

# HP Integrity server blade upgrade kits (BL860c i2, BL870c i2, BL890c i2)

Technical white paper

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# Integrity server blade upgrade kits

## Introduction

The Integrity BL8x0c i2 server blade family offers mission-critical server blades from the entry-level, 2-processor BL860c i2 to the powerful 8-processor BL890c i2. With the Integrity server blade upgrade kits, you now have the flexibility to scale up the existing BL8x0c i2 server blades as your business demands grow, from 2 processors to 4 processors to 8 processors.

## Objectives

The ability to scale up a server blade by adding more blade level resources is inherent to the BL8x0c i2 architecture. This feature allows users who already have an Integrity BL8x0c i2 server blade to scale up to a larger configuration.

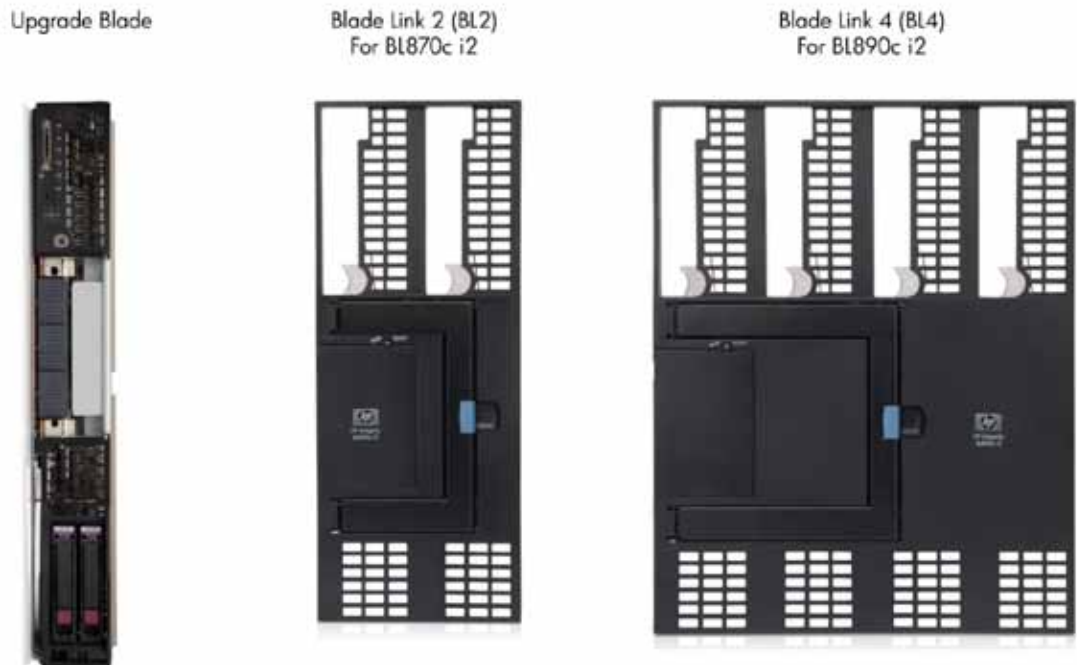
This ability helps you to increase the resource capacity of the server when it is actually needed, instead of purchasing excess compute capacity at the initial investment. This ability to scale up when needed provides more flexibility and control over capital expenditures for your compute environment. Blade level granularity of resources in the system is composed of processor modules, memory, and IO.

## Upgrade kit components

The Integrity server blade upgrade kits are made up of the following components as shown in figure 1.



Figure 1: Upgrade components



## Upgrade Scenarios:

The types of upgrade scenarios, supported with upgrade products are:

1. Blade additions:
  - Increasing the size of an existing server blade by the addition of “Upgrade Blades” plus the attachment of a larger size Blade Link.
2. Blade combinations:
  - Increasing the size of the server by enabling the combination of two existing smaller servers, for example. BL860c i2 + BL860c i2 = BL870c i2 plus the attachment of a larger size Blade Link, provided in an Upgrade Blade Link kit.
3. Blade conversions:
  - Enabling the movement of server blades within an enclosure and between enclosure types. For example, there might be a need to shift a server blade from an odd bay within the enclosure to an even bay to enable support of the partner blade options. This movement is easily achieved with the Integrity Blade Link kit.

## Types of upgrades

Tables 1 and 2 as well as figures 2, 3, 4, and 5 show possible choices available for upgrading Integrity server blades. Additionally, conversion kits are available to support blade movement between enclosure types as well as enabling the use of partner blade configurations.

**Table 1: Blade additions, upgrade choice points**

From	To: BL870c i2	To: BL890c i2
BL860c i2	Add one Upgrade Blade + BL2	Add three Upgrade Blades + BL4
BL870c i2	NA	Add two Upgrade Blades + BL4

**Table 2: Blade combinations, upgrade choice points**

From	To: BL870c i2	To: BL890c i2
BL860c i2	Combine two BL860c i2 blades + BL2	Combine four BL860c i2 blades + BL4
BL870c i2	NA	Combine two BL870c i2 blades + BL4

Figure 2: Upgrading to a BL870c i2 from a BL860c i2

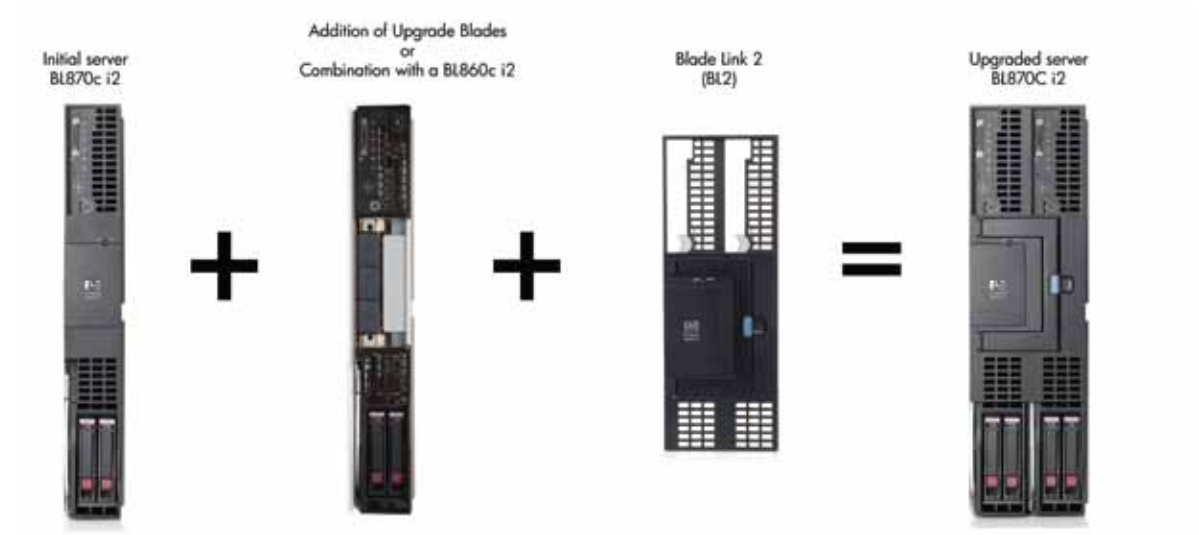


Figure 3: Upgrading to a BL890c i2 from a BL860c i2

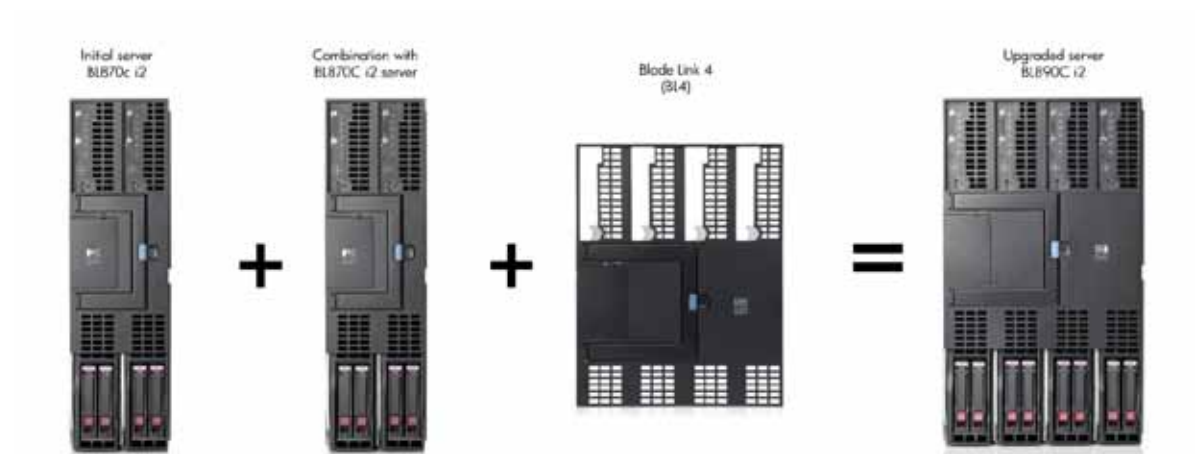


As can be seen in figure 4 and figure 5, a BL870c i2 server can be upgraded to a BL890c i2 server, using several different methods, including addition of Upgrade Blades, and/or combination of existing BL860c i2 servers or combining an additional BL870c i2 server. An important requirement is to make sure that the processor module SKU type is loaded consistently across the set of blades composing the new server. Additionally, the memory configuration must comply with the guidelines for the given type of server being upgraded to.

Figure 4: Upgrading to a BL890c i2 from a BL870c i2



Figure 5: Upgrading to a BL890c i2 from a BL870c i2 by server combination



## Important details

- OS licensing needs to be upgraded as you increase the size of your system. This typically would be initiated at the time of purchase of your Integrity server blade upgrade kit.
- Preservation of the original server serial number and Universal Unique ID (UUID), assigned by Hewlett Packard, is important for extension of the warranty, possibly for asset management and in some cases for installed applications. The server serial number and UUID are associated with the Blade Link. When you upgrade your system, it is important to follow the process outlined in the upgrade instructions so that these important parameters are transferred to the Upgrade Blade Link.
- When planning for the upgrade of your system, the user should plan to size the minimum memory requirements and loading configurations to the size of the new server configuration. Please refer to the "[Memory Subsystem Information for HP Integrity Server Blades](#)" white paper for further details.
- Warranty and service support are adjusted as appropriate to match the scaled up configuration of the upgraded server.
- Downgrading by physically separating conjoined server blades and swapping out Blade Links (e.g. BL870c i2 --> 2x BL860c i2) is not supported. Customers interested in "downgrading" their Integrity blades should use HP Integrity Virtual Machines (Integrity VM) to create the desired resource size.

## Overview of Integrity server blade upgrade process

### Architecture—blade roles

The structure of a BL8x0c i2 server is composed of one blade acting as the Monarch and from zero to three Auxiliary blades as shown in table 3.

**Table 3: Monarch and Auxiliary blade roles**

	Monarch blade role	Auxiliary blade roles
BL860c i2	One	None
BL870c i2	One	One
BL890c i2	One	Three

The Monarch blade role is provided as the user point of access and defaults to the lowest enclosure bay number of the conjoined blade set. For the upgrade process, the initial server resources can be expanded by the addition of Upgrade Blade(s) or a combination of servers. In either case, the blades added to the initial server serve the role of Auxiliary blades in the final server configuration.

Stated in a practical way, the goal for upgrading a BL8x0c i2 server is to leave the initial server blade intact, adding additional Upgrade Blades into the adjacent c7000 enclosure bays to the right of the initial server, and conjoining them with a Blade Link. Please refer to the "[Why Scalable Blades](#)" white paper for further details.

## Upgrade Blade

An Upgrade Blade is shipped from the factory, configured to operate as an Auxiliary blade within the conjoined server configuration. Blade configuration and testing are performed at the factory for each Upgrade Blade. The Upgrade Blade does not contain an internal ICH Mezzanine card, required for operation as a Monarch.

## Installation overview

The installation engineer performing the upgrade must confirm that the processor modules, memory resources, and IO resources are loaded in a consistent manner between the initial server and new Upgrade Blades. If the installation engineer is combining existing server blades to create the upgraded server, the ICH Mezzanine cards, if any, should be removed from the Auxiliary blades. Details for this step are provided in the “HP Integrity BL860c i2, BL870c i2 & BL890c i2 Server Blade User Service Guide”, Appendix F. Read it carefully before implementing the upgrade. The service guide can be found at the following link:

<http://bizsupport2.austin.hp.com/bc/docs/support/SupportManual/c02110937/c02110937.pdf>

The firmware recipe revision must be at the same release revision for both the initial server and each of the Upgrade Blades. A minimum recipe revision is specified in the upgrade kit user service guide and is applicable to the blade level firmware, enclosure onboard administrator (OA), and Virtual Connect Manager (VCM).

The hardware resources and recipe should be verified to be correct and consistent across both the initial server and each of the Upgrade Blades. After the recipes are upgraded, attach the new Blade Link across the initial server and all the Upgrade Blades to conjoin them together into the larger scaled up server.

The upgrade kit contains a summary of useful information in the “Read This First” document to assist the installation engineer with the upgrade process. Reinstallation of the OS may be required in some cases. Refer to the user service guide for further details.

For more information on Integrity server blades, visit: [www.hp.com/go/integrityblades](http://www.hp.com/go/integrityblades)

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