



Intel® Ethernet Management Port (EMP) Module

User Guide

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Intel® Server Products and Solutions

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Document Revision History

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January 2020	1.0	First release.

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1. Introduction

The Intel® Ethernet Management Port (EMP) module is an optional accessory (iPC AXXFCEMP) that allows technicians to manage multiple compute modules in a chassis interconnected via a single cable without need to connect multiple network cables to the dedicated management port of each compute module.

1.1 Target Audience

This Guide is intended for system technicians who are responsible for installing, troubleshooting, upgrading, and repairing the EMP module.

2. Intel® Ethernet Management Port (EMP) Module Overview

This section gives an overview of the EMP and highlights significant benefits of its features.

2.1 Ethernet Management Port

The Intel® Ethernet Management Port (EMP) is a hot-swappable and hot-pluggable accessory that functions as a port forwarding interface to provide system server status remotely. It works as an aggregated port to Baseboard Management Controller (BMC) simplifying the network cabling. The EMP module operates at speed of 1000BASE -T.

The system may or may not come preconfigured with an EMP module. This section provides instruction for the installation and removal of this accessory option. The EMP module is hot-swap capable. It can be installed or removed without powering down the system or any of its compute modules.



Figure 1. EMP module – AXXFCEMP

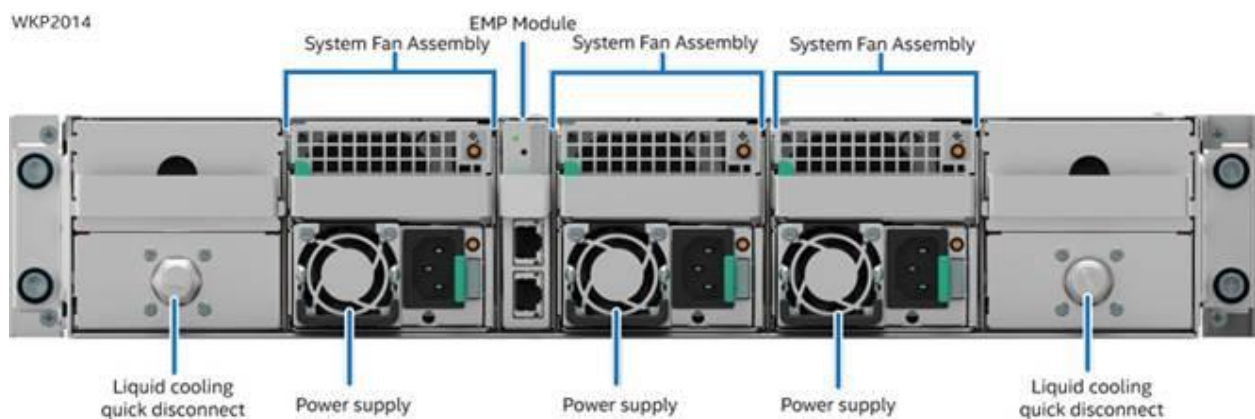


Figure 2. EMP location in chassis (rear view)

Note: The EMP module location in the system is the same for both air-cooled and liquid-cooled system configurations.

2.2 Intel® Ethernet Management Port (EMP) Module Features

The EMP module is a multi-node, multi-port forwarding solution, providing access to all the compute module BMCs in the Intel Server chassis FC2000.

- The Ethernet Management Port (EMP) functions as a port forwarding / aggregating module for BMC management networking dedicated port eliminating front cabling for management network.
- Using the EMP, the administrator can reduce the number of management network cables used to manage 4 compute modules to only one network cable in the chassis (best network performance and bandwidth).
- Optionally simplifies network management cabling by allowing daisy chaining of chassis to TOR switch.

Table 1. EMP module operational status LEDs

Operational Status	Green Led	LED1 Amber LED
No link	Off	Off
Link	On	On
Activity	Blink	Blink
Internal power fault	On	Off

The BMC logs the next events when EMP fails:

1. When an internal power fault occurs in the EMP module (onboard 2.5V or 1.2V fault).
 - EMP Failed, BMC, WARINING, Module/Board, State Asserted-Asserted
2. When the EMP module is recovered from this failure
 - EMP Failed, BMC, Informational, Module/Board, State Asserted-Deasserted

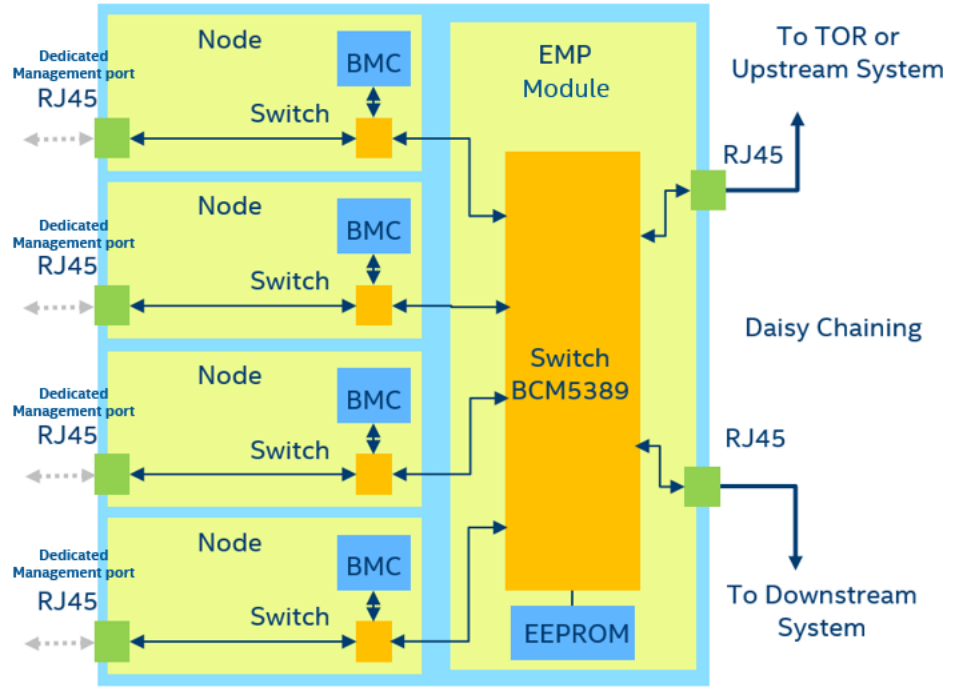


Figure 3. Internal EMP Module interconnection diagram

3. Hardware Installations and Removal

This section explains the installation and removal of the Ethernet Management Port (EMP).

3.1 Installation

The EMP is currently supported on the following Intel® server products:

- All SKUs of Intel Server Compute Module S9200WK family
- Intel Server Chassis FC2000

3.1.1 Installation of Ethernet Management Port (EMP)

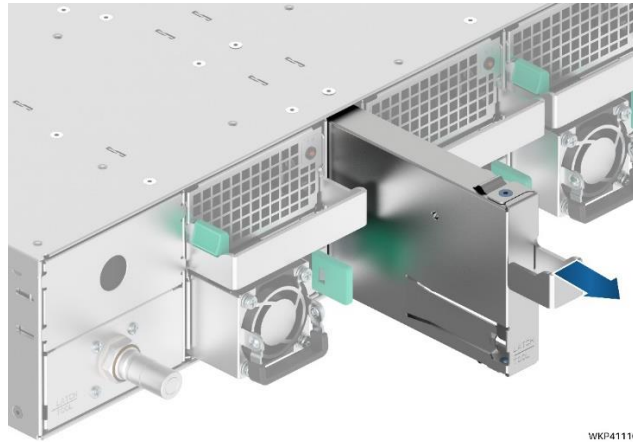


Figure 4. Removing the EMP bay filler blank

1. If present, remove the EMP bay filler blank from the back of the server chassis by pulling it out from the chassis, as shown in Figure 4.

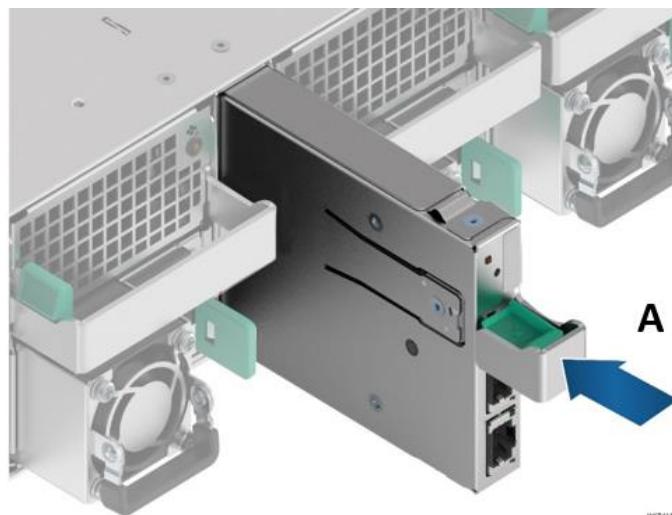
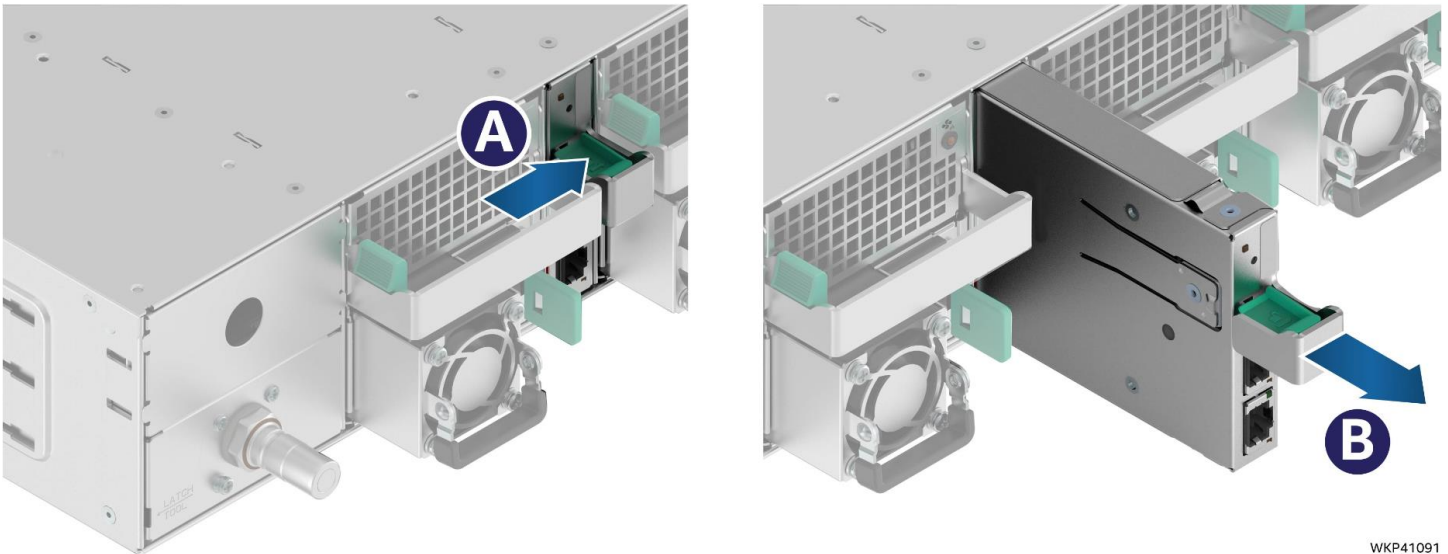


Figure 5. Installing the EMP module/blank

2. Install the EMP module by sliding it into the open EMP bay until it locks into place (A).

3.1.2 Removing the EMP Module

1. Locate the EMP module on the back of the chassis.



WKP41091

Figure 6. Removing the EMP module/blank

2. Slide green latch (A) to the right while pulling the EMP module out from the chassis (B).

Note: To keep the system operating within its thermal limits, the EMP module bay must be populated with either an EMP module or EMP blank when any of the installed compute modules are operational.

4. Configuring Ethernet Management Port (EMP)

The following sections list the different methods for configuring the BMC to enable the EMP. The BMC management network dedicated port (LAN3) is the port connected to EMP module.

Notice: when EMP module is present, the Dedicated Management port in front of the compute module must not have a network cable connected. This will prevent network storming.

4.1 Configuring the network using IPMI tool Commands

Prerequisite: Have IPMI version 1.8.14 or newer installed. Commands can run either from Linux or Windows.

Set the user to Lan 3

- `ipmitool lan set 3 ipsrc dhcp`

Setup static IP to Lan 3

- `ipmitool lan set 3 access on`
- `ipmitool lan set 3 ipsrc static`
- `ipmitool lan set 3 ipaddr <BMC_IP_Address> netmask <Net_Mask>`

Set the IP address to dynamic

- `ipmitool lan set 3 access on`
- `ipmitool lan set 3 ipsrc dhcp`

Enable BMC remote access (needs to set user id and set password)

- `ipmitool user enable 2`

Set username for user id 2 to admin

- `ipmitool user set name 2 admin`

Set password for user id 2 (root) to password

- `ipmitool user set password 2 password`

Set privilege for user id 2 (root) to admin (1-Call Back, 2-User, 3-Operator, 4-Administrator, 5-OEM Proprietary, F-No Access)

- `ipmitool user priv 2 4 1`
- `ipmitool user priv 2 4 2`
- `ipmitool user priv 2 4 3`

Set access to user and provide privileges

- `ipmitool channel setaccess 2 2 callin=on link=off ipmi=on privilege=4`

Set the LAN

- `ipmitool lan set 2 access on`
- `ipmitool lan set 2 ipsrc static`
- `ipmitool lan set 2 ipaddr <BMC_IP_Address>`
- `ipmitool lan set 2 netmask <Net_Mask>`
- `ipmitool lan set 2 auth admin password`

Configuring from BIOS Setup

1. Press the **F2** key during BIOS system boot to enter the BIOS set up.
2. In the BIOS setup, go to **Server Management**.

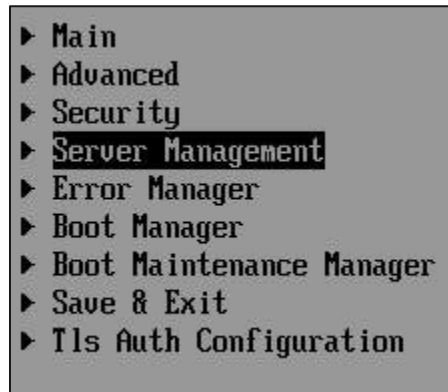


Figure 7. Server management

3. Select **BMC LAN Configuration**.

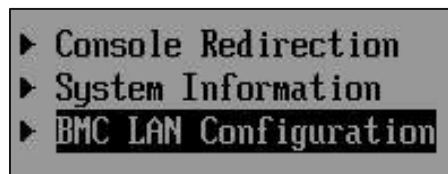


Figure 8. BMC LAN configuration

4. Select **User Configuration** and create an administration user and Password.



Figure 9. Create an administrator

5. In **BMC LAN Configuration**, set the IP address, network mask, and gateway.



Figure 10. Set the IP address, subnet mask, and gateway IP

6. Press the **F10** key to save the changes and reboot the system.

4.3 Configuring with Syscfg

Prerequisite: have Syscfg_V14_1_Build27_AlLOS or newer installed.

Set BMC LAN channel to DHCP/Static IP address

- `syscfg.efi /le <Channel#> dhcp`
- `syscfg.efi /le <Channel#> static <IPAddress> <subnet>`

Create admin user account

- `syscfg.efi /u <User_id> <User_Name> <Password>`
- `syscfg.efi /up <UserAccount> <User_id> ADMIN`

Enable user account on Lan channel

- `syscfg.efi /ue <user_id> enable <LAN_Channel>`

Set user privileges

- `Syscfg.efi /up <user_id> <LAN_channel> operator\admin`

5. Ethernet Management Port (EMP) Limitations

The Intel® Ethernet Management Port (EMP) module has limitations listed below. Intel recommends referring to the limitations prior to any connectivity and specific implementations.

- When the EMP link is lost (i.e. cable removed), the DHCP IP address in the BMC will not be renewed, even when the link is restored (cable connected). The BMC needs to be reset.
- LAN Leash Lost events are not generated. Asserted and Deasserted events are not logged in the BMC System Event Log (SEL).
- The daisy chain network Interconnection supports up to eight chassis.
- When EMP is configured with DHCP, the dedicated management port can be used as a dedicated port, but if the EMP module is present and a cable connected to it, the dedicated management port must not have any cable connected to it.
- A network cable connected to the dedicated management port (front of system) and EMP module is not a supported configuration and will lead to an error state.

Appendix A. Glossary

Word/Acronym	Definition
BMC	Baseboard Management Controller
EMP	Ethernet Management Port
DHCP	Dynamic Host Configuration Protocol
SEL	System Event Log
LAN	Local Area Network
TOR	Top Of Rack

Appendix B. Appendix B. Getting Help

To obtain support for an issue with the server system, follow these steps:

1. Visit the following Intel® support web page: <http://www.intel.com/support/>

This web page provides 24x7 support for the latest and most complete technical support information on all Intel Enterprise Server and Storage Platforms. Information available at the support site includes:

- Latest BIOS, firmware, drivers and utilities
 - Product documentation, setup, and service guides
 - Full product specifications, technical advisories and errata
 - Compatibility documentation for memory, hardware add-in cards, and operating systems
 - Server and chassis accessory parts list for ordering upgrades or spare parts
 - A searchable knowledgebase to search for product information throughout the support site
2. If a solution cannot be found at Intel's support site, send an email to Intel's support center using the online form available at: http://www.intel.com/p/en_US/support/contactsupport
 3. Lastly, contact an Intel support representative using one of the support phone numbers available at: <http://www.intel.com/support/feedback.htm?group=server> (charges may apply).

Intel also offers Channel Program members around-the-clock, 24x7, technical phone support on Intel server boards, server chassis, server RAID controller cards, and Intel Server Management at:

<http://www.intel.com/reseller/>.

Note: Access to the 24x7 number requires a login to the reseller site.

Warranty Information

To obtain warranty information, visit http://www.intel.com/p/en_US/support/warranty.