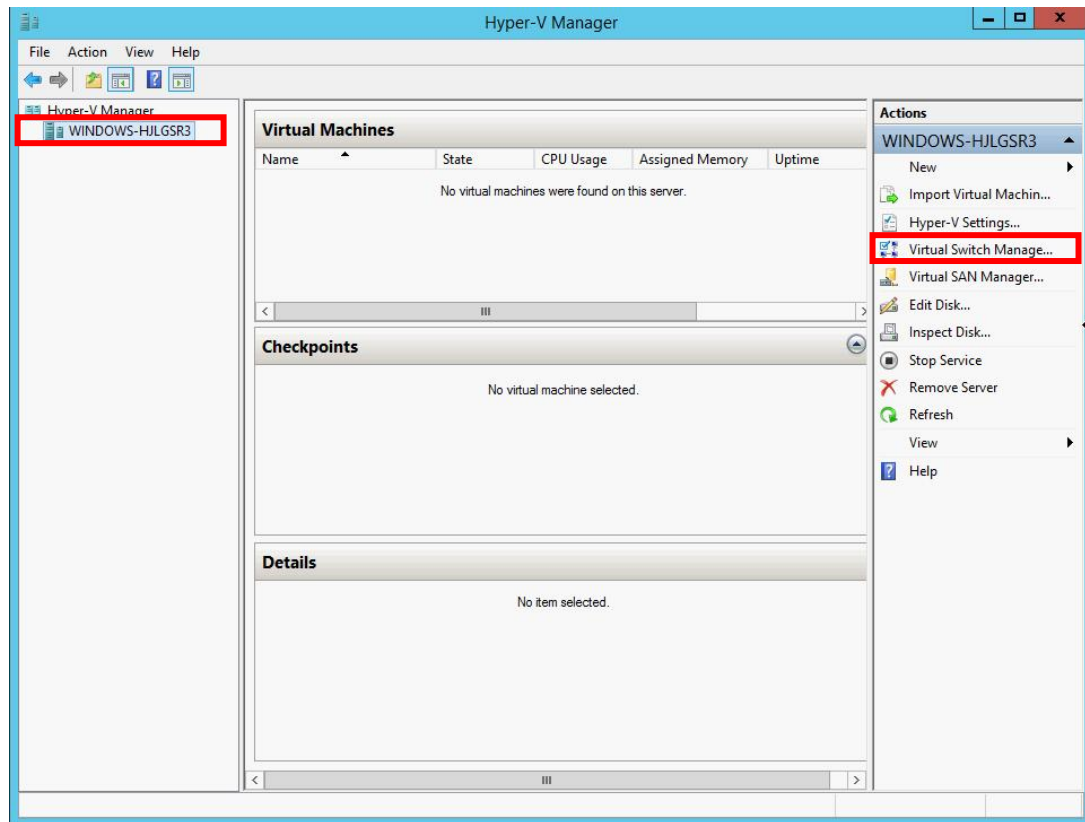
Name                : Ethernet 6
InterfaceDescription : Emulex OneConnect OC114104-U-HI, NIC #4
Enabled              : True
SriovSupport          : Supported
SwitchName           : Default Switch
NumVFs               : 30

PS C:\Users\Administrator>
```

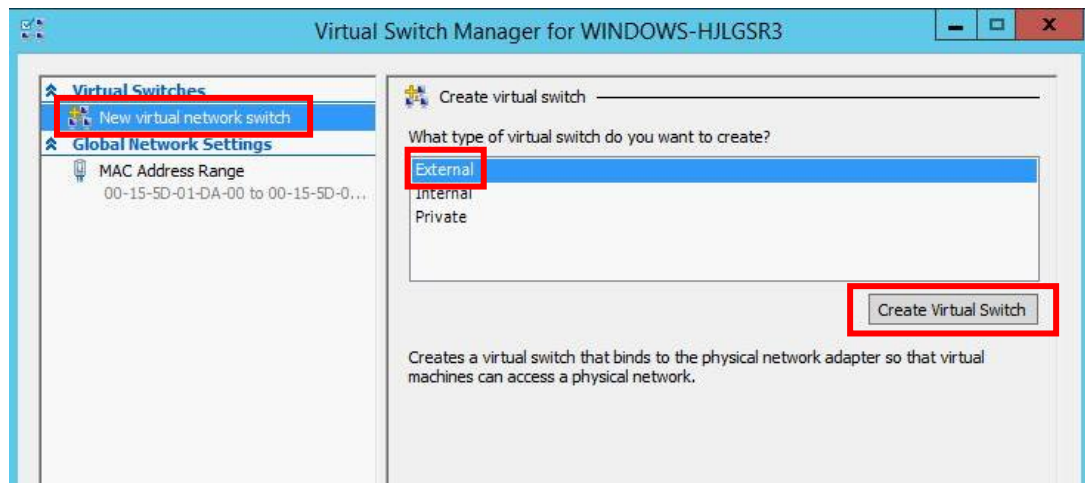
8. Click **Tools** -> **Hyper-V Manager** in Server Manager screen.



9. Click Computer Name, and click **Virtual Switch manager**.



10. Click **New virtual network switch** and select **External** and click **Create Virtual Switch**.



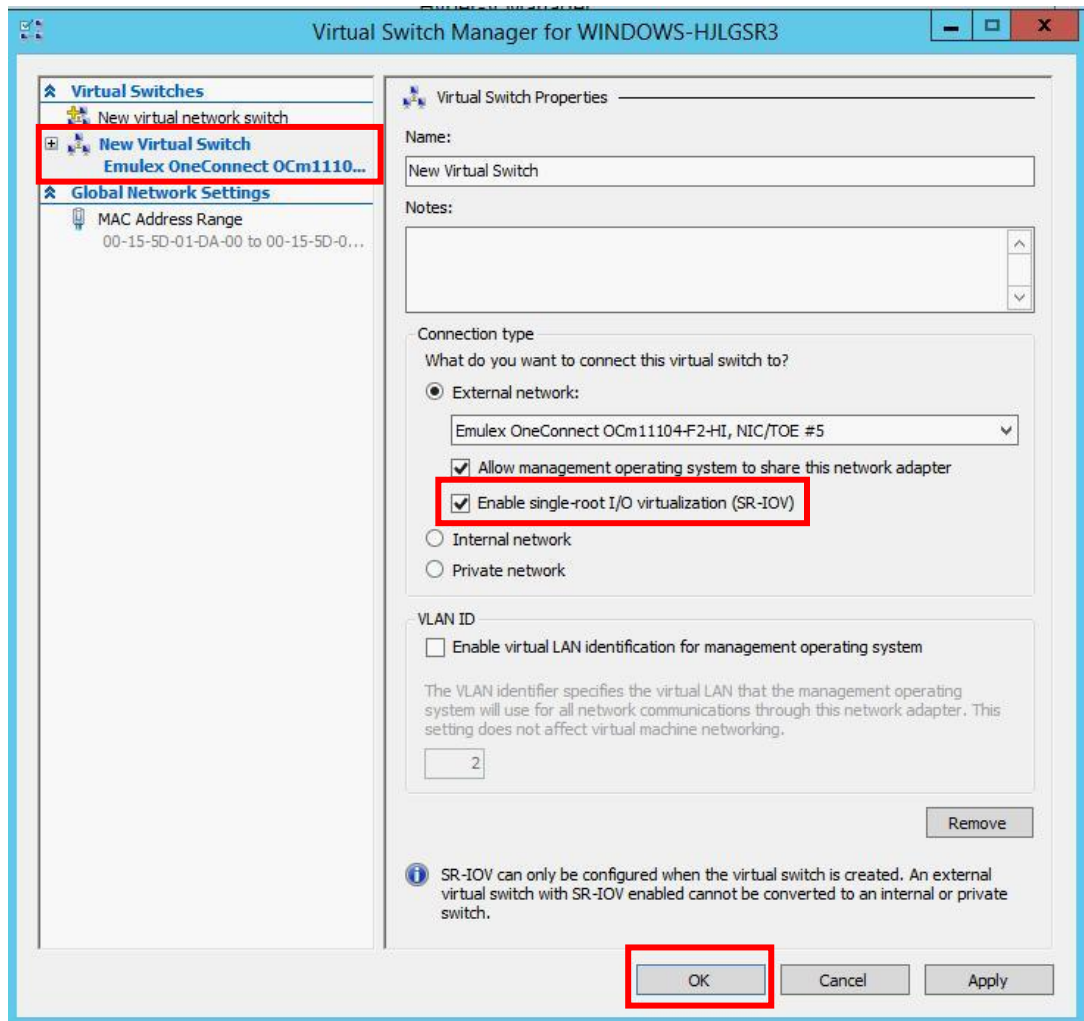
11. Select physical LAN device to assign to external network, and check the box of **Enable single-root I/O virtualization (SR-IOV)**. And click **OK**.



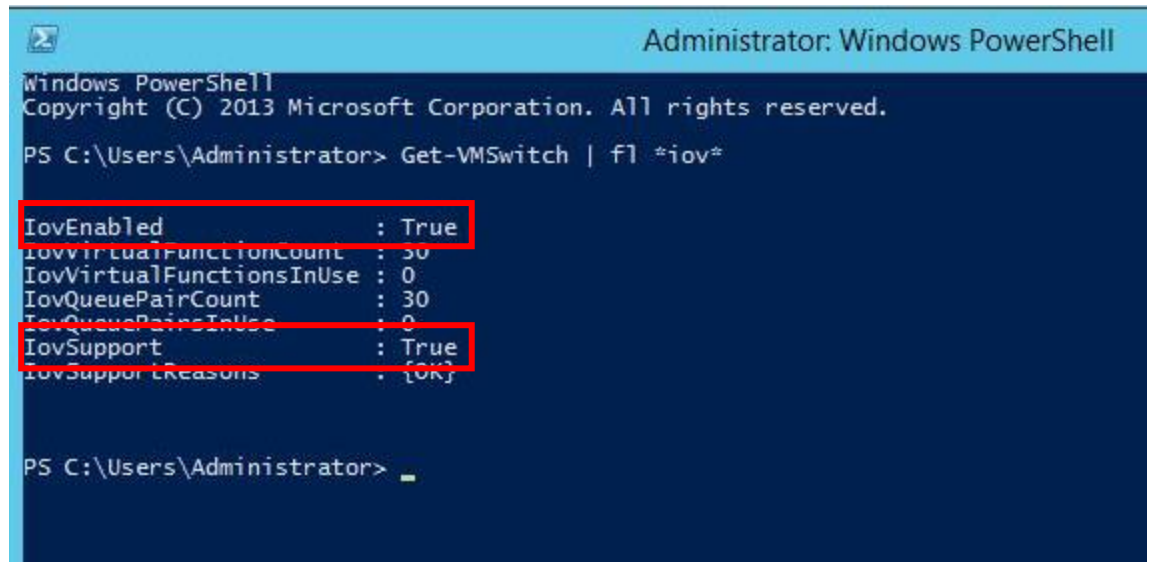
Any name can be set to **Name**:



Make sure to check the box of **Enable single-root I/O virtualization (SR-IOV)** before creating virtual switch. If the virtual switch has been created, the check box cannot be checked.



12. Execute **Get-VMSwitch | fl *iov*** command on Windows PowerShell, and confirm that **IovEnabled** and **IovSupport** are **True**.

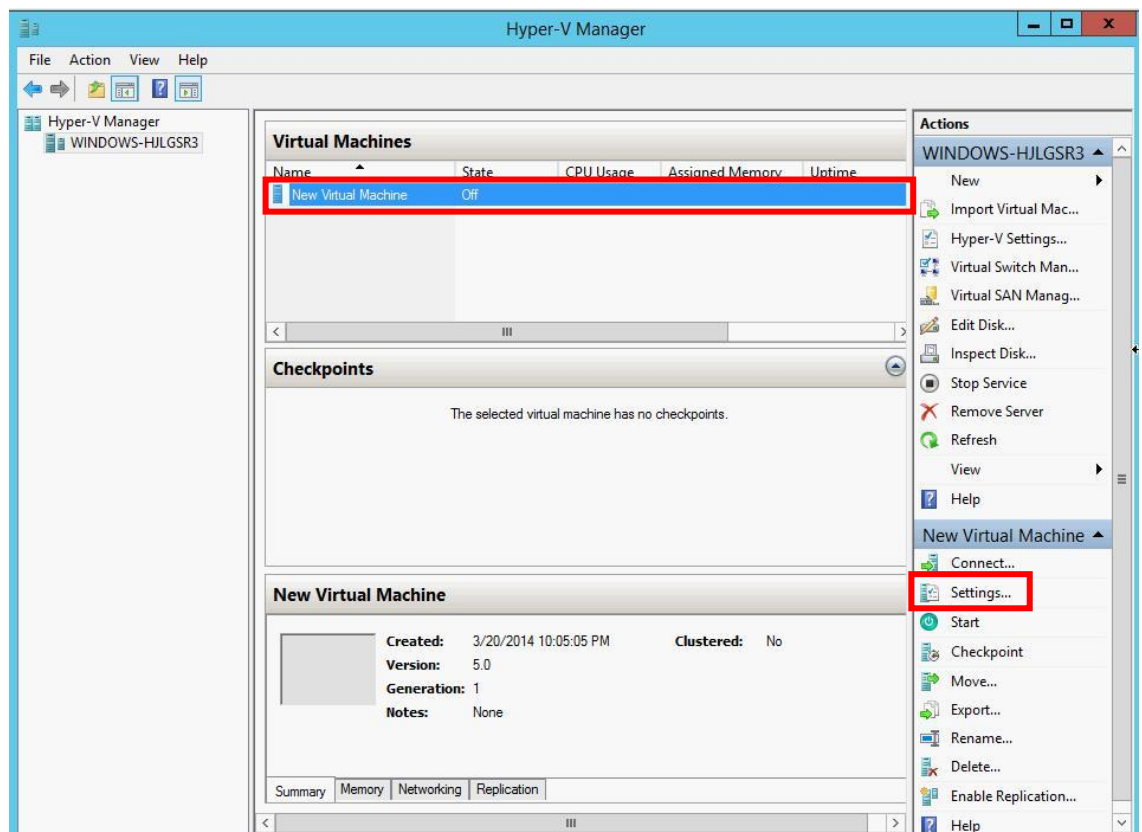


```
Administrator: Windows PowerShell
Windows PowerShell
Copyright (C) 2013 Microsoft Corporation. All rights reserved.

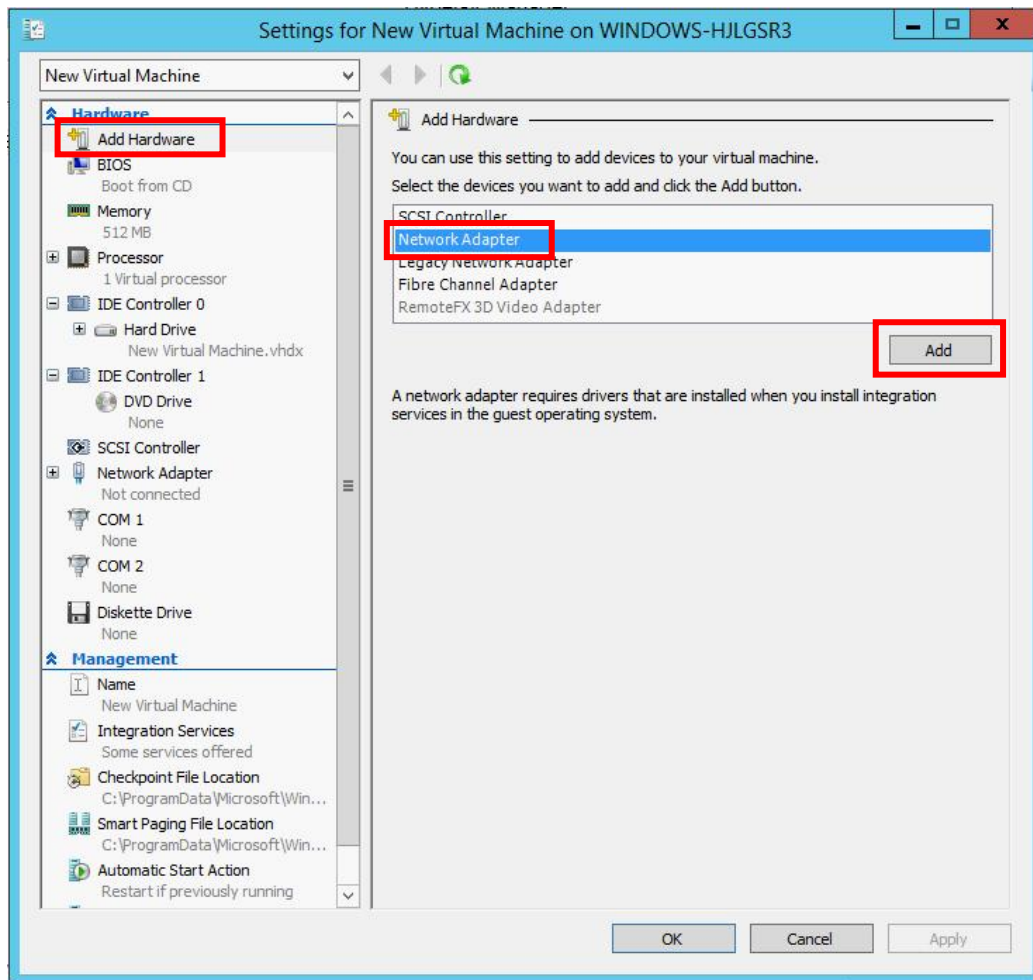
PS C:\Users\Administrator> Get-VMSwitch | fl *iov*

IovEnabled           : True
IovVirtualFunctionCount : 30
IovVirtualFunctionsInUse : 0
IovQueuePairCount    : 30
IovQueuePairsInUse    : 0
IovSupport            : True
IovSupportReasons     : {OK}
```

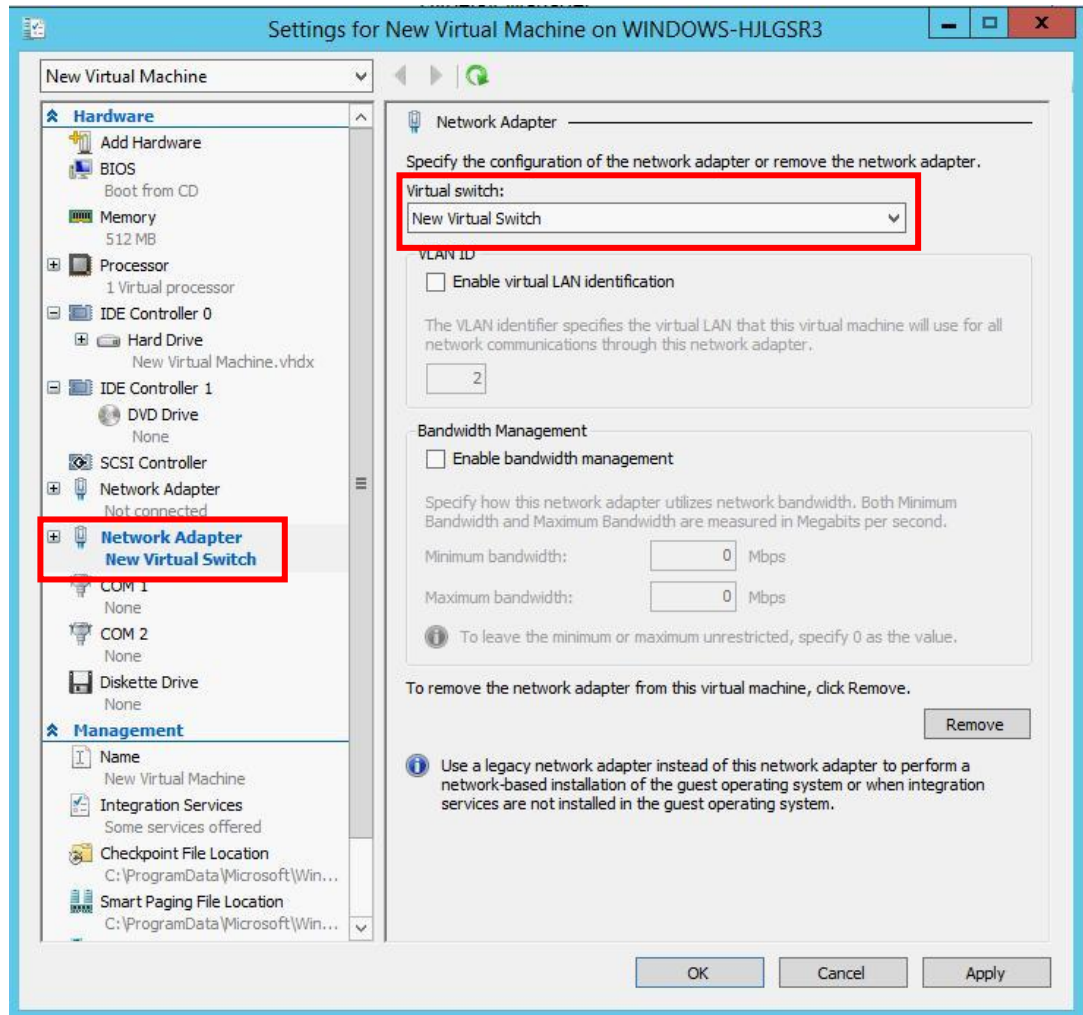
13. Select the virtual machine (guest OS) to assign the virtual switch, and click **Settings....**



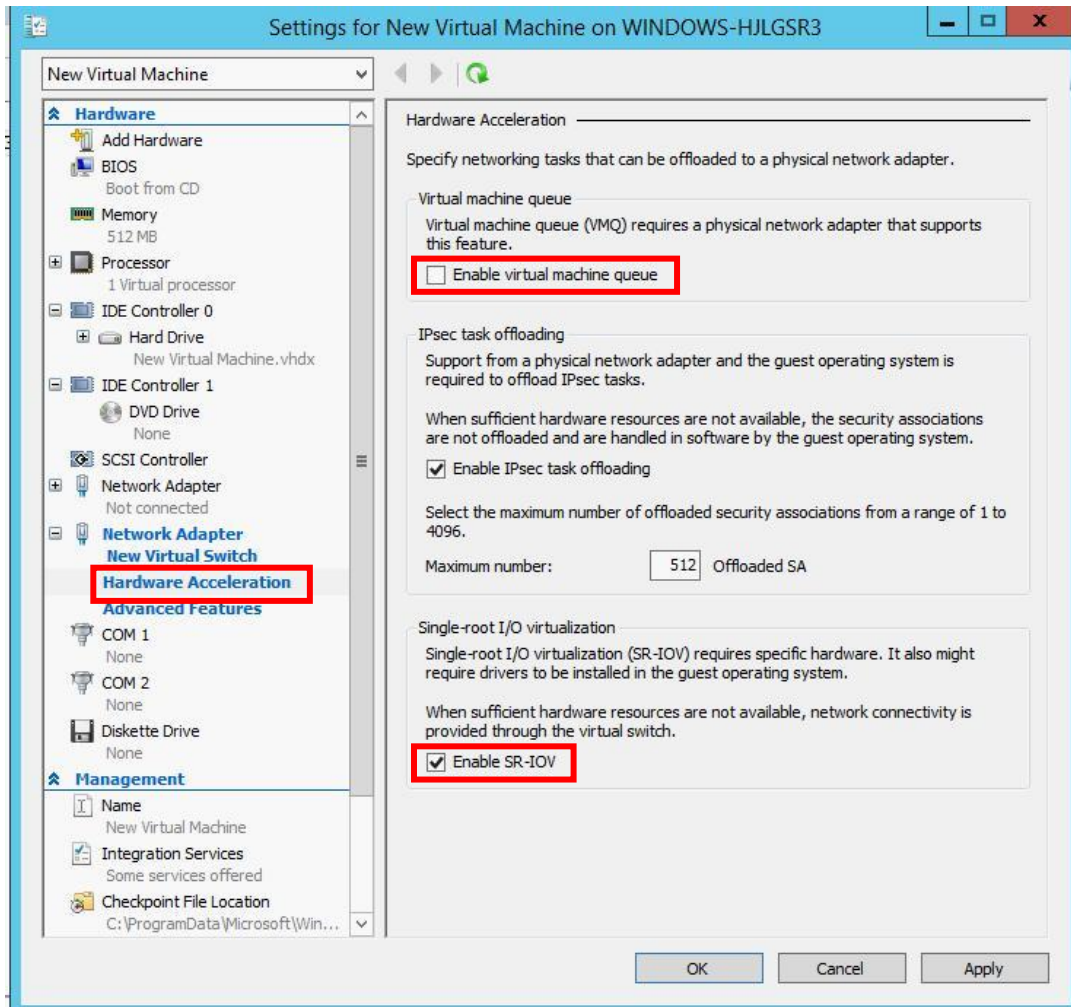
14. Click **Add Hardware**, click **Network Adapter**, and click **Add**.



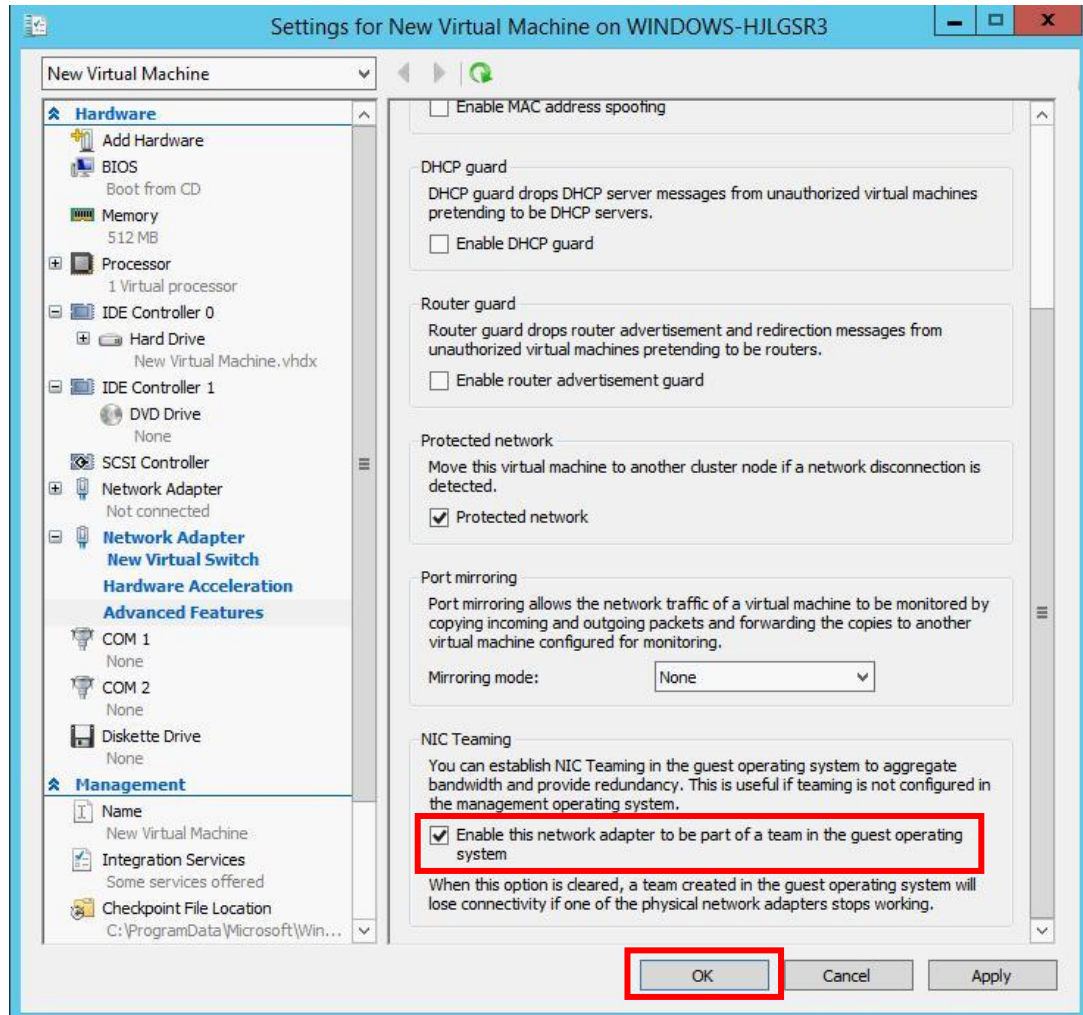
15. Select the virtual switch that has been created by **Virtual Switch Manager**.



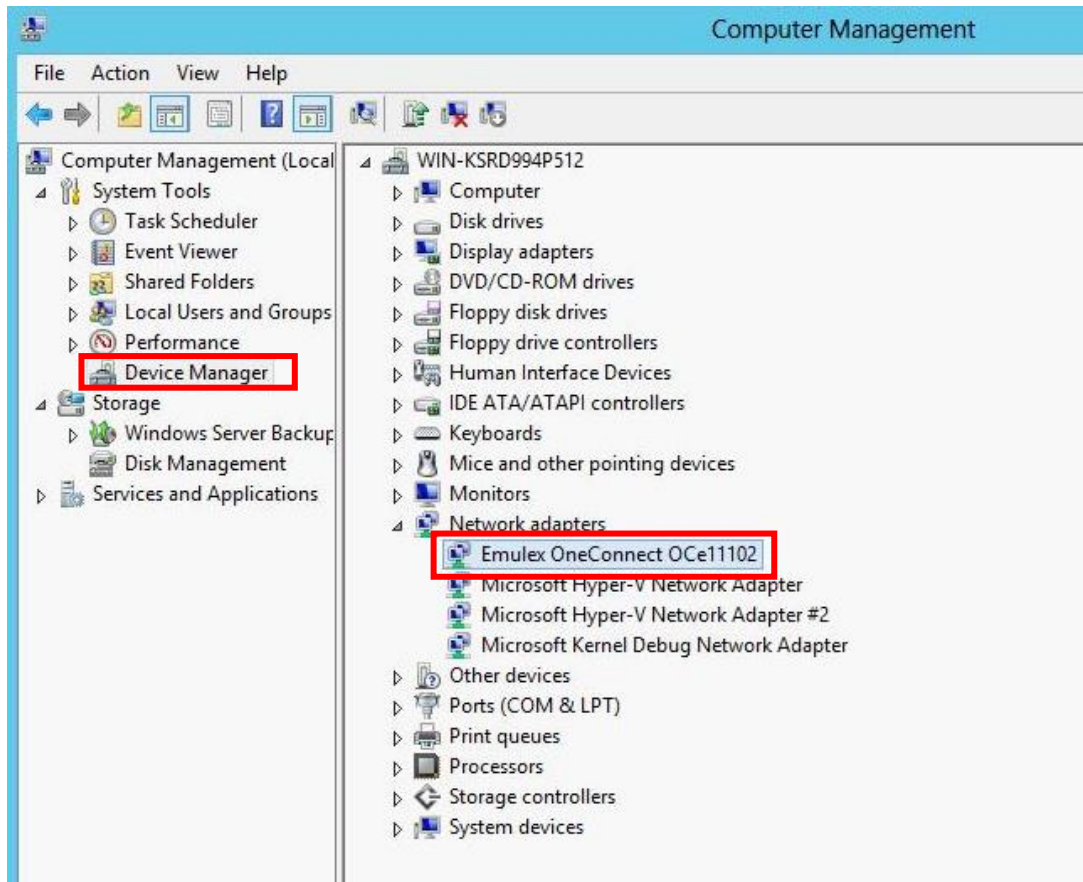
16. Click **Hardware Acceleration** under **Network Adapter**. Delete the check mark of **Enable virtual machine queue**, and check the box of **Enable SR-IOV**.



17. Check the box of **Enable this network adapter to be part of a team in the guest operate system**. And click **OK**.



18. Install the OS to the virtual machine, and open **Device Manager**. If **Emulex One Connect OCx11xxx** is displayed under **Network adapters**, the virtual machine runs with SR-IOV function.



19. The LAN devices may not be recognized by the guest OS. (In that case, the LAN devices are displayed in **Device Manager** window as Network Controller under **Other devices**.) Or the LAN devices that are recognized on the virtual machine may run by the NIC driver bundled with the OS. In the both cases, the proper NIC drivers for SR-IOV function have to be installed. For the NIC drivers, see the manual : "Hitachi Compute Blade Emulex Adapter Use's Guide for Driver (MK-99COM103) rev.14 or higher".

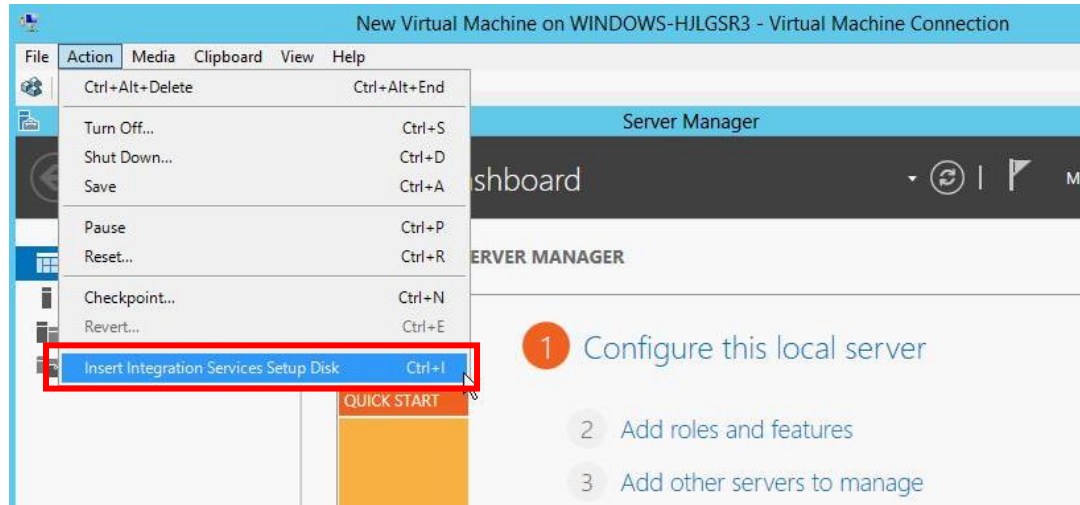


- If the guest OS is Windows Server 2012, apply the following fix provided by Microsoft. If the fix is not applied to the OS, the NIC driver can not be installed.

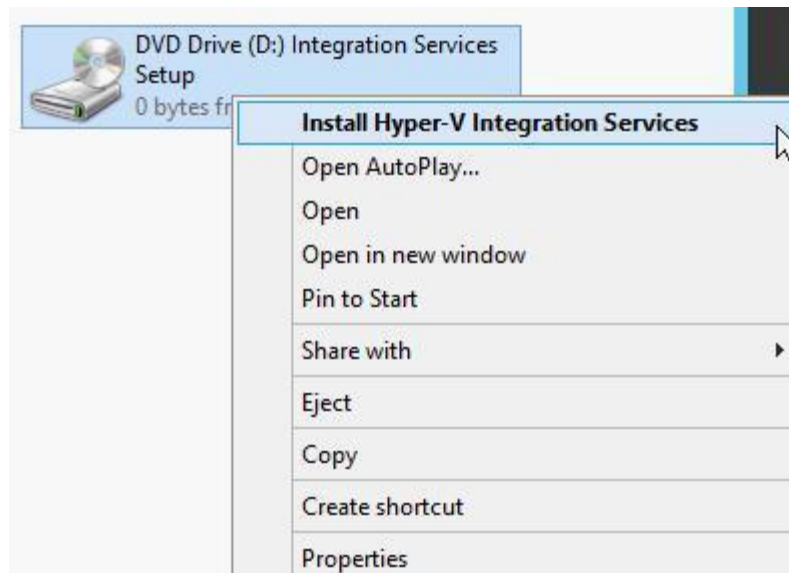
<http://support.microsoft.com/kb/2846340>

(4) Required settings for configuring LAN device redundancy on the virtual machine of Windows Server 2012.

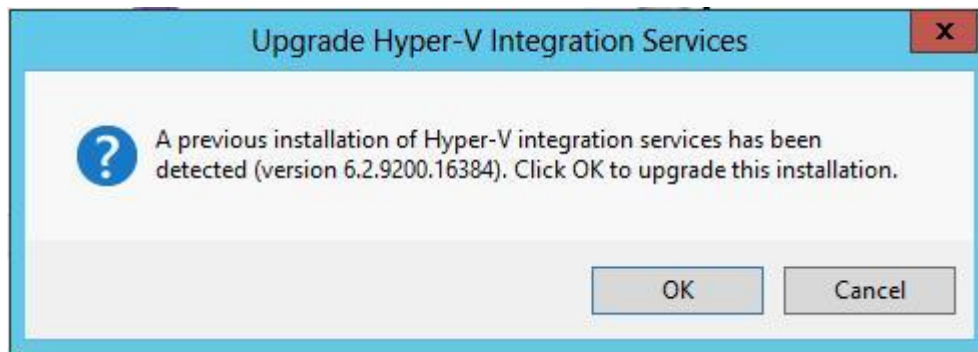
1. Select **Action - Insert Integration Services Setup Disk** in **Virtual Machine Connection** window.



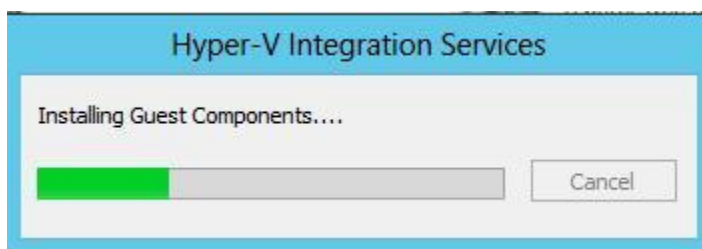
2. Right click **Integration Services Setup** installed in virtual DVD drive, click **Install Hyper-V Integration Services**.



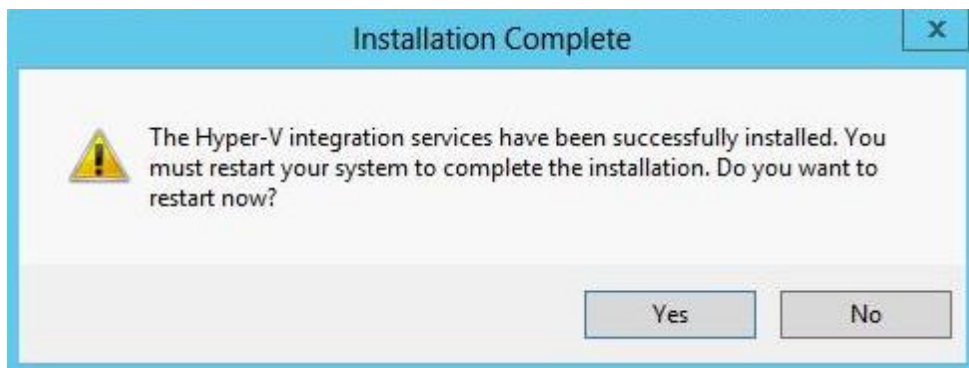
If the following window is displayed, click OK.



3. **Hyper-V Integration Services** installation starts..



4. The following window is displayed when the installation is complete. Click **Yes** and reboot the OS.



5. Select **Media - Eject vmguest.iso** in **Virtual Machine Connection** window



The settings are complete.

4.3.7 SR-IOV configuration (LPAR manager Environment)

This section describes the procedure to configure the SR-IOV function in LPAR manager (Hitachi Virtualization Manager) environment on CB520X B1, CB520X B2, CB520X B3, CB520H B3 or CB520H B4.

In LPAR manager environment, SR-IOV (Single Root I/O Virtualization) function can be used. The specification of the SR-IOV function in LPAR manager environment, see "Hitachi Compute Blade 500 Series Logical partitioning manager User's Guide (MK-91CB500068)" for CB500 series, or "Hitachi Compute Blade 2500 Series Logical partitioning manager User Guide (MK-99CB2500006)" for CB2500 series.

To use SR-IOV function in LPAR manager environment, the NIC driver for SR-IOV has to be installed to the guest OS. For the NIC driver and CNA firmware, see "Hitachi Compute Blade Emulex Adapter User's Guide for Driver (MK-99COM103) (rev.14 or higher), 4.1 Driver Installation (Onboard CNA / CNA expansion card / LAN expansion card / CNA board)".



- The 1Gb LAN connection is forbidden when using the SR-IOV function. Before setting the SR-IOV function as "Enabled", the network switch has to be configured for 10Gb connection.
- Configure the SR-IOV function in non-virtualized environment.

(1) Emulex UEFI settings

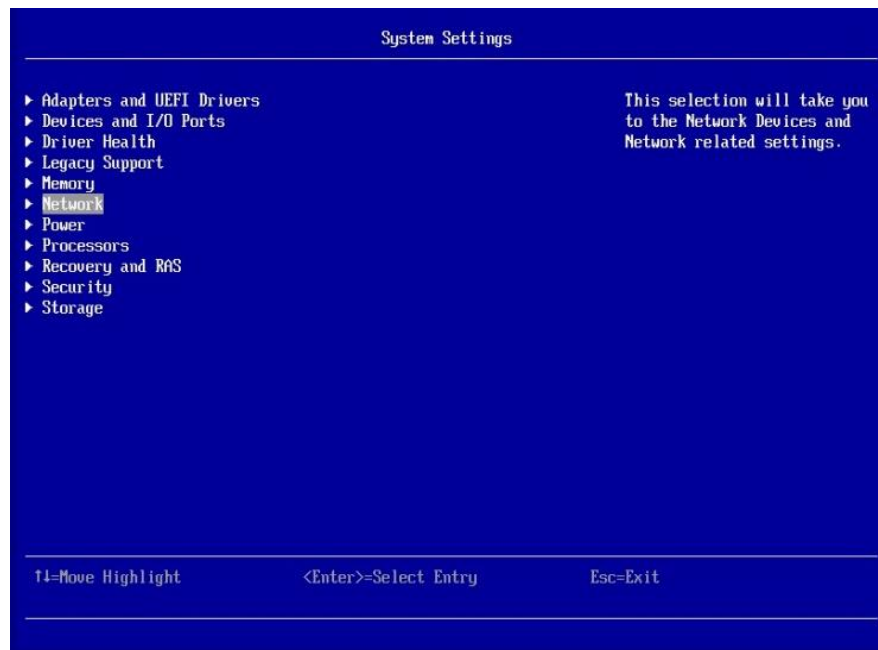
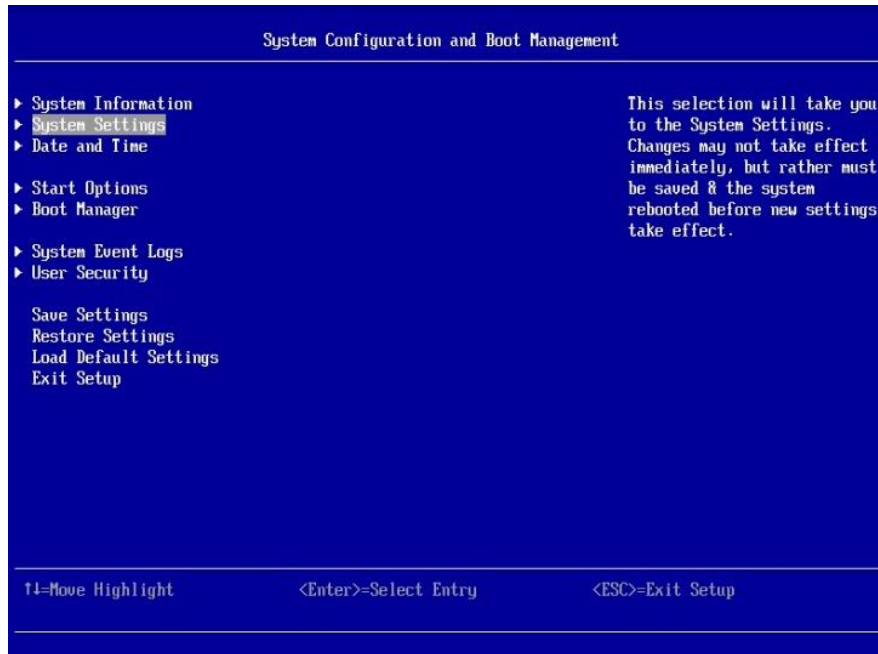


- If configuring SR-IOV, SR-IOV function have to be configured to all ports of the controller.
- The personality of a port whose SR-IOV function is enabled supports NIC only.
- When configuring SR-IOV, Multichannel mode has to be disabled.

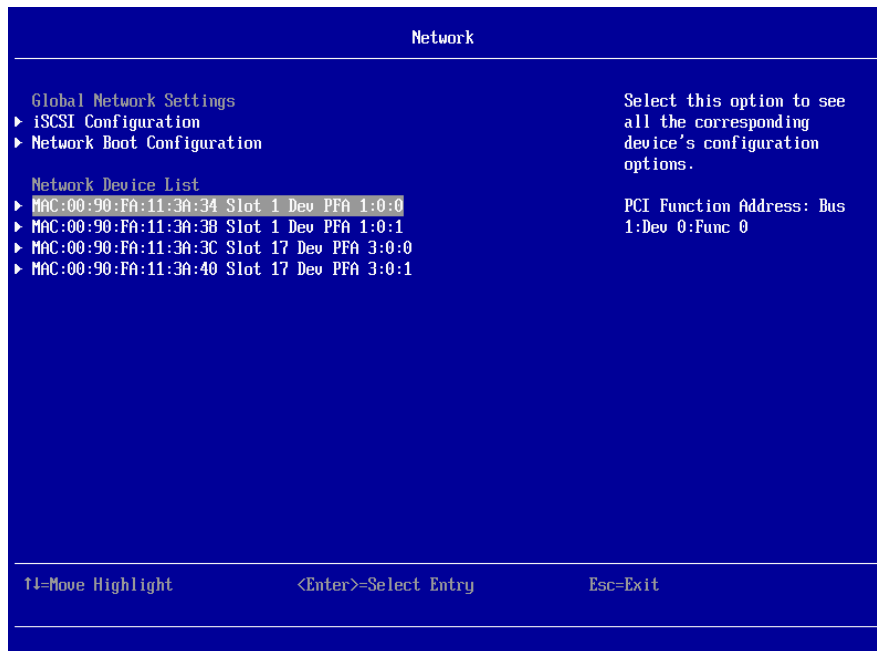
1. Turn on the remote console, then click **Power - Power On** in tool bar of the remote console to turn on the system. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



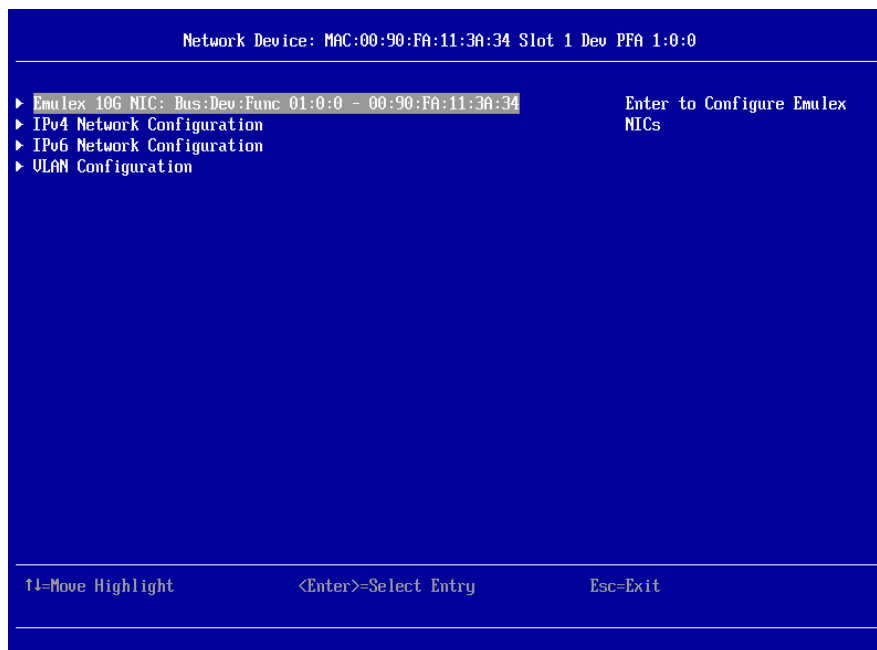
2. "System Configuration and Boot Management" screen opens. Then select **System Settings - Network**.



3. Select the port to be configured.



4. Enter to Configure Emulex NICs.



5. Select **Advanced Mode** and press [Enter] key. Then select **Disable**.

```

Emulex NIC Selection

Hitachi OCm11104-F2-HI 4-Port 10Gbps Converged Network Mezzanine Card
Firmware Version : 10.2.340.10
IPL Version      : M32FHIB5
Bus:Device:Function : 1:0:0
Link Speed       : 10 Gbps
Advanced Mode    : <Disable>
Personality      : <NIC>
Multichannel Mode : <Disable>
> Controller Configuration
  Boot Mode      : <Disable>
  iBFT Configuration
  Emulex Flash Update Utility
  Port Identification
  Erase Configuration

Enable/Disable Advanced Mode. This Setting gets affected for the other Port... SYSTEM RESET REQUIRED

↑↓=Move Highlight      <Enter>=Complete Entry      Esc=Exit Entry

```

6. Select **Controller Configuration**

```

Emulex NIC Selection

Hitachi OCm11104-F2-HI 4-Port 10Gbps Converged Network Mezzanine Card
Firmware Version : 10.2.340.10
IPL Version      : M32FHIB5
Bus:Device:Function : 1:0:0
Link Speed       : 10 Gbps
Advanced Mode    : <Enable>
Personality      : <NIC>
Multichannel Mode : <Disable>
> Controller Configuration
  Boot Mode      : <Disable>
  iBFT Configuration
  Emulex Flash Update Utility
  Port Identification
  Erase Configuration

Enter to View or Configure Function Parameters

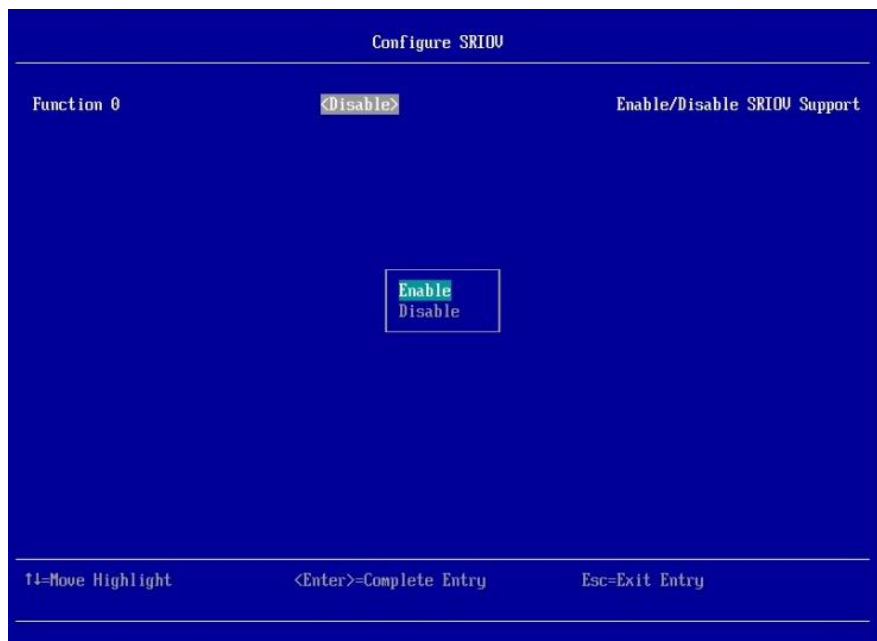
↑↓=Move Highlight      <Enter>=Select Entry      Esc=Exit

```

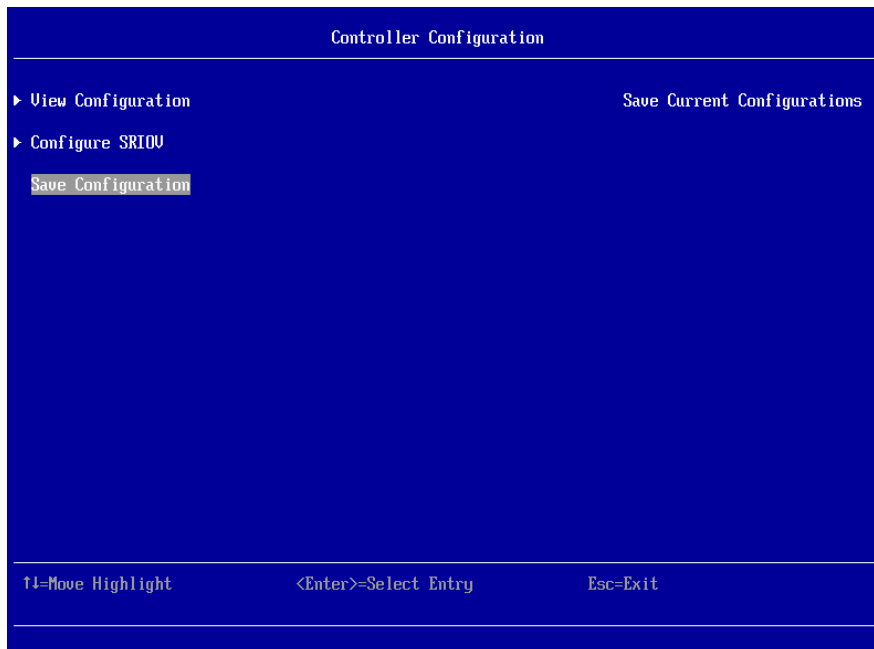
7. Select **Configure SRIOV** and press [Enter].



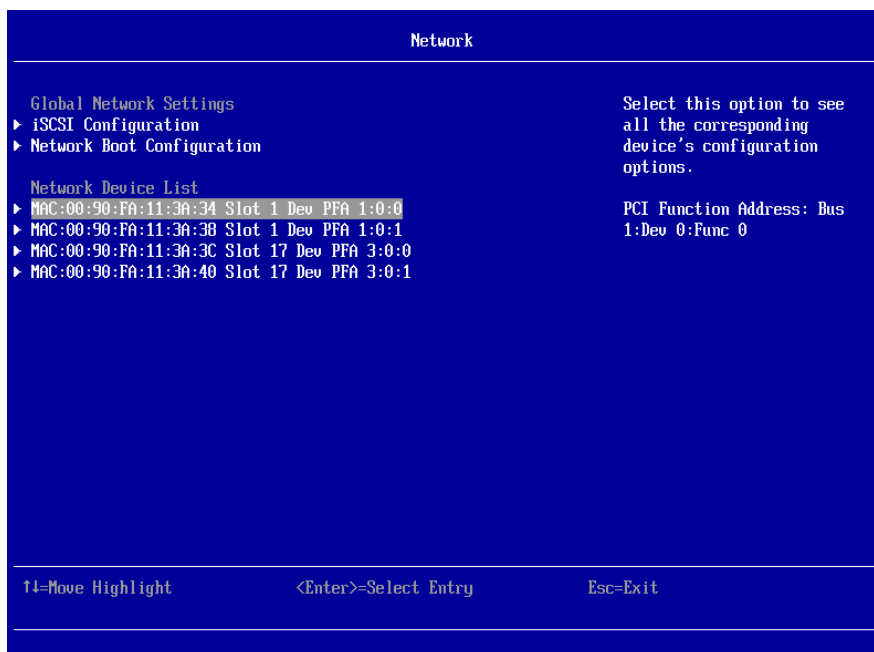
8. Select <Disable> and press [Enter] key. Then select **Enable**.



9. Select **Save Configuration** and press [Enter] key.

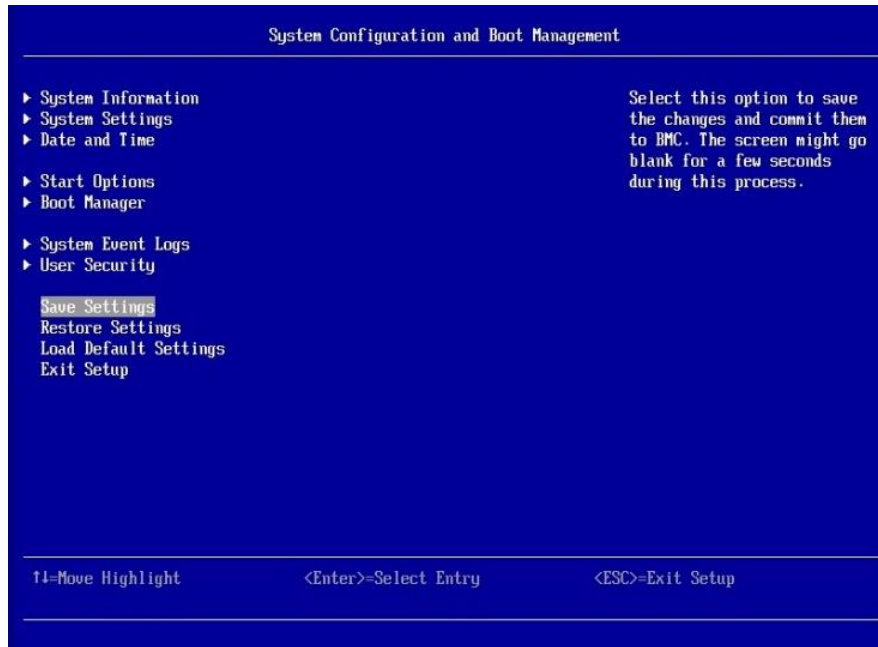


10. Press [Esc] key 3 times to return to "Network" screen. Configure all other ports that belong to a controller shown in "Network Device List" by the same procedure (from step 3 to step 9).



- When setting SR-IOV function to be enabled, all ports that belong to a controller have to be enabled.
- The personality of the ports have to be NIC to set SR-IOV function to be enabled. The personality of iSCSI and FCoE are not supported for the SR-IOV function.

11. Press <ESC> key to return to "System Configuration and Boot Management" screen. Select **Save Settings**.



12. Select **Exit Setup**. The message "Do you want to exit Setup Utility?" is displayed, then press **Y** key. And the message "Settings have been changed, and a reboot is required to apply the settings" is displayed, then press **Enter**.

4.4 FC expansion card / FC board(Legacy BIOS)

4.4.1 Fibre Channel Configuration (8Gb Fibre Channel)

(1) Fibre Channel Configuration



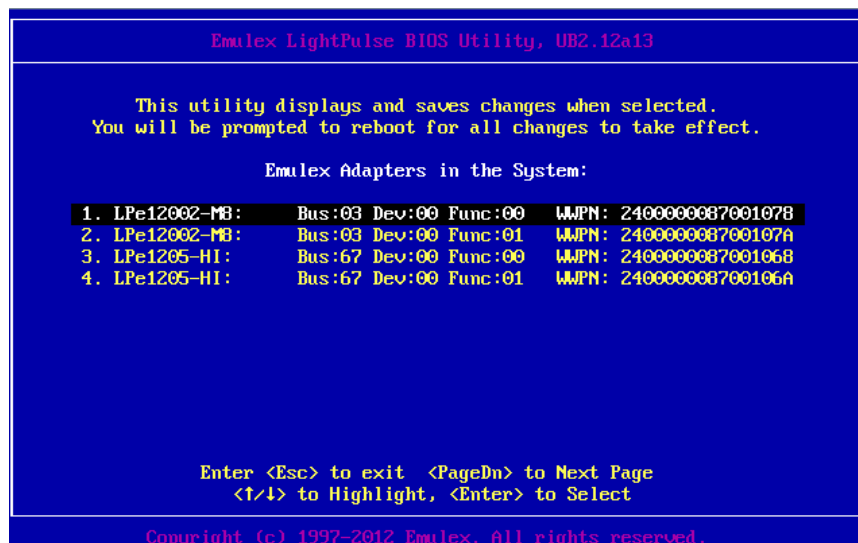
The reconfiguration of the FC boot setting is required when you change the WWPN value after the configuration is completed. In this case, reconfigure the setting for the FC boot by the following steps.

1. Turn on the remote console, then click [Power] - [Power On] in tool bar of the remote console to turn on the system.
2. When the following screen appears during startup of the system, press [Ctrl] and [E] simultaneously.

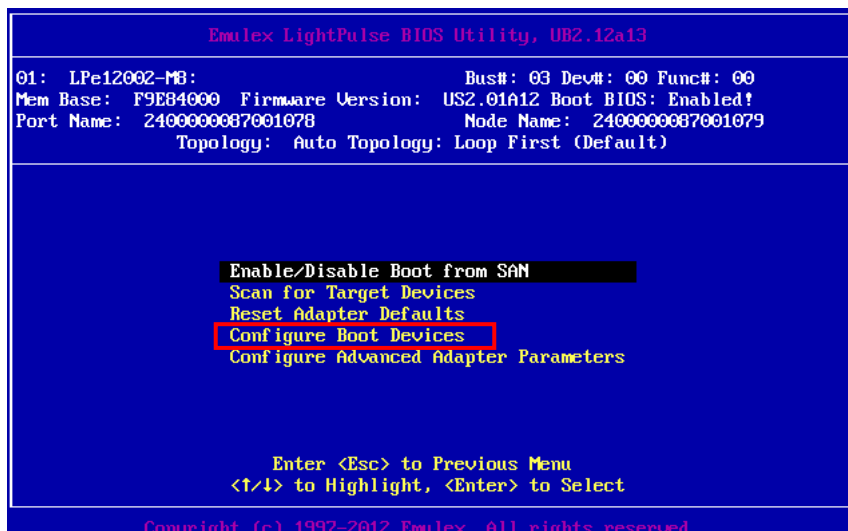
```
Emulex LightPulse FC BIOS, Version 2.12a12
Copyright (c) 1997-2012 Emulex. All rights reserved.

Press <Alt E> or <Ctrl E> to enter Emulex BIOS configuration
utility. Press <s> to skip Emulex BIOS
```

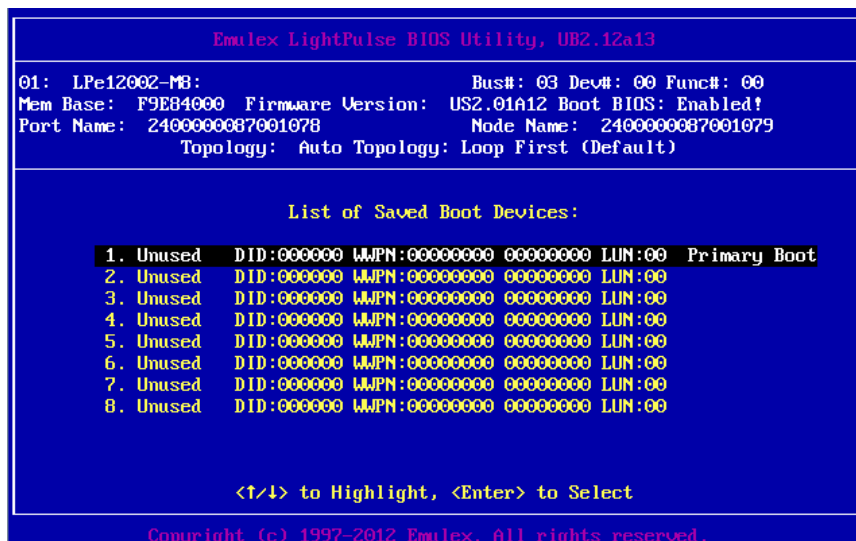
3. Emulex BIOS Utility opens. Select the port to register the device. In this explanation, port 1 is selected for example.



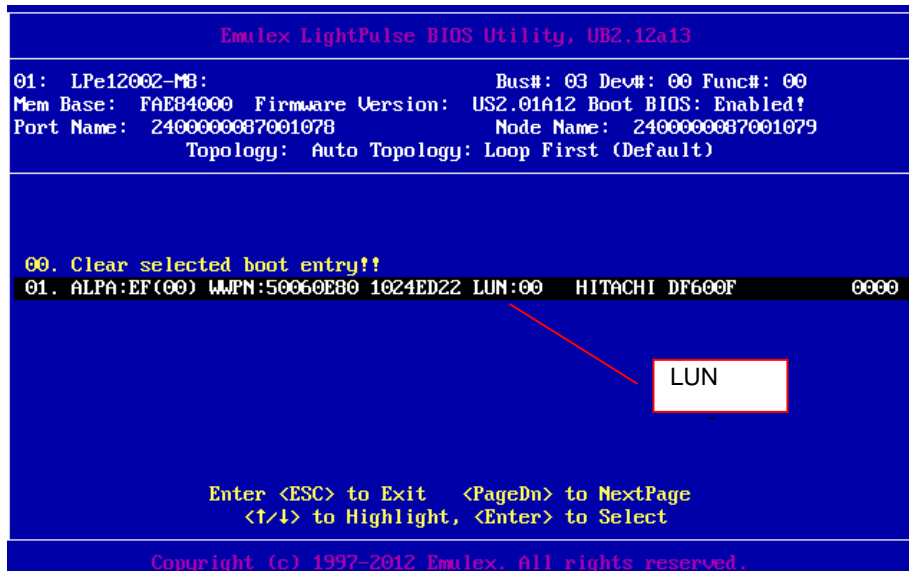
4. Select [Configure Boot Devices] and press [Enter] key.



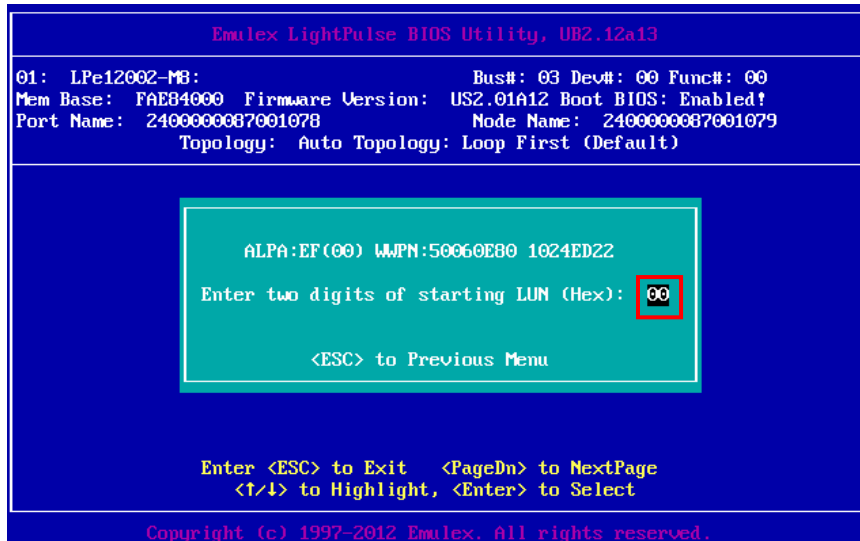
5. Register the boot device. In this explanation, Entry No. 1 is selected for example. Press [Enter] key.



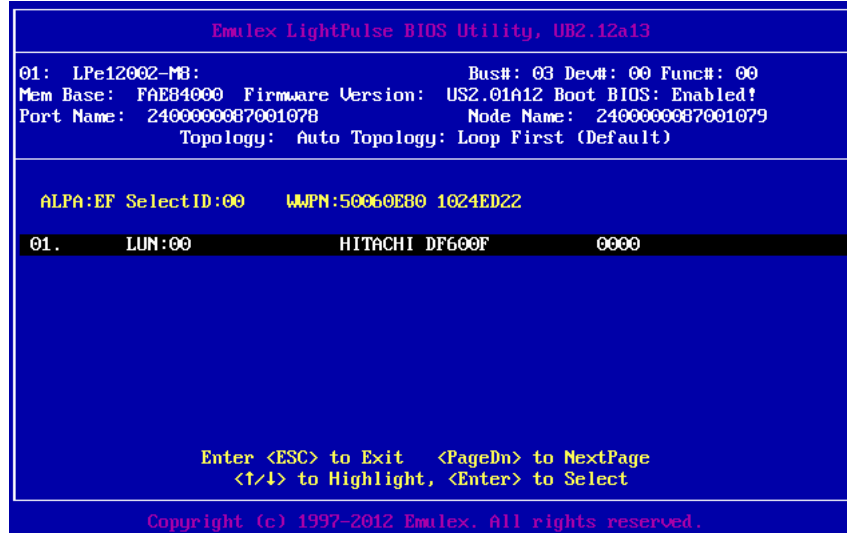
6. The device list is displayed. Confirm the device to be registered, and select the device. In this explanation, the selected device is "01" for example. Press [Enter] key.



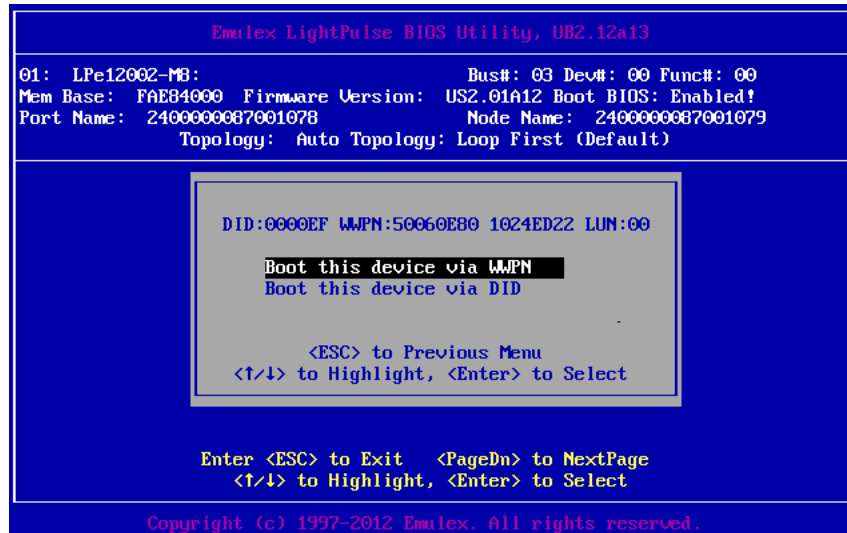
7. A pop-up message is displayed. Input "00", press [Enter] key.



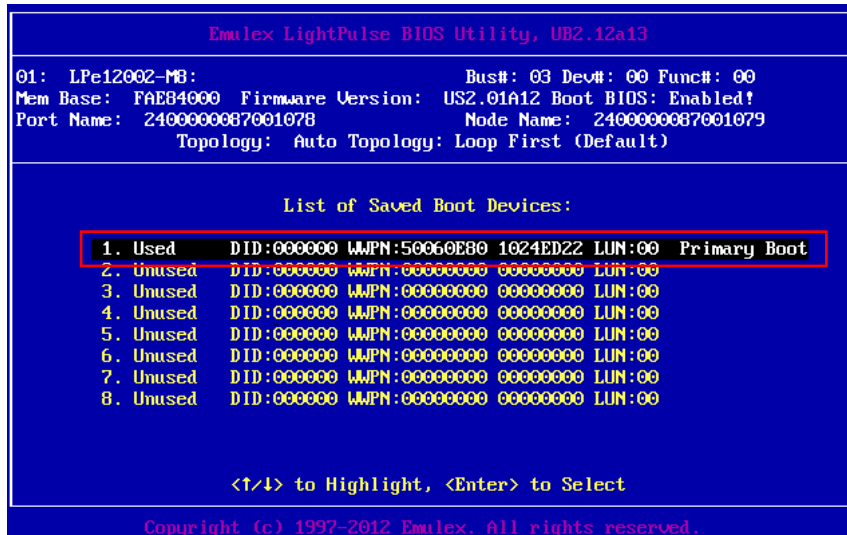
8. The LU list is displayed. Select the device, and press [Enter] key.



9. The following is popped-up. Select the choice, press [Enter] key. In this explanation, WWPN is used.



10. The following screen is displayed. Confirm that the device is registered to No.1.

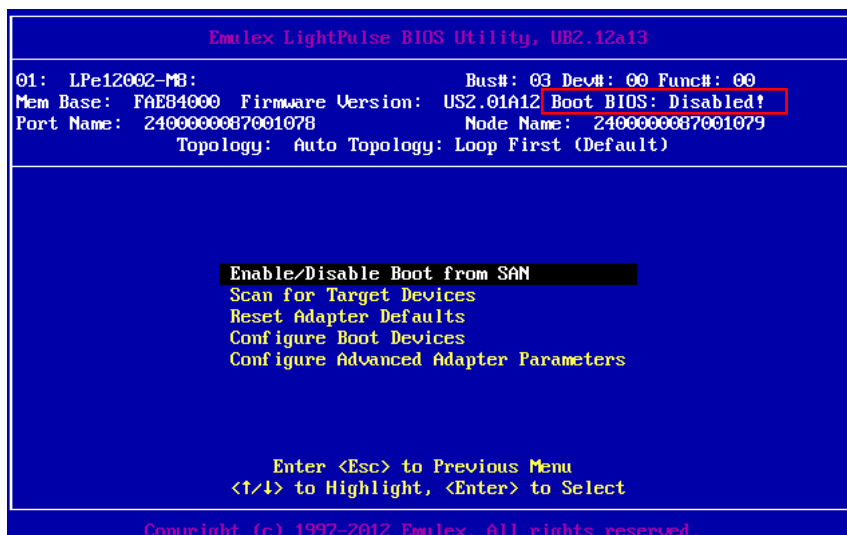


11. If configuring multiple devices, repeat the steps from 5 to 10.
12. Go to "(2) FC Device Configuration for Booting".

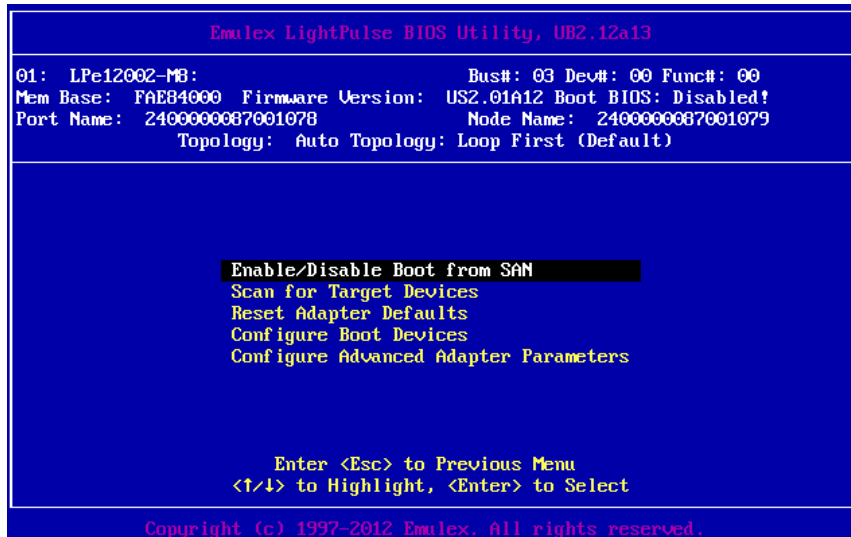
(2) FC Device Configuration for Booting

If the FC device is used for boot device, the BIOS must be "Enabled".
If the FC device is not used for boot device, the BIOS should be "Disabled".

1. Confirm the message "Boot BIOS : XXXXXXXX" in the screen. If the message is "Disabled!", select "Enable/Disable Boot from SAN", and press [Enter] key.
If the message is "Enabled!", the configuration process is not necessary.



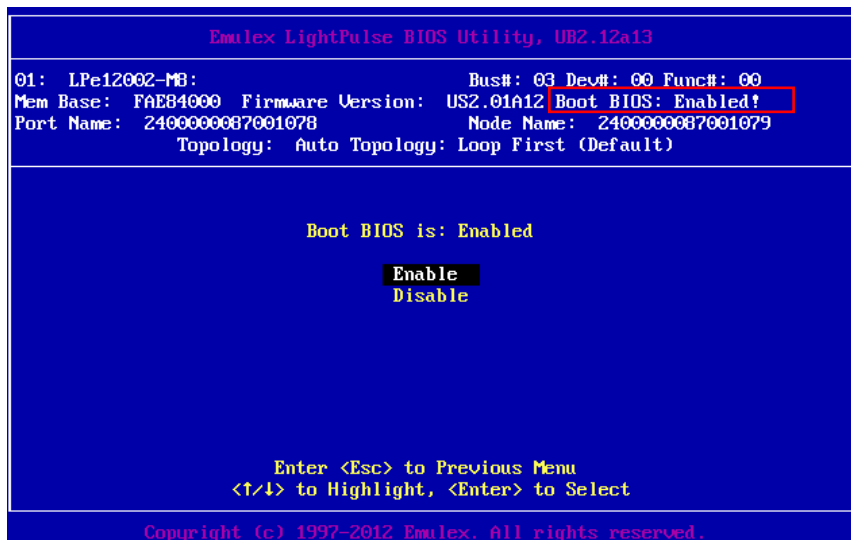
2. Select " Enable/Disable Boot from SAN" and press [Enter] key.



3. In the following screen, select "Enable" and press [Enter].



4. Confirm that the message " Boot BIOS: Enabled!" is displayed.



5. Reboot the system, and the procedure is complete.

4.4.2 Fibre Channel Configuration (16Gb Fibre Channel)

(1) Fibre Channel Configuration



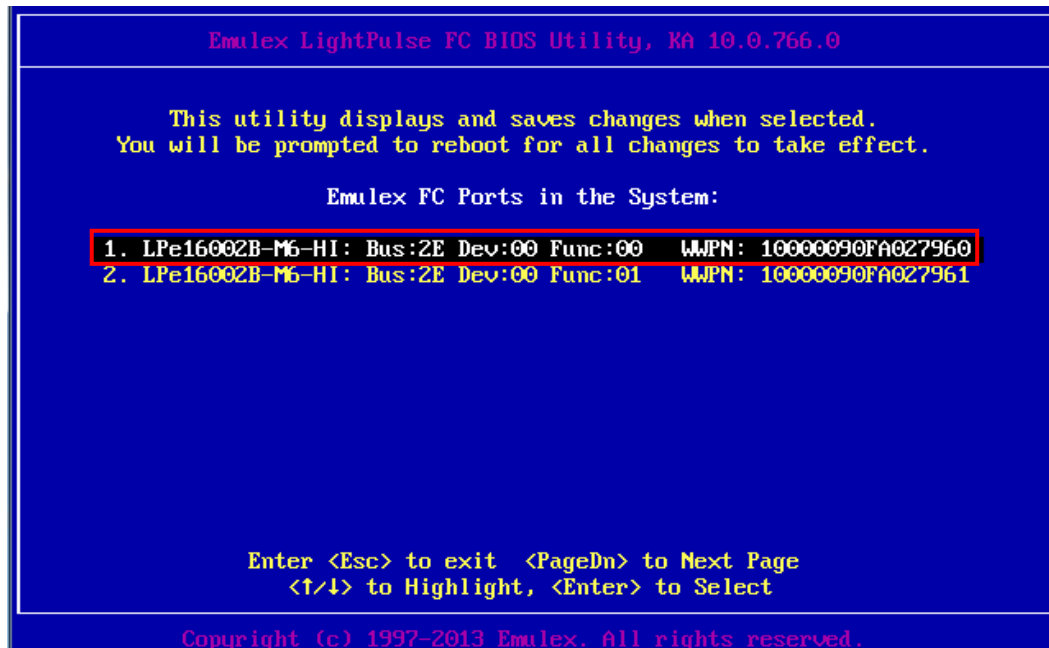
The reconfiguration of the FC boot setting is required when you change the WWPN value after the configuration is completed. In this case, reconfigure the setting for the FC boot by the following steps.

1. Turn on the remote console, then click [Power] - [Power On] in tool bar of the remote console to turn on the system.
2. When the following screen appears during startup of the system, press [Ctrl] and [E] simultaneously.

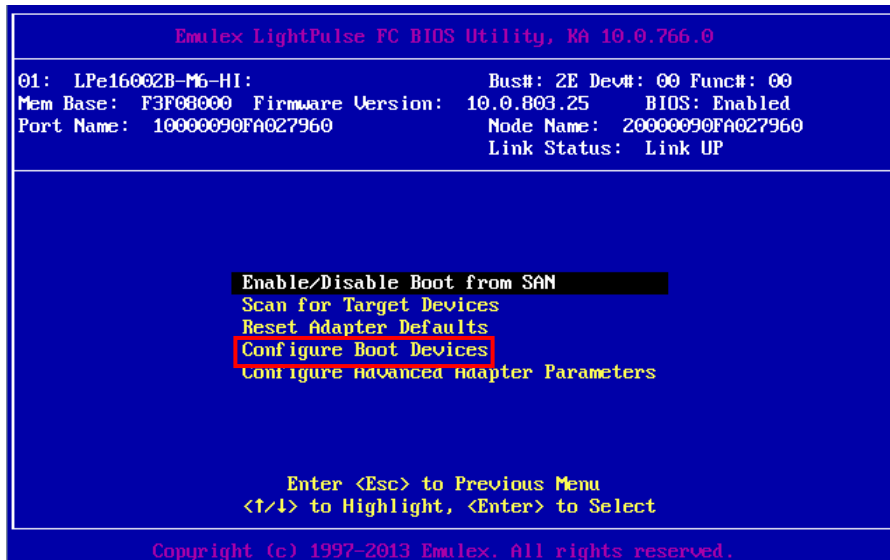
```
!!! Emulex LightPulse x86 BIOS !!!, Version 2.02a1
Copyright (c) 1997-2008 Emulex. All rights reserved.

Press <Alt E> or <Ctrl E> to enter Emulex BIOS configuration
utility. Press <s> to skip Emulex BIOS
```

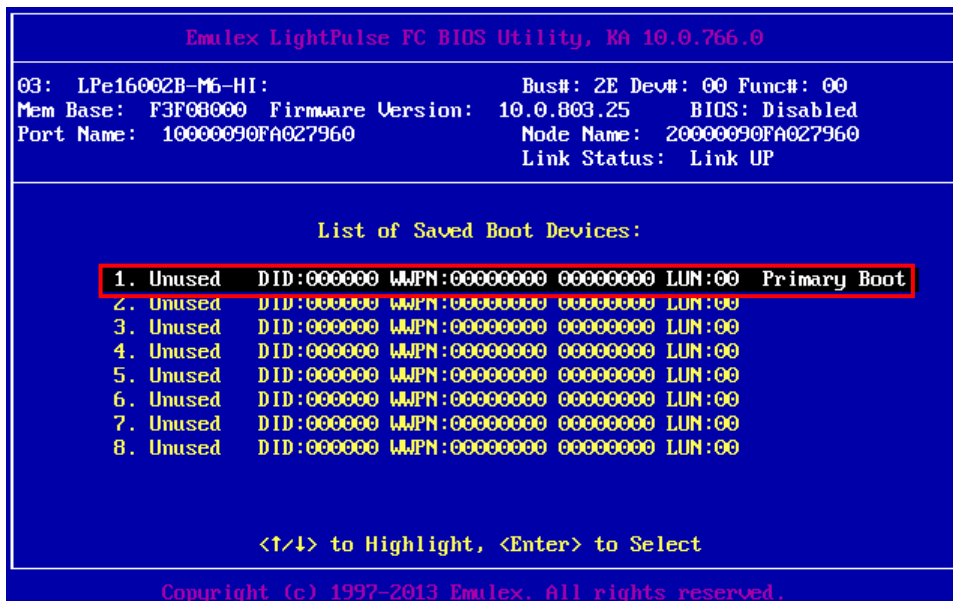
3. Emulex BIOS Utility opens. Select the port to register the device. In this explanation, port 1 is selected for example. Select "1", and press [Enter] key.



4. Select [Configure Boot Devices] in the following screen by arrow key and press [Enter] key.



5. Register the boot device in the following screen. In this explanation, port 1 is selected for example. Select "1", and press [Enter] key.



6. The device list is displayed. Confirm the device to be registered, select the device and press [Enter] key.

```
Emulex LightPulse FC BIOS Utility, KA 10.0.766.0

03: LPe16002B-M6-HI:          Bus#: 2E Dev#: 00 Func#: 00
Mem Base: F3F00000 Firmware Version: 10.0.803.25  BIOS: Disabled
Port Name: 10000090FA027960   Node Name: 20000090FA027960
                               Link Status: Link UP

00. Clear selected boot entry!!                                00
01. DID:0B3200 WWPN:50060E80 1024E9B0 LUN:00  HITACHI DF600F  0000

Enter <ESC> to Exit  <PageDn> to NextPage
<↑/↓> to Highlight, <Enter> to Select

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```

7. A pop-up message is displayed. Input LUN (Double figures) of the device.
Input "00", press [Enter] key.

```
Emulex LightPulse FC BIOS Utility, KA 10.0.766.0

03: LPe16002B-M6-HI:          Bus#: 2E Dev#: 00 Func#: 00
Mem Base: F3F00000 Firmware Version: 10.0.803.25  BIOS: Disabled
Port Name: 10000090FA027960   Node Name: 20000090FA027960
                               Link Status: Link UP

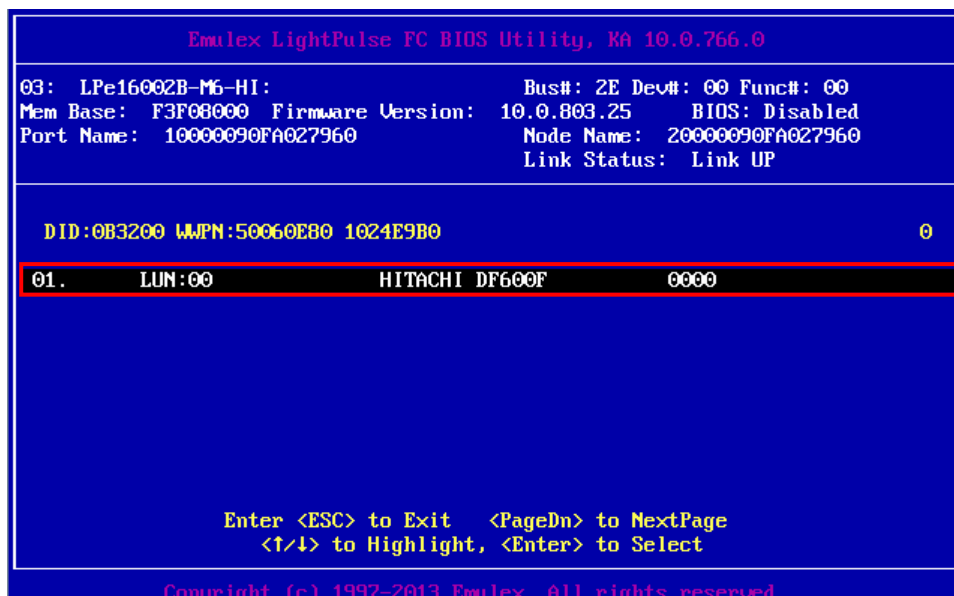
DID:0B3200 WWPN:50060E80 1024E9B0
Enter two digits of starting LUN (Hex): 00

<ESC> to Previous Menu

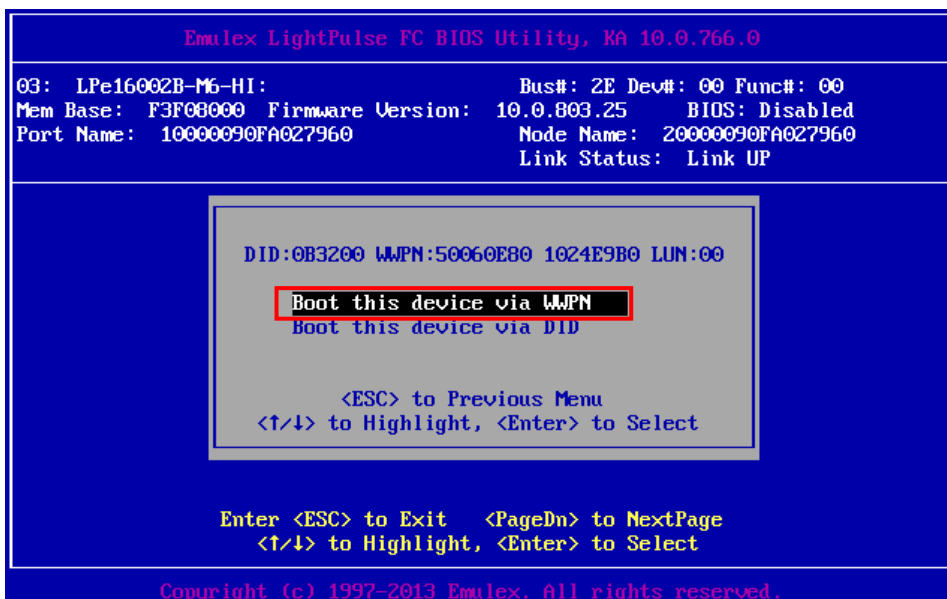
Enter <ESC> to Exit  <PageDn> to NextPage
<↑/↓> to Highlight, <Enter> to Select

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```

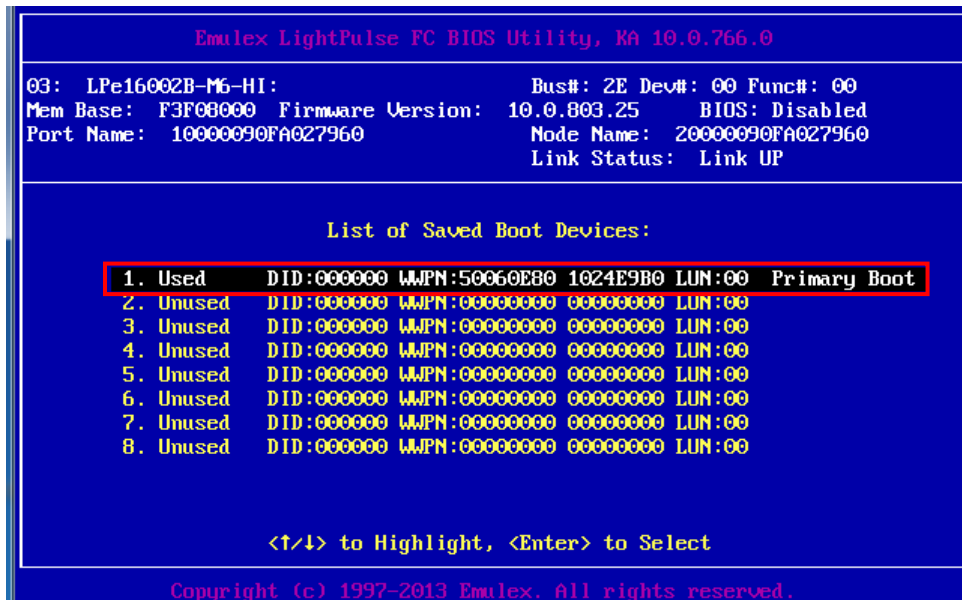
8. The LU list is displayed. Select the device to be registered and press [Enter] key.



9. The following is popped-up. Select WWPN or DID, press [Enter] key. In this explanation, WWPN is used.



10. The following screen is displayed. Confirm that the device is registered to No.1.



11. If configuring multiple devices, repeat from step 5 to step 10.
12. Go to "4.4.2 (2) FC Device Configuration for Booting".

(2) FC Device Configuration for Booting

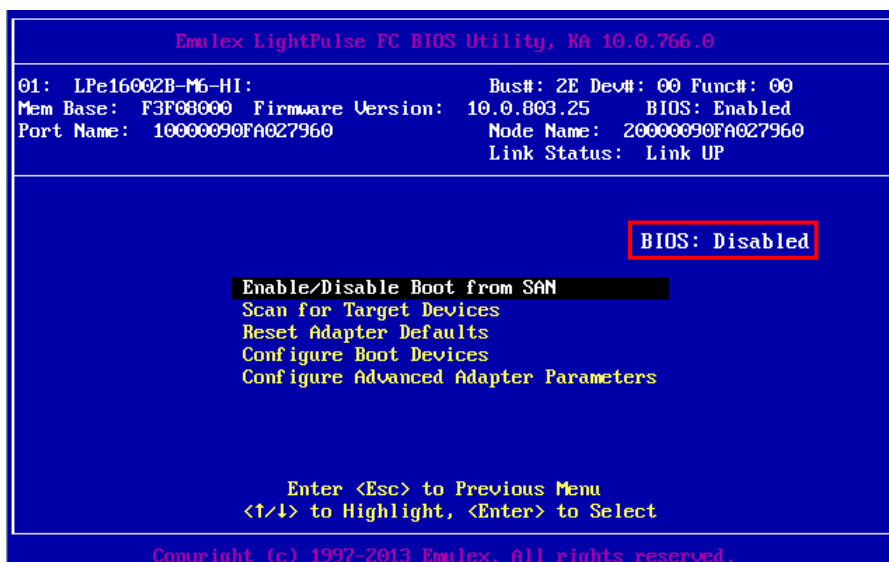
If the FC device is used for boot device, the BIOS must be "Enabled".

If the FC device is not used for boot device, the BIOS should be "Disabled".

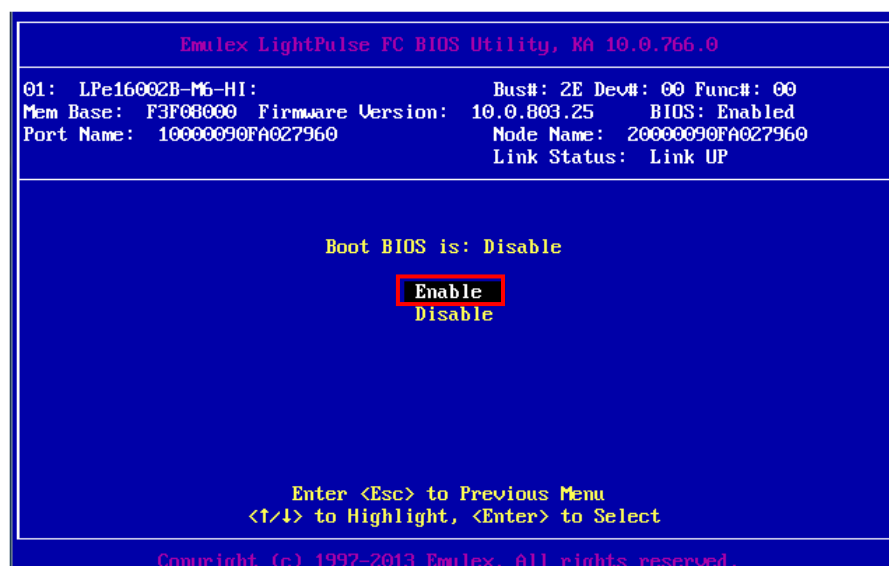
1. Confirm the value of BIOS in the following screen.

If the value is "BIOS: Disabled", select "Enable/Disable Boot from SAN".

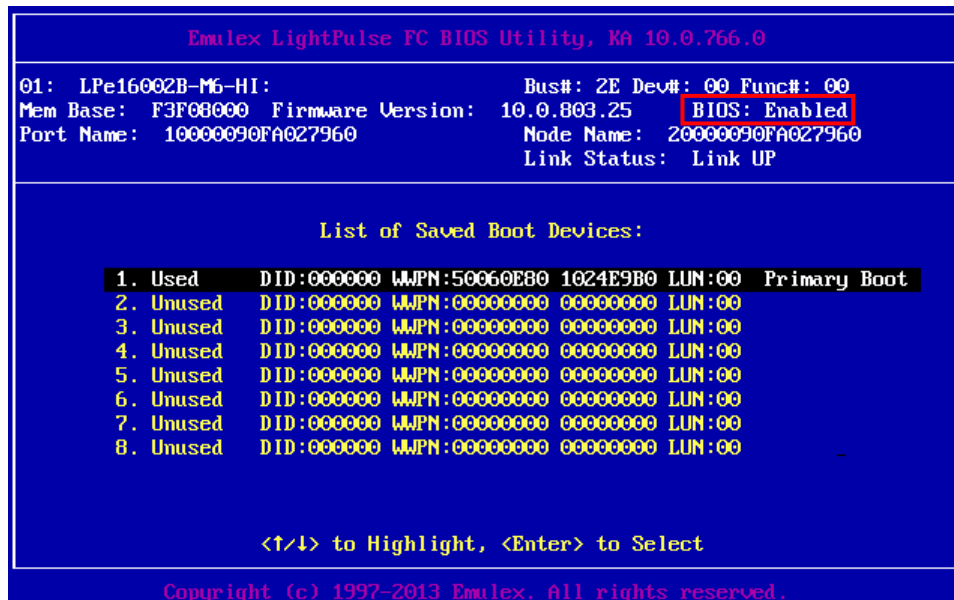
If the value is "BIOS: Enabled", the boot configuration procedure is complete.



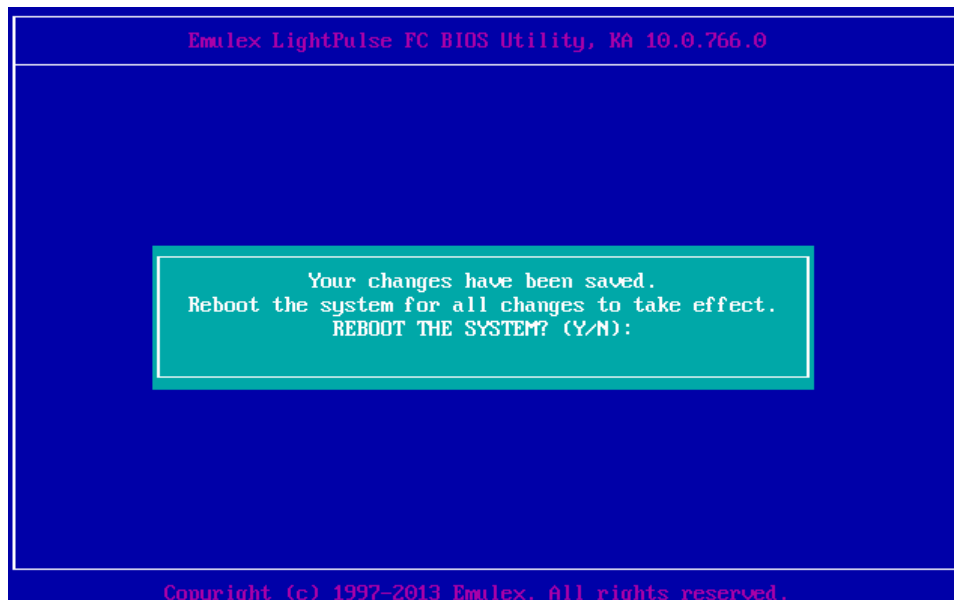
2. Select "Enable", and press [Enter] key.



3. Confirm that the value of BIOS has been changed to "Enabled".



4. Press [ESC] key and the following screen is displayed. Press [Y] key.



5. The system reboots.

4.5 FC expansion card / FC board (UEFI on CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4)

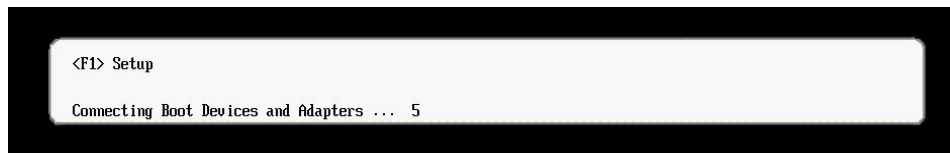
4.5.1 Fibre Channel Configuration (8Gb Fibre Channel)

(1) Fibre Channel Configuration



The reconfiguration of the FC boot setting is required when you change the WWPN value after the configuration is completed. In this case, reconfigure the setting for the FC boot by the following steps.

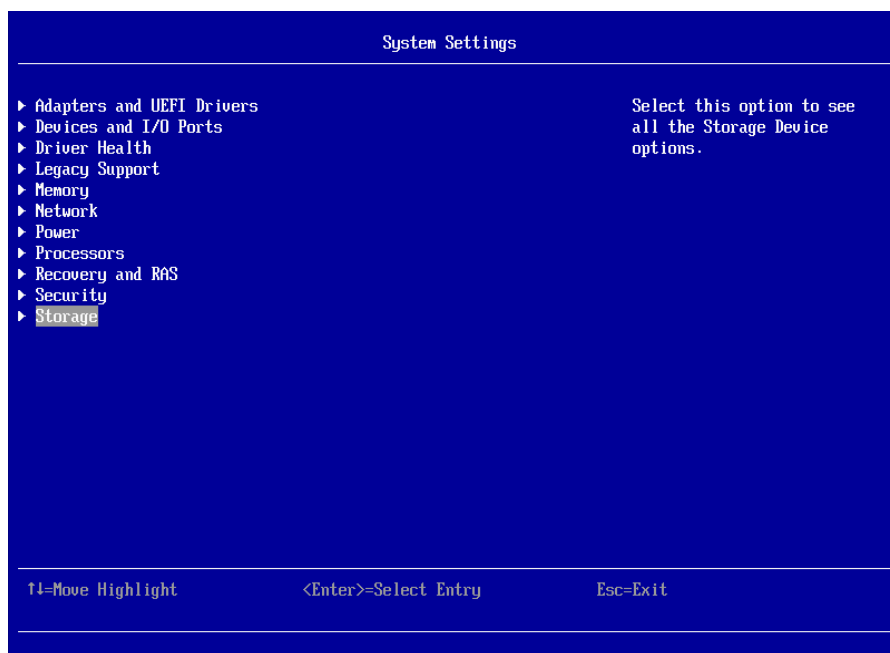
1. Turn on the remote console, then click [Power] - [Power On] in tool bar of the remote console to turn on the system.
2. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



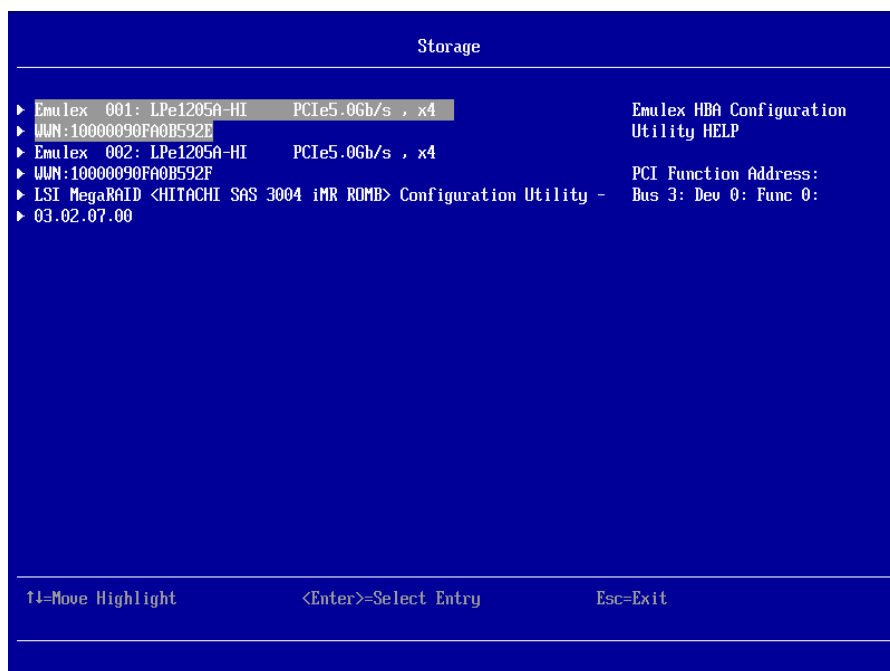
3. "System Configuration and Boot Management" opens, and select "System Settings" and press [Enter].



4. Move the cursor to "Storage" and press [Enter] key.



5. Select the port to register the device and press [Enter] key.



The WWN section cannot display the AddWWN even if the AddWWN is configured before booting. The AddWWN can be confirmed in SVP screen.

6. Emulex Adapter Configuration Main Menu opens. Select [Add Boot device] and press [Enter] key.

```
Emulex Adapter Configuration Main Menu

001: LPe1205A-HI      PCIe5.0Gb/s , x4      Add Boot Device
LPe1205A-HI Node Name : 20000090FA0B592E
Seg#: 000 Bus#: 03 Dev#: 00 Func#: 00

Back to Display Adapters and RECONNECT DEVICES
Set Boot from SAN          <Enable>
▶ Scan for Fibre Devices
▶ Add Boot Device
▶ Delete Boot Device
▶ Change Boot Device Order
▶ Configure HBA and Boot Parameters
▶ Set Emulex Adapter to Default Settings
▶ Display Adapter Info

↑↓=Move Highlight          <Enter>=Select Entry      Esc=Exit
```

7. The device list is displayed. Confirm the device to be registered, and select the device and press [Enter] key.

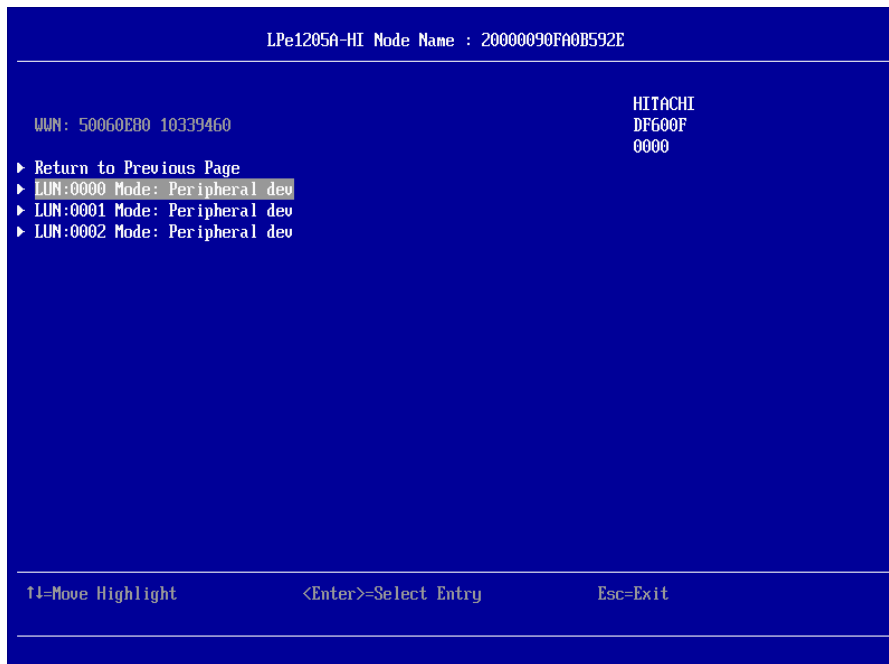
```
SAN Discovery Target List

LPe1205A-HI Node Name : 20000090FA0B592E      WWN: 50060E80 10339460
Here are the discovered targets:                Port ID: 050000

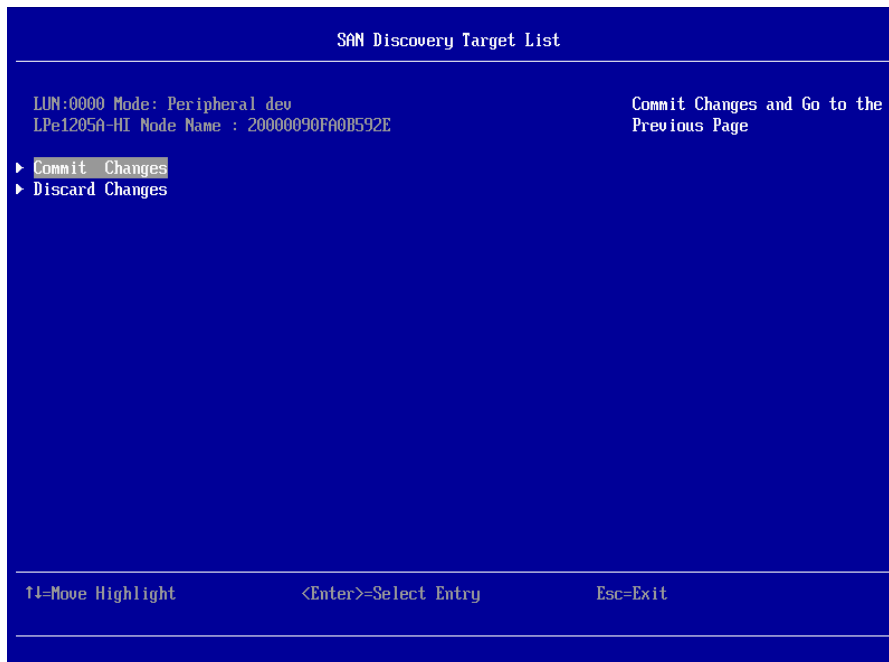
▶ Go to Configuration Main Menu
▶ 0001: HITACHI DF600F      0000

↑↓=Move Highlight          <Enter>=Select Entry      Esc=Exit
```

8. The LU list is displayed. Select the LU and press [Enter] key.



9. Select [Commit Changes] and press [Enter] key.

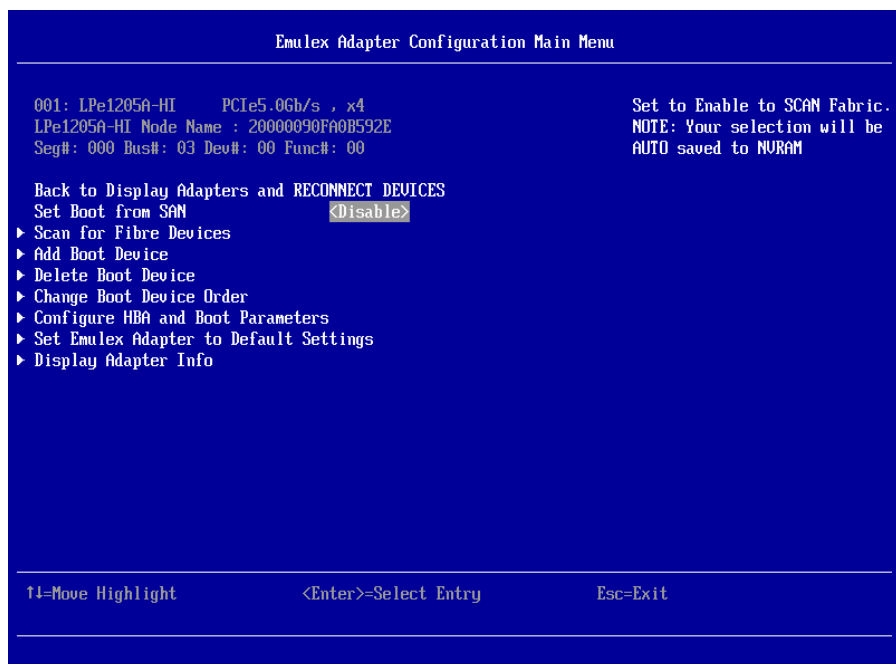


10. If configuring multiple devices, repeat from step 5 to step 9.

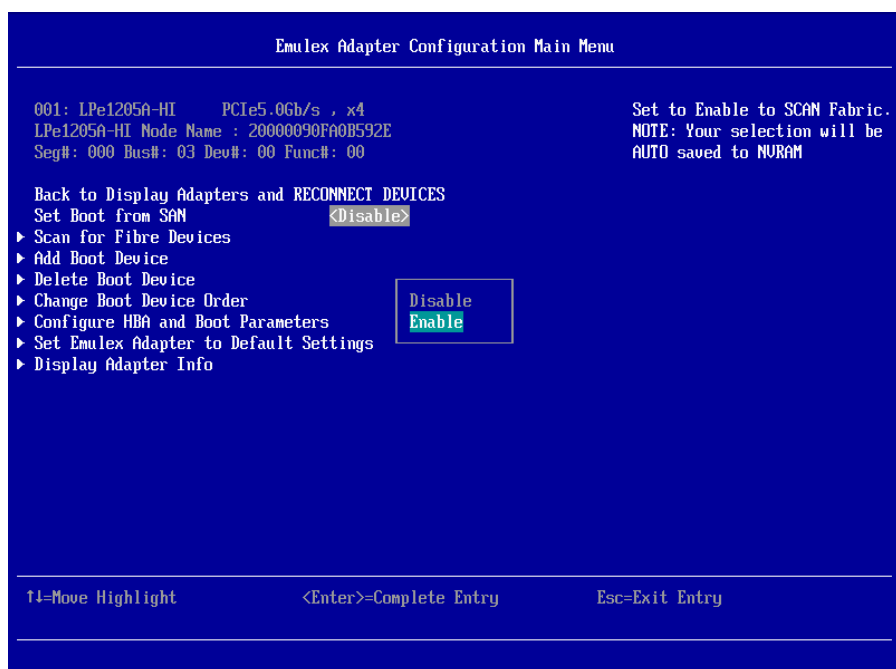
11. Go to "4.4.1 (2) FC Device Configuration for Booting".

(2) FC Device Configuration for Booting

1. Press [Esc] key and return to Emulex Adapter Configuration Main Menu.
2. Select [Set Boot from SAN].



3. Select [Enable] and press [Enter] key.



4. Press [Esc] key and return to "System Configuration and Boot Management" screen.
5. Select "Exit Setup" in "System Configuration and Boot Management" screen and press [Enter] key.
6. The message "Do you want to exit Setup Utility?" displayed, and press [Y] key.
7. In the case that the configuration is changed, the system reboots. Or in the case that the configuration is not changed, the system continues booting.

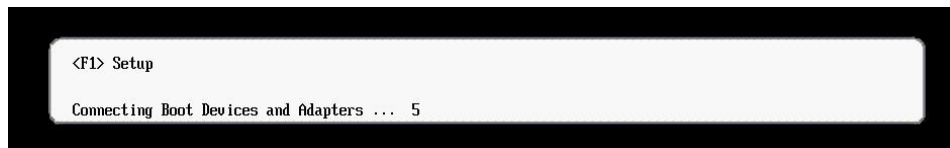
4.5.2 Fibre Channel Configuration (16Gb Fibre Channel)

(1) Fibre Channel Configuration



- The reconfiguration of the FC boot setting is required when you change the WWPN value after the configuration is completed. In this case, reconfigure the setting for the FC boot by the following steps.
- Examples of screen in this chapter are based on FW10.2.*.*. Following procedures are common among supported firmware versions.

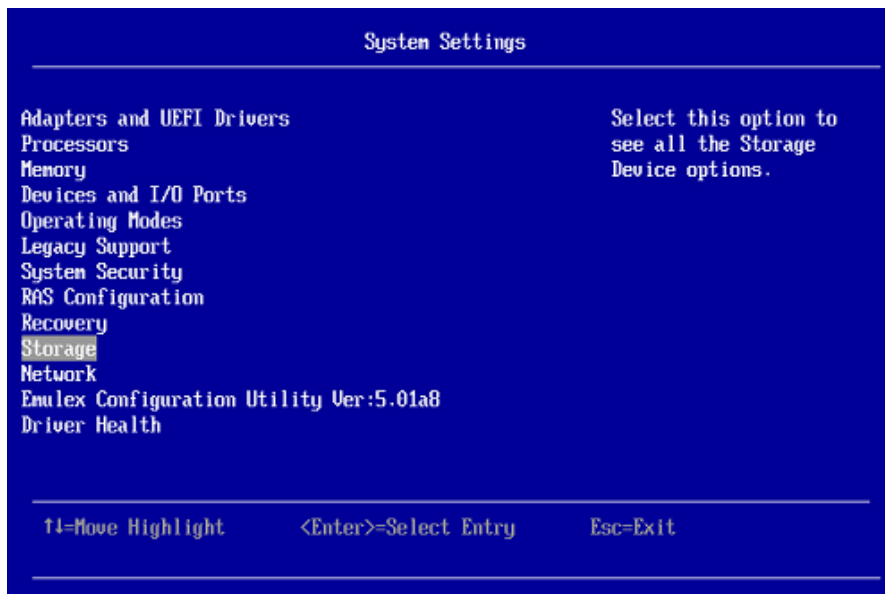
1. Turn on the remote console, then click [Power] - [Power On] in tool bar of the remote console to turn on the system.
2. When the following screen appears during the startup of the system, press <F1> key before **Connecting BootDevices and Adapters ...** counter expires.



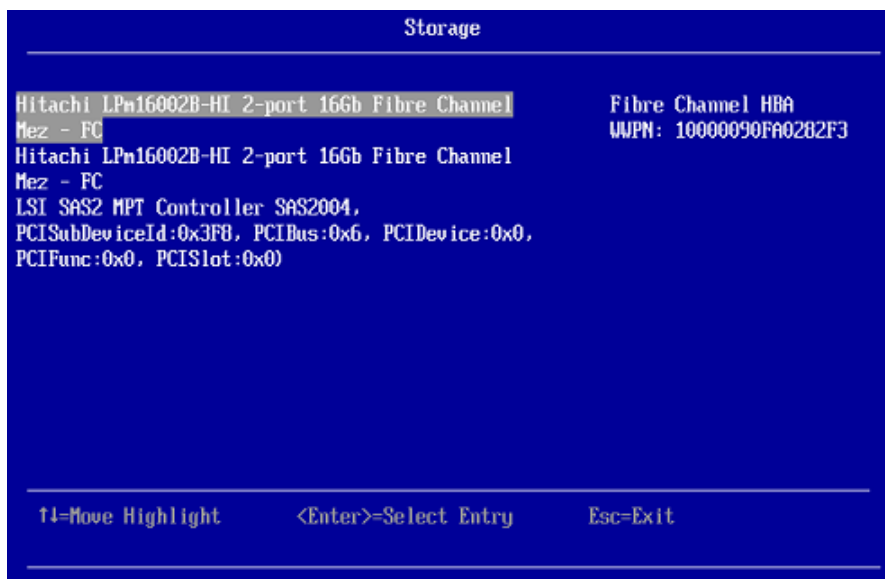
3. "System Configuration and Boot Management" opens, and select "System Settings" and press [Enter].



4. Move the cursor to "Storage" and press [Enter] key.



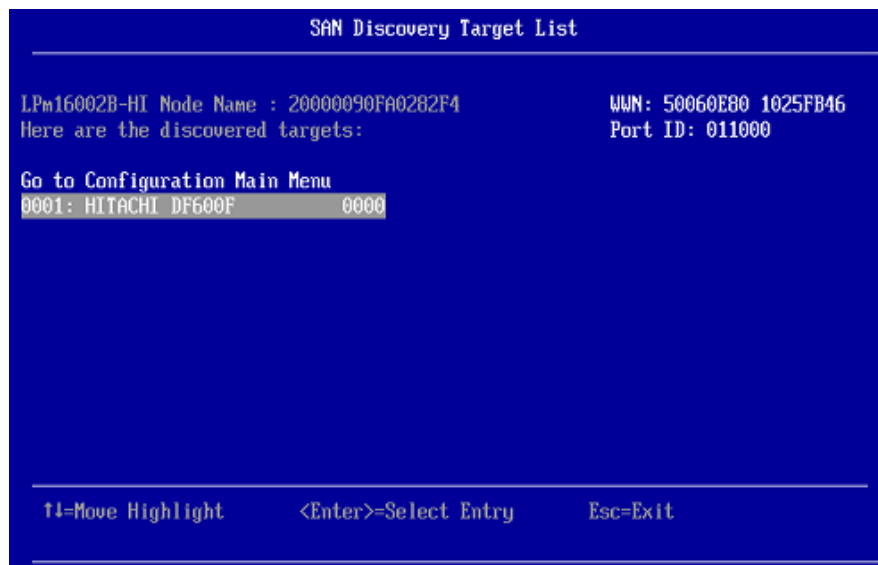
5. Select the port to register the device and press [Enter] key.



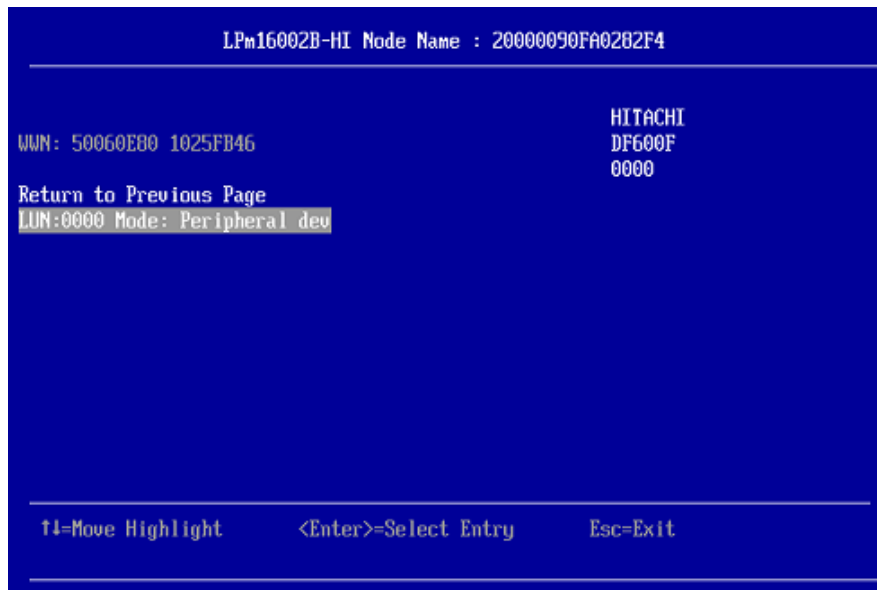
6. Select [Add Boot device] and press [Enter] key.



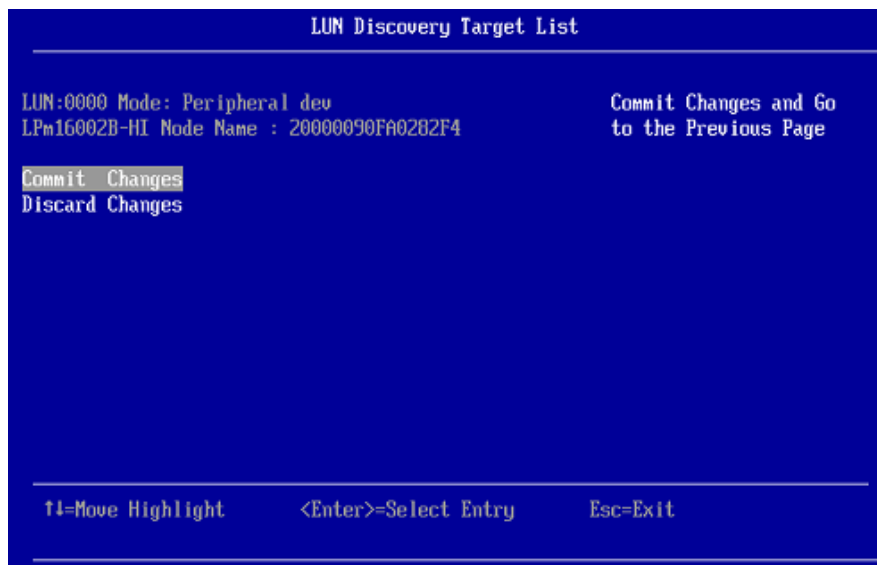
7. The device list is displayed. Confirm the device to be registered, and select the device and press [Enter] key.



8. The LU list is displayed. Select the LU to be registered and press [Enter] key.



9. Select [Commit Changes] and press [Enter] key.



10. If configuring multiple devices, repeat from step 5 to step 9.
11. Go to "4.4.2 (2) FC Device Configuration for Booting".

(2) FC Device Configuration for Booting

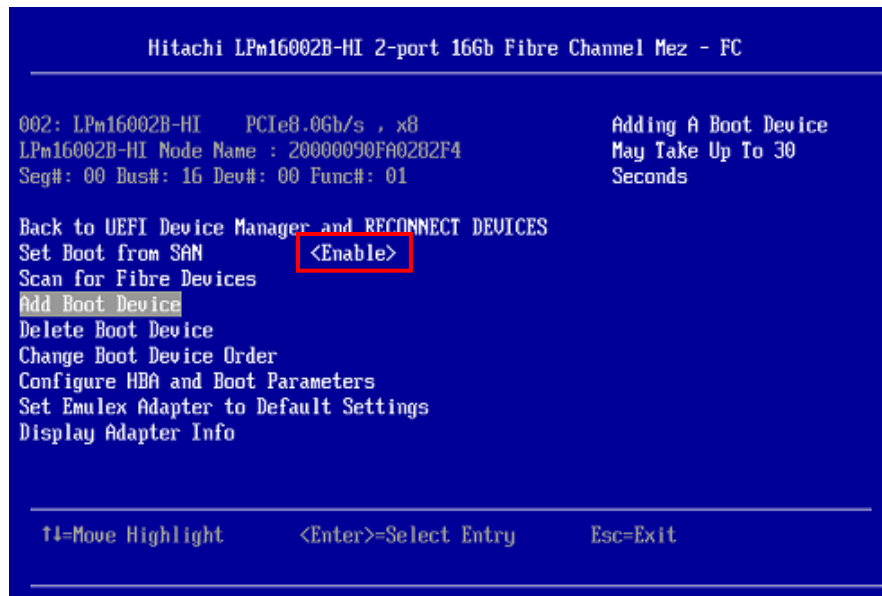
1. Press [Esc] key and return to Emulex Adapter Configuration Main Menu.
2. Select [Set Boot from SAN].



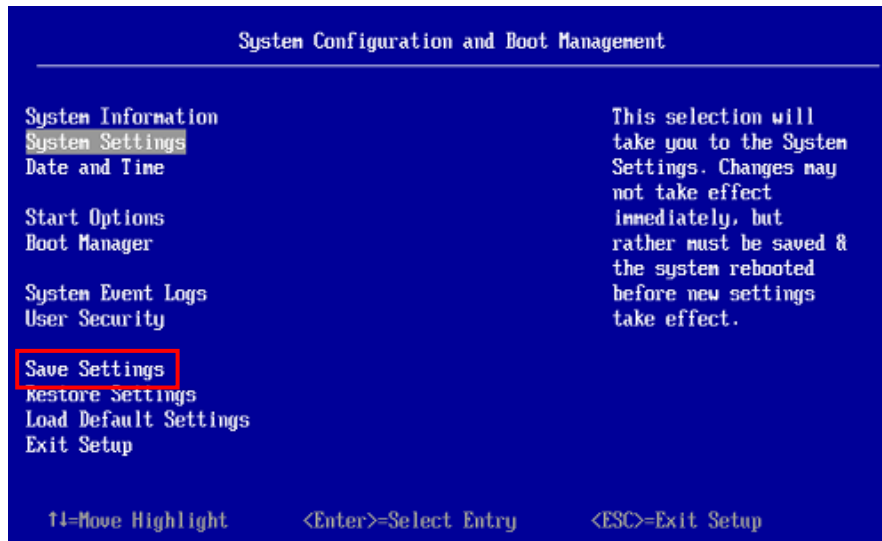
3. Select [Enable] and press [Enter] key.



4. Confirm that the value of "Set Boot from SAN" is "<Enable>".



5. Press [Esc] key and return to "System Configuration and Boot Management" screen. Select "Save Settings" and press [Enter] key.



6. The message "Do you want to exit Setup Utility?" displayed, and press [Y] key.
7. In the case that the configuration is changed, the system reboots. Or in the case that the configuration is not changed, the system continues booting.



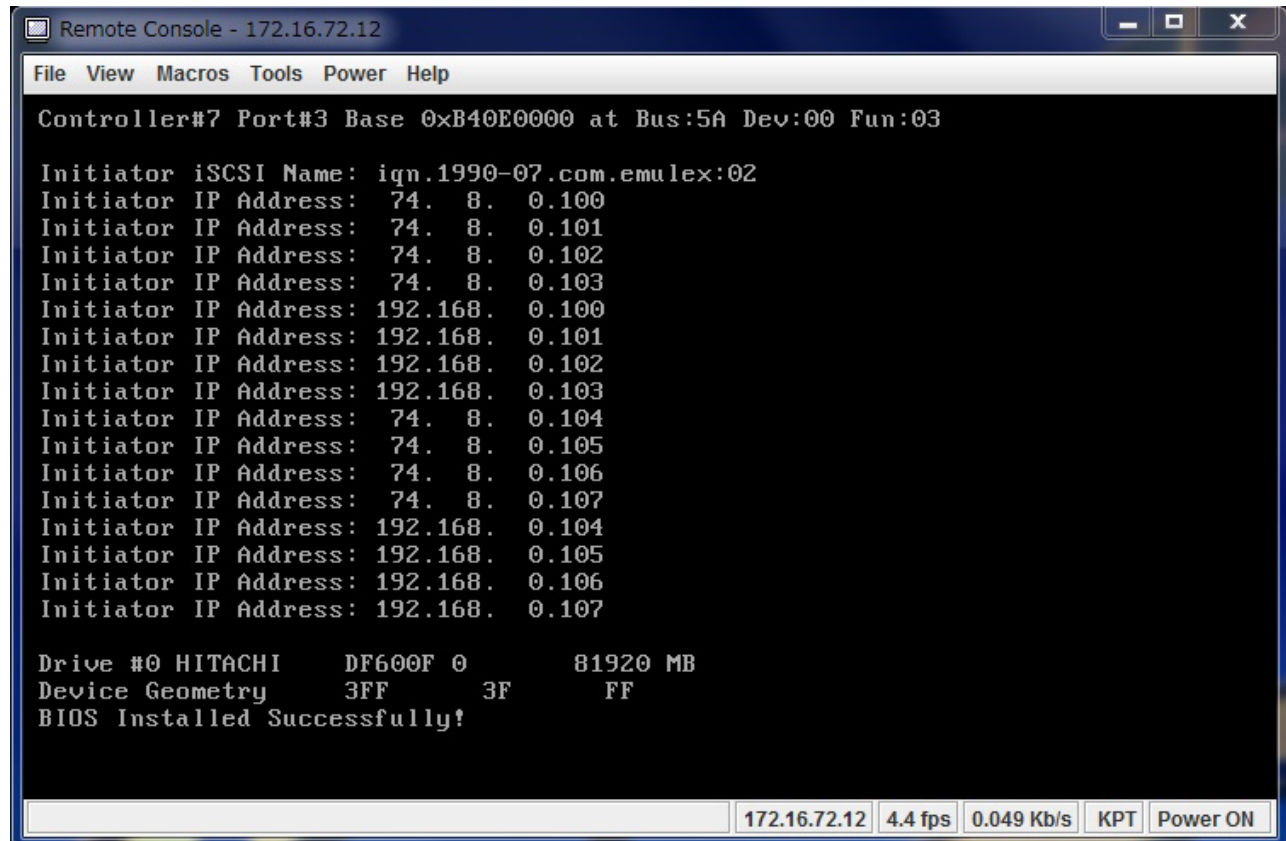
Appendix

This chapter describes the procedure of the Emulex adapters configuration..

- [A.1 Notes for iSCSI mode operation](#)
- [A.2 Notes for MAC Address indication](#)
- [A.3 Memory Dump Settings](#)
- [A.4 Getting information of FC expansion card / FC board](#)
- [A.5 Firmware update procedure](#)

A.1 Notes for iSCSI mode operation

- (a) After BIOS installed successfully, it may take some time until the next message appears. The time depends on the number of session, for example, it will take 6 minutes for 64 sessions.



- (b) It will take about 40 minutes from N+M failover to OS booting in the following configurations.
- CB540A A1 model with 4 CNA expansion cards on iSCSI mode.
 - CB540A B1 model with 2 CNA expansion cards and an onboard CNA with iSCSI mode.
- (c) Hard reset will be executed during N+M failover.
- (d) iSCSI is not supported on RHEL6.7 or later, RHEL7.1 or later, Windows Server 2016 or later, VMware6.0 U3 or later and VMware6.5 or later.

A.2 Notes for MAC Address indication

The CNA products (CB500 series (CB520A A1, CB540A x1, CB520H x1 and CB520H x2) onboard CNA, 10Gb 4-port converged network expansion card, 10Gb 4-port LAN

expansion card, and CB2500 2-port CNA board) assign a MAC address to every logical port. When using Additional MAC, the order of the MAC address is assigned to every port as below.

For the setting of MAC Address, see [Web Console User's Guide - Operating the Web Console – Resources – Systems - MAC management].

Multichannel mode is Disabled (Personality : NIC) :

Controller (*1)	Physical port	Logical port	Func# [Port Configuration]	Original MAC Address		Additional MAC Address
0	0	PF0	#0	xx-xx-xx-xx-xx-10	⇒	xx-xx-xx-xx-xx-20
	1	PF1	#0	xx-xx-xx-xx-xx-14		xx-xx-xx-xx-xx-21

*1 : 10Gb 4-port converged network expansion card or 10Gb 4-port LAN expansion card have 2 controllers. A MAC address is assigned to every port of the 2 controllers.

Multichannel mode is Disabled (Personality : Storage) :

Controller (*1)	Physical port	Logical port	Func# [Port Configuration]	Original MAC Address		Additional MAC Address
0	0	PF0	#0	xx-xx-xx-xx-xx-10	⇒	xx-xx-xx-xx-xx-20
		PF2	#1	xx-xx-xx-xx-xx-11		xx-xx-xx-xx-xx-22
	1	PF1	#0	xx-xx-xx-xx-xx-14		xx-xx-xx-xx-xx-21
		PF3	#1	xx-xx-xx-xx-xx-15		xx-xx-xx-xx-xx-23

*1 : 10Gb 4-port converged network expansion card or 10Gb 4-port LAN expansion card have 2 controllers. A MAC address is assigned to every port of the 2 controllers.

Multichannel mode is Enabled (Personality : NIC or Storage) :

Controller (*1)	Physical port	Logical port	Func# [Multichannel Configuration]	Original MAC Address		Additional MAC Address
0	0	PF0	#0	xx-xx-xx-xx-xx-10	⇒	xx-xx-xx-xx-xx-20
		PF2	#1	xx-xx-xx-xx-xx-11		xx-xx-xx-xx-xx-22
		PF4	#2	xx-xx-xx-xx-xx-12		xx-xx-xx-xx-xx-24
		PF6	#3	xx-xx-xx-xx-xx-13		xx-xx-xx-xx-xx-26
	1	PF1	#0	xx-xx-xx-xx-xx-14		xx-xx-xx-xx-xx-21
		PF3	#1	xx-xx-xx-xx-xx-15		xx-xx-xx-xx-xx-23
		PF5	#2	xx-xx-xx-xx-xx-16		xx-xx-xx-xx-xx-25
		PF7	#3	xx-xx-xx-xx-xx-17		xx-xx-xx-xx-xx-27

*1 : 10Gb 4-port converged network expansion card or 10Gb 4-port LAN expansion card have 2 controllers. A MAC address is assigned to every port of the 2 controllers.

The CNA products (CB500 series (CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4) onboard CNA), CB2500 series (CB520X B1, CB520X B2, CB520X B3, CB520H B3 and CB520H B4) onboard CNA) assign a MAC address to every logical port. When using Additional MAC, the order of the MAC address is assigned to every port as below.

Multichannel mode is Disabled (Personality : NIC) :

Controller	Physical port	Physical Function	Channel No.	Original MAC Address		Additional MAC Address
0	0	PF0	#0	xx-xx-xx-xx-xx-10	⇒	xx-xx-xx-xx-xx-20
	1	PF1	#0	xx-xx-xx-xx-xx-14		xx-xx-xx-xx-xx-21
	2	PF2	#0	xx-xx-xx-xx-xx-18		xx-xx-xx-xx-xx-22
	3	PF3	#0	xx-xx-xx-xx-xx-1C		xx-xx-xx-xx-xx-23

Multichannel mode is Disabled (Personality : Storage) :

Controller	Physical port	Physical Function	Channel No.	Original MAC Address		Additional MAC Address
0	0	PF0	#0	xx-xx-xx-xx-xx-10	⇒	xx-xx-xx-xx-xx-20
		PF4	#1	xx-xx-xx-xx-xx-11		xx-xx-xx-xx-xx-24
	1	PF1	#0	xx-xx-xx-xx-xx-14		xx-xx-xx-xx-xx-21
		PF5	#1	xx-xx-xx-xx-xx-15		xx-xx-xx-xx-xx-25
	2	PF2	#0	xx-xx-xx-xx-xx-18		xx-xx-xx-xx-xx-22
		PF6	#1	xx-xx-xx-xx-xx-19		xx-xx-xx-xx-xx-26
	3	PF3	#0	xx-xx-xx-xx-xx-1C		xx-xx-xx-xx-xx-23
		PF7	#1	xx-xx-xx-xx-xx-1D		xx-xx-xx-xx-xx-27

A.3 Memory Dump Settings

This section describes how to generate the complete memory dump when Emulex 10 Gbps CNA is used as an iSCSI boot device or an FCoE boot device.

Configuring the memory dump

When using Emulex 10Gbps CNA as an iSCSI boot device or an FCoE boot device, make sure to create DedicatedDumpFile.sys as a paging file to the internal HDD. If the paging file is not produced in the internal HDD, the complete memory dump can not be generated.

Creating a paging file

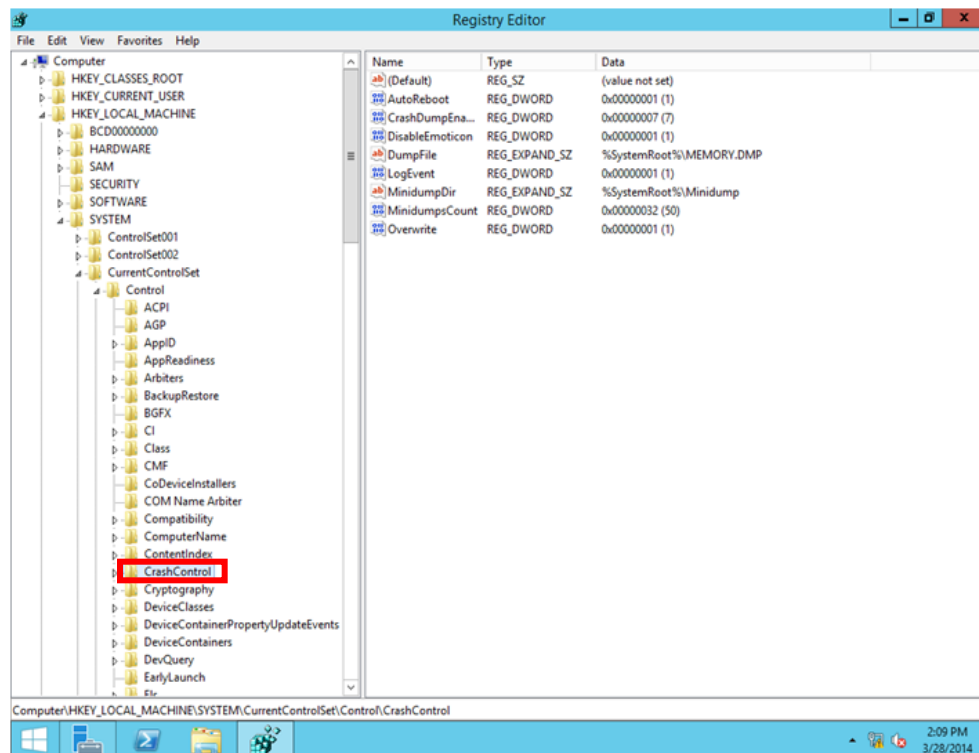
- 1 Log on to the system as a user with administrative privilege such as administrator.

On Windows Server 2008 R2, click **Start** > **Run**, type **regedit** in the dialog box, and click **OK** to start **Registry Editor**.

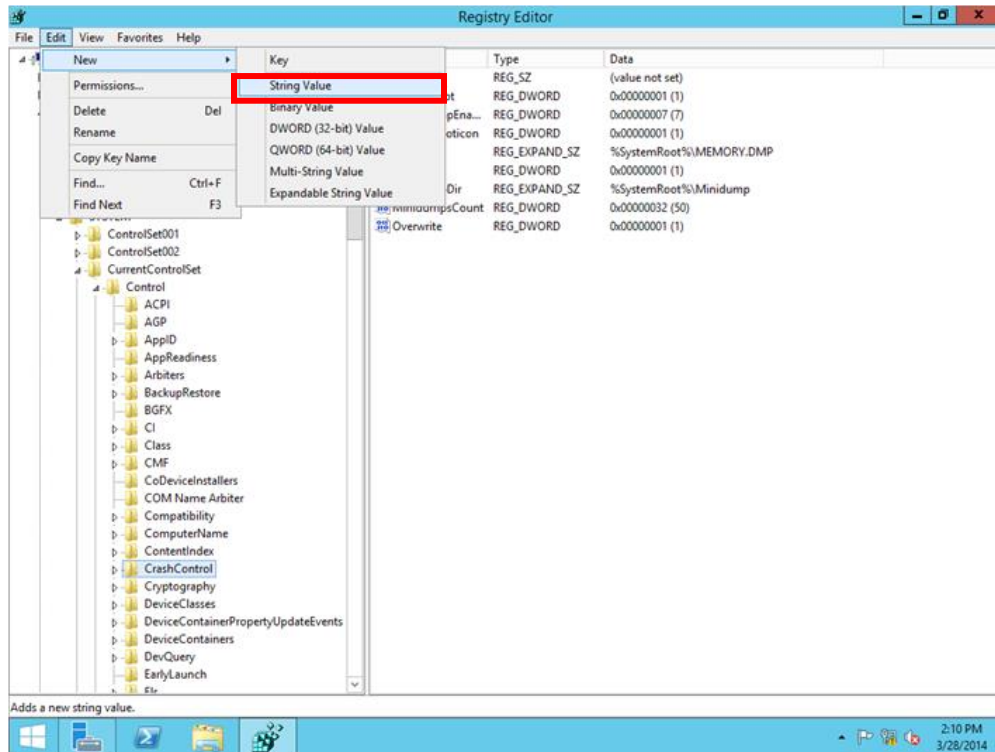
On Windows Server 2012 or 2012 R2, click **Search** in the Charms Bar, type **regedit**, and click **OK** to start **Registry Editor**.

- 2 Go to the following registry sub key.

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\CrashControl



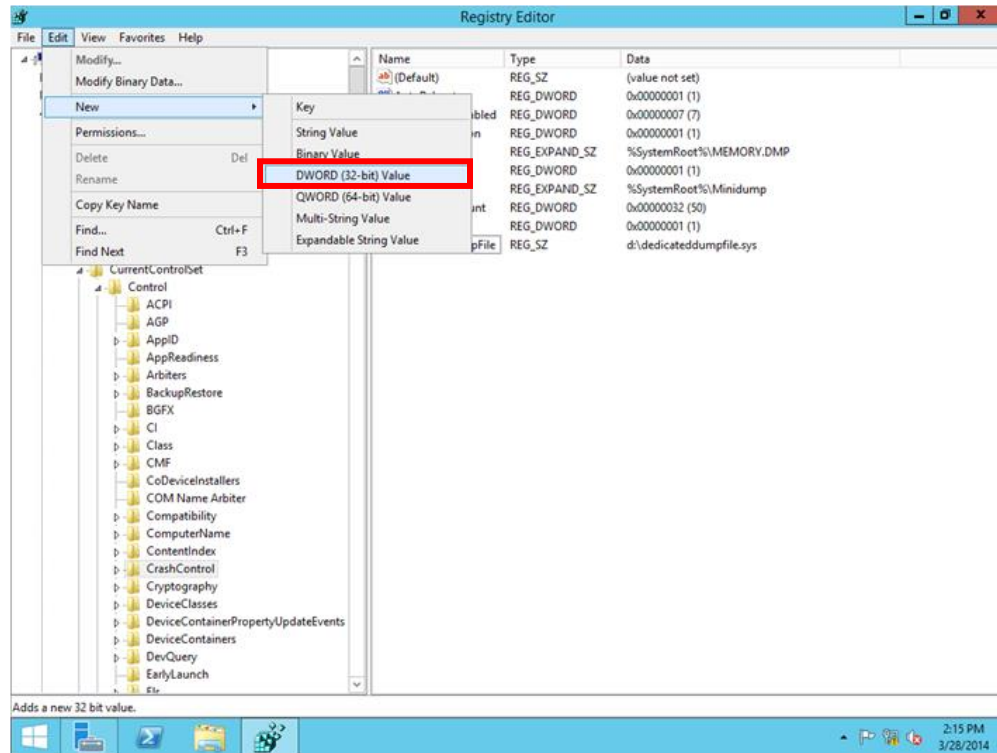
- 3 From the menu on the top of the window, click **Edit > New > String Value**, and create a registry.



- 4 Type **DedicatedDumpFile** as a name of the created registry, and press **Enter**.
- 5 Right-click **DedicatedDumpFile**, and click **Modify**. Type Internal disk path: **\<path>\dedicateddumpfile.sys** in Value data, and click **OK**.

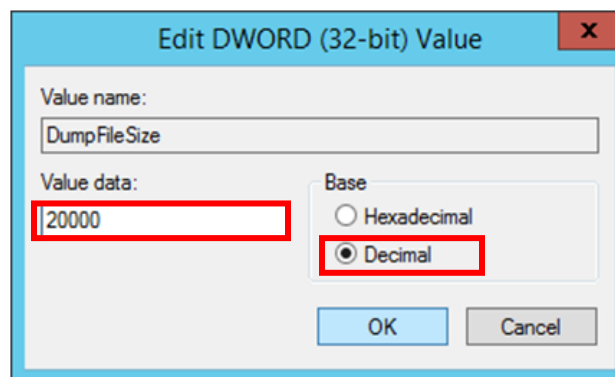
- 6 Set a dump file size.

From the menu on the top of the window, click **Edit > New > DWORD (32-bit) Value**.



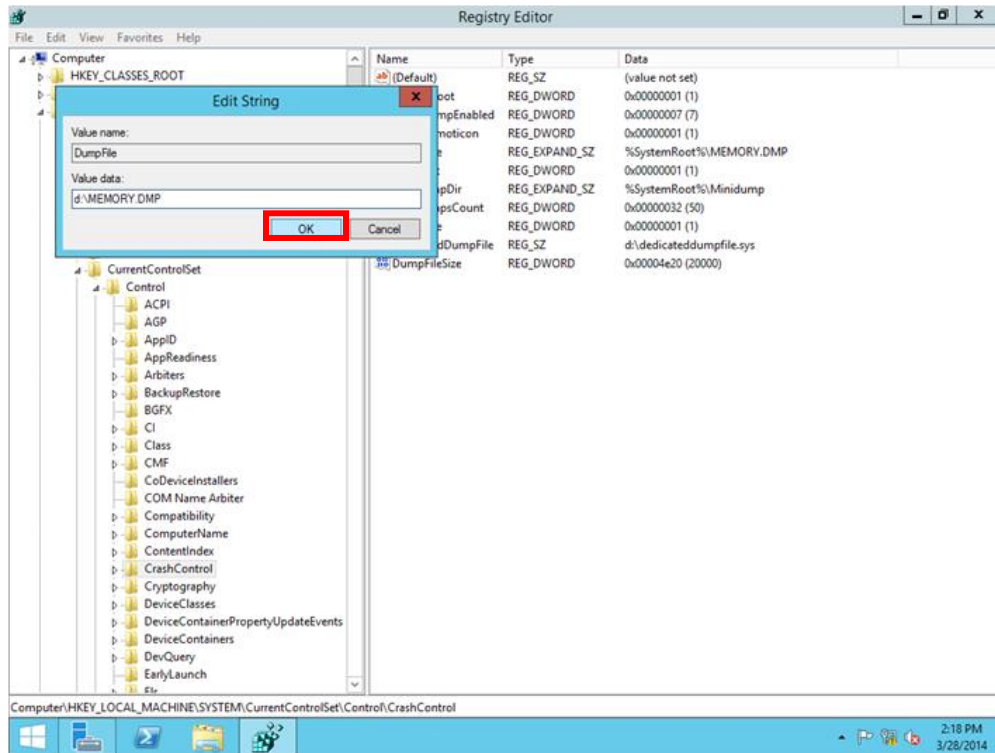
- 7 Type **DumpFileSize** as a name of the created registry, and press **Enter**.

- 8 Right-click **DumpFileSize**, and click **Modify**. In the Edit DWORD(32-bit) Value dialog box, select **Decimal** under Base. Specify a memory size more than that on board, the page file size set in step 5 in MB, in the Value data field, and click **OK**.



- 9 Right-click **DumpFile**, and click **Modify**. Type Internal disk path: **\<path>\Memory.dmp** in the Value data field, and click **OK**.

When the system crashes, memory dump files are created in the directory specified here using the file specified in step 5 without using pagefile.sys.



- 10 Close the Registry Editor and restart Windows.



Note for Hard disk capacity of 2 TB or over

Data corruption

If memory dump is performed when a page file is set in a partition on a hard disk capacity of 2 TB or over, the partition to which the page file is dumped will be corrupted.

- Windows Server 2008 R2

To avoid this error, apply SP1 or KB2249857. See the following for details.

<http://support.microsoft.com/kb/2249857>

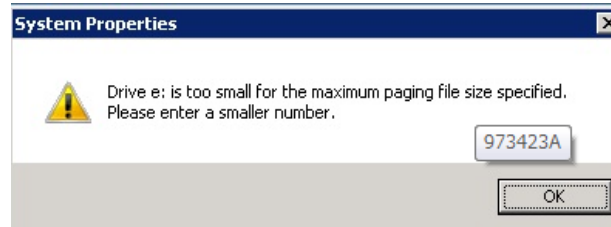
One or more volumes are corrupted on a hard disk when a dump file is saved on a computer that is running Windows 7 or Windows Server 2008 R2 if the hard disk space is larger than 2terabytes

- Windows Server 2012 or 2012 R2

This error does not occur.

Error message

When you try to set a page file in a partition with memory of 2 TB or over, the following error message will appear.



- Windows Server 2008 R2, Windows Server 2012, or 2012 R2

To avoid this error, set a page file using wmic.exe. When executing it from Powershell, type cmd.exe once and then execute the wmic.exe command.

Restart the OS after creating a page file and changing the file size. See the following for details.

<http://support.microsoft.com/kb/973423>

You cannot set page files on a partition that is larger than 2 terabytes.

A.4 Getting information of FC expansion card / FC board

This section describes how to get information of each FC expansion card or FC board without installing a utility "OneCommand Manger" on RHEL. See "Hitachi Compute Blade Emulex Adapter Use's Guide for Utility" about the utility.

Getting a number of ports

- 1 Log on to the system as a user with administrative privilege such as root.
- 2 Open a terminal window and run the following command :

```
lspci -vt | grep Emulex
```

- 3 Count number of output line. The count shows a number of ports. On following example, number of ports on 8G FC board is two.

```
# lspci - vt | grep Emulex
+-02.2-[0c]---+-00.0 Emulex Corporation Saturn-X: LightPulse Fibre Channel Host Adapte
|                \-00.1 Emulex Corporation Saturn-X: LightPulse Fibre Channel Host Adapter
```

A.5 Firmware update procedure

This section describes how to update the firmware of Emulex CNA and 16Gb Fibre Channel.

- [Firmware update procedure of Emulex CNA](#)
- [Firmware update procedure of Emulex 16Gb Fibre Channel](#)

Firmware update procedure of Emulex CNA



The first, apply the firmware version [11.1.215.0] when you update the firmware from "4.*.*.*" to "11.4.*.* or later". And then, apply the desired firmware version.

1. Connect the remote console. Refer to Hitachi Compute Blade 500 Series System Service Manual for CB500 series (FE-91CB500004), or Hitachi Compute Blade 2500 Series System Service Manual for CB2500 series (MK-99CB2500009).
2. Start Compute blade test program (CBTP). Refer to Hitachi Compute Blade 500 Series System Service Manual for CB500 series (FE-91CB500004), or Hitachi Compute Blade 2500 Series System Service Manual for CB2500 series (MK-99CB2500009).
3. Move the cursor to **Utility** on the CBTP main menu and press <Enter> key.

```
<TOP>
TEST RUN
RAID Physical Disk TEST (Physical disk is not found)

H/W configuration compare -->
Display H/W configuration

Log Save -->
Log View -->
Utility -->
Legal information -->

Power Off
Reboot
```

4. Move the cursor to **F/W update tool** on the **Utility** menu and press <Enter> key.

```
<Utility>
Make tape test media
Secure erase utility
MegaRAID Recovery console
LSI RAID utility -->
Error rate measurement of TAPE
Set real time clock
FRU update tool -->
F/W update tool -->
LAN setup tool -->
Manual operation for Check & Test -->

Back
```

5. Move the cursor to **F/W update of Emulex CNA** and press <Enter> key.

```
<F/W update tool>
F/W update of Emulex FC
F/W update of Emulex CNA
Back
```

6. Select **OK** and press <Enter> key.

```
Execute update tool ?
OK
Cancel
```

7. Enter **1** in **Select No** line and press <Enter> key.

```
<<< Emulex CNA Utility >>>
No. ---Operation---
1: Display device list
2: Update F/W data
3: Update IPL of all controllers
q: Quit
Select No. --> 1
```

8. Confirm **SlotNo. indicator**.

SlotNo.	PCIaddr	IFname	--Permanent MAC--	---Current MAC---	----FW ver----
B-03-0B	09:00.0	eth0	f8-48-97-54-63-c0	f8-48-97-54-63-c0	11.1.215.0
B-03-0B	09:00.1	eth1	f8-48-97-54-63-c4	f8-48-97-54-63-c4	11.1.215.0
B-03-0B	09:00.2	eth2	f8-48-97-54-63-c8	f8-48-97-54-63-c8	11.1.215.0
B-03-0B	09:00.3	eth3	f8-48-97-54-63-cc	f8-48-97-54-63-cc	11.1.215.0
IOBD03B	26:00.0	eth4	00-00-c9-bc-cc-30	00-00-c9-bc-cc-30	11.1.215.0
IOBD03B	26:00.1	eth5	00-00-c9-bc-cc-34	00-00-c9-bc-cc-34	11.1.215.0

And, identify the **Controller Type** of device for update the firmware.
Confirm the **Products**, and identify the **Controller Type (BE3 or XE104)**

combination of **SlotNo. indicator** based on Table A-1.

Table A-1:

System Model	Products	SlotNo. indicator	Controller Type
CB500 series	CB540A B1	OnBoard	BE3
	CB520H B1, B2		
	CB520H B3, B4	OnBoard	XE104
	CB520X B1, B2, B3	B-**-OB	XE104
	All Products	Mezz-0* B-**-M*	BE3
CB2500 series	CB520H B3, B4	OnBoard	XE104
	CB520X B1, B2, B3	B-**-OB	XE104
	All Products	IOBD***	BE3

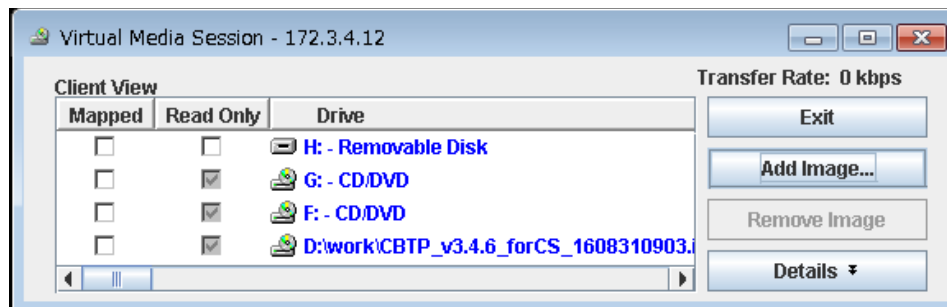
9. Enter **2** in **Select No** line and press <Enter> key.

```
<<< Emulex CNA Utility >>>
No. ---Operation---
1: Display device list
2: Update F/W data
3: Update IPL of all controllers
q: Quit
Select No. --> 2
```

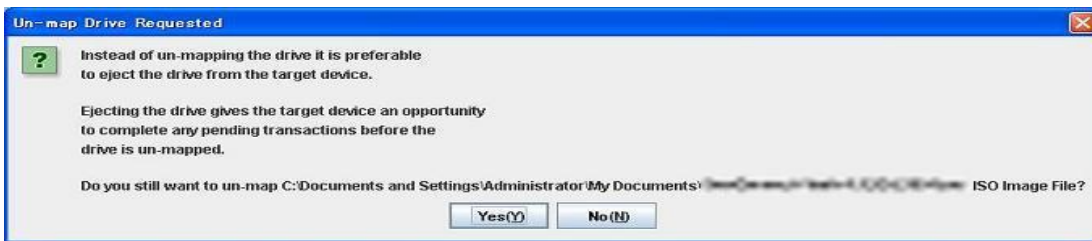
10. Enter the number of target device for update the firmware and press <Enter> key.

```
No. SlotNo. Und/DevID ----FW ver----
1: B-03-OB 10df:0720 11.1.215.0
2: IOBD03B 19a2:0710 11.1.215.0
q: Quit
Select No. --> 1
```

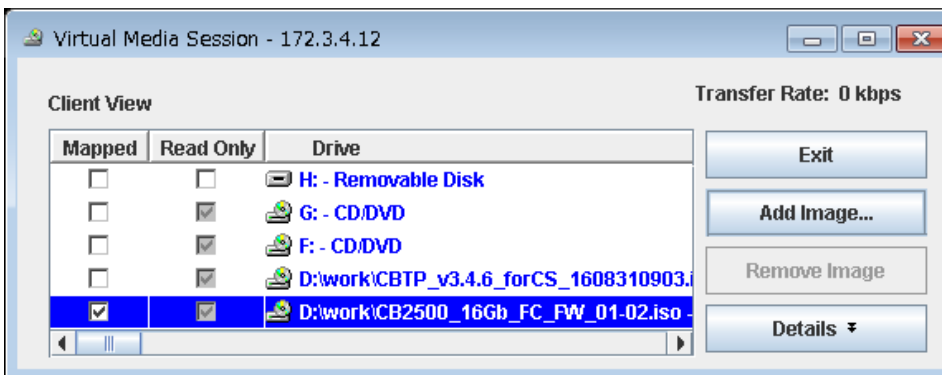
11. Click **Tools** and select **Launch Virtual Media**. And remove **Mapped** check mark of the mapped CBTP.



12. The following pop-up window is displayed. Press **Y** key.



13. Press **Add image** and select the CNA firmware image.
And add **Mapped** check mark of **the added CNA firmware image**.



14. Return to remote console window and press <Enter> key.

```
<< Update of F/W data : B-03-0B >>
Insert media for update, and Input Enter key. (c:Cancel)
```

15. Select the number of the **Firmware** file name.
The **Data file** lines, which indicate the **Firmware** files in the firmware image, are indicated.
Enter the number corresponding to desired firmware version and **Controller Type (BE3 or XE104)** identified in step 8, and then press <Enter> key.

```
No. ---Data file---
1: /mnt/cdrom/CB520Xx3/520XB3_BE3_10.6.144.2702.uf i
2: /mnt/cdrom/CB520Xx3/520XB3_BE3_11.1.215.0.uf i
3: /mnt/cdrom/CB520Xx3/520XB3_XE104_10.6.144.2704.uf i
4: /mnt/cdrom/CB520Xx3/520XB3_XE104_11.1.215.0.uf i
q: Quit
Select No. --> 3
```

16. Confirm that **Completed update of F/W data** is indicated.
Enter **q** and press <Enter> key.

```
Starting update of F/W data (B-03-0B, 09:00)...
Wait for a while...
Downloading /mnt/cdrom/CB520Xx3/520XB3_XE104_10.6.144.2704.ufi to hba f8-48-97-54-63-c0
Download Complete. Please reboot system to activate new firmware.
Completed update of F/W data.

No. SlotNo.  Und/DevID  ----FW ver----
 1: B-03-0B  10df:0720  10.6.144.2704  [ OK ]
 2: IOBD03B  19a2:0710  11.1.215.0
q: Quit
Select No. --> _
```

17. Enter **q** and press <Enter> key.

```
<<< Emulex CNA Utility >>>
No. ---Operation---
 1: Display device list
 2: Update F/W data
 3: Update IPL of all controllers
q: Quit
Select No. --> q_
```

18. Move the cursor to **Power Off** and press <Enter> key.

```
== CBTP Ver:3.4.6 (BLD#:3, Compute Blade 520XB3) =====
<TOP>
TEST RUN
RAID Physical Disk TEST (Physical disk is not found)

H/W configuration compare -->
Display H/W configuration

Log Save -->
Log View -->
Utility -->
Legal information -->

Power Off
Reboot
```

19. Select **OK** and press <Enter> key.

```
Power Off ?
  OK
Cancel
```

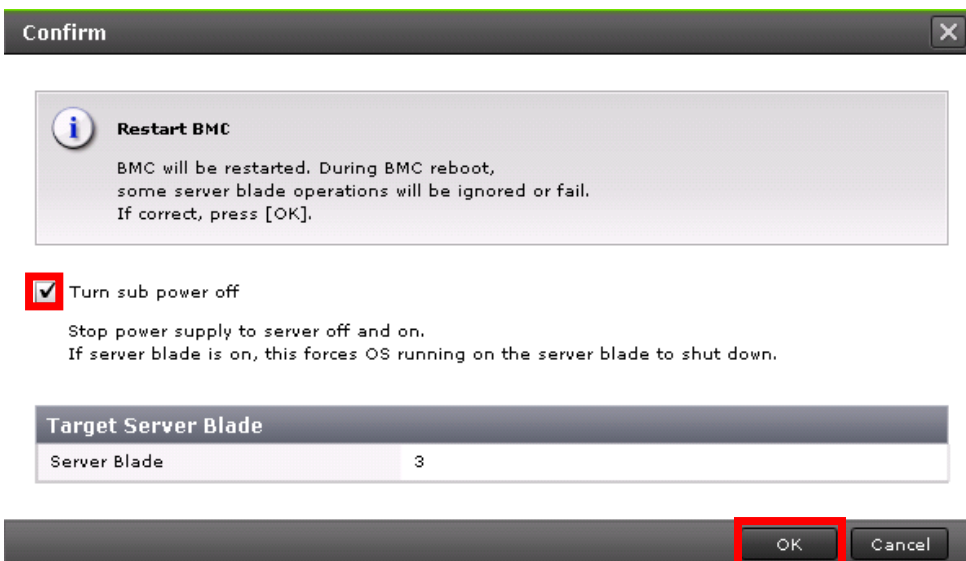
20. Enter **e** and press <Enter> key.

```
Checking removable media ...
/o_tmp/bin/com_function.sh: line 47: return: -1: invalid option
return: usage: return [n]
[ Media found ]  USB:CD/DVD-ROM - Storage Function      Avocent Mass

  Push 'Enter' after taking out previous media.('e'+Enter': Forced stop)
Key in: e_
```

21. Restart BMC. Refer to Hitachi Compute Blade 500 Series System Service Manual for CB500 series (FE-91CB500004), or Hitachi Compute Blade 2500 Series System Service Manual for CB2500 series (MK-99CB2500009).

The following pop-up window is displayed, check the box of **Turn sub power off** and click **OK**.



The image shows a 'Confirm' dialog box with a close button (X) in the top right corner. Inside the dialog, there is an information icon (i) next to the title 'Restart BMC'. Below the title, a message states: 'BMC will be restarted. During BMC reboot, some server blade operations will be ignored or fail. If correct, press [OK].'. Below this message, there is a checkbox labeled 'Turn sub power off' which is checked. Underneath the checkbox, a sub-message reads: 'Stop power supply to server off and on. If server blade is on, this forces OS running on the server blade to shut down.' Below the message area, there is a section titled 'Target Server Blade' containing a table with two columns: 'Server Blade' and a value '3'. At the bottom of the dialog, there are two buttons: 'OK' and 'Cancel'. The 'OK' button is highlighted with a red rectangle.

Target Server Blade	
Server Blade	3

Firmware update procedure of Emulex 16Gb Fibre Channel

1. Connect the remote console. Refer to Hitachi Compute Blade 500 Series System Service Manual for CB500 series (FE-91CB500004), or Hitachi Compute Blade 2500 Series System Service Manual for CB2500 series (MK-99CB2500009).
2. Start Compute blade test program (CBTP). Refer to Hitachi Compute Blade 500 Series System Service Manual for CB500 series (FE-91CB500004), or Hitachi Compute Blade 2500 Series System Service Manual for CB2500 series (MK-99CB2500009).
3. Move the cursor to **Utility** on the CBTP main menu and press <Enter> key.

```
<TOP>
TEST RUN
RAID Physical Disk TEST (Physical disk is not found)

H/W configuration compare -->
Display H/W configuration

Log Save -->
Log View -->
Utility -->
Legal information -->

Power Off
Reboot
```

4. Move the cursor to **F/W update tool** on the **Utility** menu and press <Enter> key.

```
<Utility>
Make tape test media
Secure erase utility
MegaRAID Recovery console
LSI RAID utility -->
Error rate measurement of TAPE
Set real time clock
FRU update tool -->
F/W update tool -->
LAN setup tool -->
Manual operation for Check & Test -->

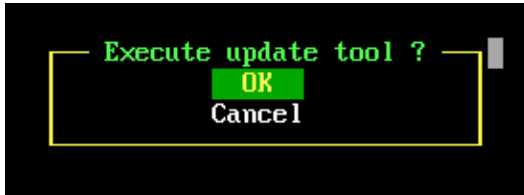
Back
```

5. Move the cursor to **F/W update of Emulex FC** and press <Enter> key.

```
<F/W update tool>
F/W update of Emulex FC
F/W update of Emulex CNA

Back
```


6. Select **OK** and press <Enter> key.



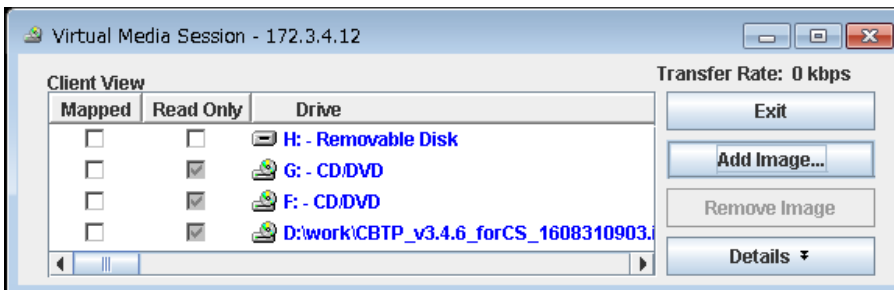
7. Enter **2** in **Select No** line and press <Enter> key.

```
<<< Emulex Fibre Channel Adapter Utility >>>
No. ---Operation---
1: Display device list
2: Update Firmware/BootCode
3: Backup boot settings & WWN
4: Restore boot settings
5: Restore boot settings & WWN
q: Quit
Select No. --> 2_
```

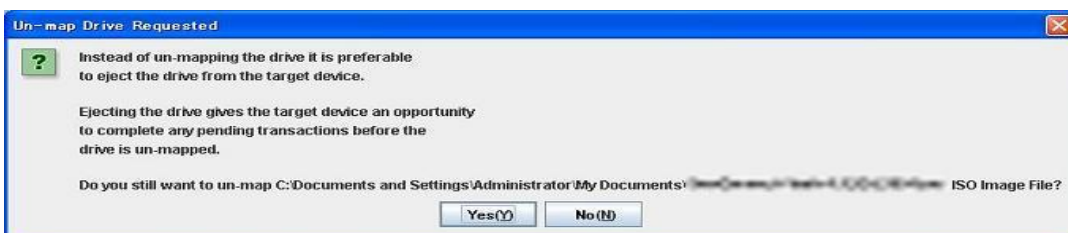
8. Enter the number of target device for update the firmware and press <Enter> key.

```
No. SlotNo.  Und/DevID  -----FW ver-----  BootCD
1: IOBD03A  10df:e200  10.6.144.21  10.6.144.21
q: Quit
Select No. --> 1
```

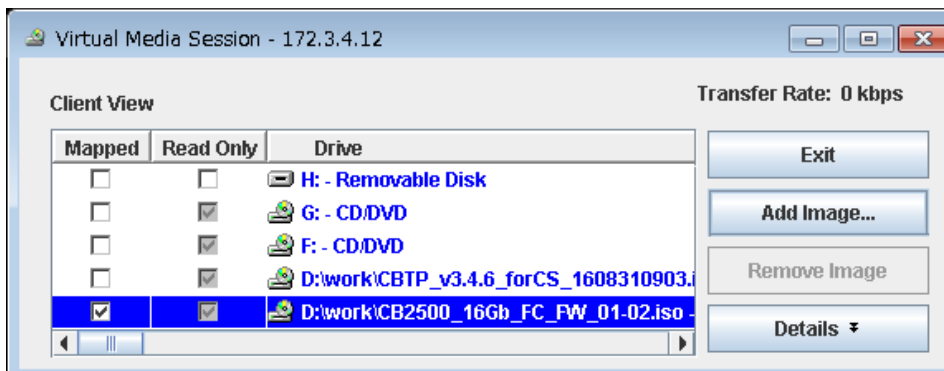
9. Click **Tools** and select **Launch Virtual Media**. And remove **Mapped** check mark of **the mapped CBTP**.



10. The following pop-up window is displayed. Press **Y** key.



11. Press **Add image** and select the FC firmware image.
And add **Mapped** check mark of **the added FC firmware image**.



12. Return to remote console window and press <Enter> key.

```
<< Update of F/W data : B-03-OB >>
Insert media for update, and Input Enter key. (c:Cancel)
```

13. Select the number of the **Firmware** file name.
The **Data file** lines, which indicate the **Firmware** files in the firmware image, are indicated.
Enter the number corresponding to desired firmware version in **Select No.** line, and then press <Enter> key.

```
No. ---Data file---
1: /mnt/cdrom/lancer_A10_2_340_10.grp
2: /mnt/cdrom/lancer_A10_6_144_21.grp
3: /mnt/cdrom/lancer_A11.1.215.0.grp
q: Quit
Select No. --> 3_
```

14. Confirm that **Completed update of F/W data** is indicated.
Enter **q** and press <Enter> key.

```
Starting update of F/W data (B-03-OB, 09:00)...
Wait for a while...
Downloading /mnt/cdrom/CB520Xx3/520XB3_XE104_10.6.144.2704.ufi to hba f8-48-97-54-63-c0
Download Complete. Please reboot system to activate new firmware.
Completed update of F/W data.

No. SlotNo. Und/DevID ----FW ver----
1: B-03-OB 10df:0720 10.6.144.2704 [ OK ]
2: IOBD03B 19a2:0710 11.1.215.0
q: Quit
Select No. --> _
```

15. Enter **q** and press <Enter> key.

```
No. SlotNo. Und/DevID ----FW ver----
 1: B-03-0B 10df:0720 10.6.144.2704 [ OK ]
 2: IOBD03B 19a2:0710 10.6.144.2702 [ OK ]
q: Quit
Select No. --> q

<<< Emulex CNA Utility >>>
No. ---Operation---
 1: Display device list
 2: Update F/W data
 3: Update IPL of all controllers
q: Quit
Select No. --> q_
```

16. Move the cursor to **Power Off** and press <Enter> key.

```
== CBTP Ver:3.4.6 (BLD#:3, Compute Blade 520XB3) =====
<TOP>
TEST RUN
RAID Physical Disk TEST (Physical disk is not found)

H/W configuration compare -->
Display H/W configuration

Log Save -->
Log View -->
Utility -->
Legal information -->

Power Off
Reboot
```

17. Select **OK** and press <Enter> key.

```
Power Off ?
  OK
  Cancel
```

18. Enter **e** and press <Enter> key.

```
Checking removable media ...
/o_tmp/bin/com_function.sh: line 47: return: -1: invalid option
return: usage: return [n]
[ Media found ] USB:CD/DVD-ROM - Storage Function Avocent Mass

Push 'Enter' after taking out previous media.('e'+Enter': Forced stop)
Key in: e_
```



If using the N+M cold standby function, make sure that the HBA and Boot Parameters (Topology Selection, Force Link Speed) are the same for the active and standby server blades after updating Emulex 16Gb Fibre Channel firmware version from 11.4.*.* or lower to 12.6.*.* or higher.

If the parameters are different, set them to the same for the active and standby server blades.

Before starting operation, perform an N+M failover test to confirm that the N+M failover works properly.

Hitachi Data Systems

Corporate Headquarters

2845 Lafayette Street
Santa Clara, California 95050-2639
U.S.A.
www.hds.com

Regional Contact Information

Americas

+1 408 970 1000
info@hds.com

Europe, Middle East, and Africa

+44 (0) 1753 618000
info.emea@hds.com

Asia Pacific

+852 3189 7900
hds.marketing.apac@hds.com

