



@server

iSeries

Capacity on Demand

Version 5 Release 3





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Capacity on Demand

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Note

Before using this information and the product it supports, be sure to read the information in "Notices," on page 23.

Second Edition (August 2005)

This edition applies to version 5, release 3, modification 0 of IBM Operating System/400 (product number 5722-SS1) and to all subsequent releases and modifications until otherwise indicated in new editions. This version does not run on all reduced instruction set computer (RISC) models nor does it run on CISC models.

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Capacity on Demand

Capacity on Demand (CoD) is the term that encompasses all of the various capabilities provided that enable you to dynamically activate one or more processors on your iSeries^(TM) server as your business peaks dictate. You can activate inactive processors that are already installed on your server on a temporary or permanent basis.

Several server models have a number of [»](#) active processors. *Active processors* are processors that are already activated in your iSeries server when it is sent from the manufacturer. *Inactive processors* are processors that are included in your server, but not available for use until you activate them. [«](#)

Inactive processors can be permanently activated by purchasing an activation feature and entering the provided activation code. [»](#) The Capacity on Demand option offered on the iSeries server that provides the ability to permanently activate capacity is called *Capacity Upgrade on Demand*. [«](#)

You can also use inactive processors on a temporary basis, which enables you to activate processors for a number of days, as your business peaks demand. [»](#) The Capacity on Demand option offered on the iSeries server that provides the ability to temporarily activate capacity is called *On/Off Capacity on Demand*. [«](#)

“What’s new for V5R3”

This topic describes what information is new or significantly changed in this release.

“Print this topic” on page 2

If you prefer a printed version of this information, go here to print the PDF.

“Prepare for Capacity on Demand” on page 2

Prepare your server and environment for Capacity on Demand.

“Capacity Upgrade on Demand” on page 5

Capacity Upgrade on Demand (CUoD) provides *permanent* capacity through the process of activating additional processors.

“On/Off Capacity on Demand” on page 10

On/Off Capacity on Demand provides *temporary* capacity, which can be turned on and off to help meet the demands of business peaks or for a disaster situation.

[»](#) **“iSeries for Capacity BackUp” on page 18**

The iSeries for Capacity BackUp offering uses On/Off Capacity on Demand capabilities to provide companies with an off-site, disaster recovery server. [«](#)

“Related information for Capacity on Demand” on page 20

IBM^(R) related information contains a list of resources for technical, know-how, and “how to” information.

What’s new for V5R3

This information highlights changes to Capacity on Demand for V5R3.

New terminology

The term *startup processors* has been replaced with the term *active processors*. The term *standby processors* has been replaced with the term *inactive processors*.



New topics

New topics, providing information about planning and preparing for CoD and about the iSeries for Capacity BackUp offering, have been added to Capacity on Demand, as follows:

- “Prepare for Capacity on Demand”
- “iSeries for Capacity BackUp” on page 18

How to see what’s new or changed

To help you see where technical changes have been made, this information uses:

- The  image to mark where new or changed information begins.
- The  image to mark where new or changed information ends.

To find other information about what’s new or changed this release, see the Memo to Users.

Print this topic


To view or download the PDF version of this document, select Capacity on Demand (about 300 KB).

Saving PDF files

To save a PDF on your workstation for viewing or printing:

1. Right-click the PDF in your browser (right-click the link above).
2. Click **Save Target As...** if you are using Internet Explorer. Click **Save Link As...** if you are using Netscape Communicator.
3. Navigate to the directory in which you would like to save the PDF.
4. Click **Save**.

Downloading Adobe Acrobat Reader

You need Adobe Acrobat Reader to view or print these PDFs. You can download a copy from the Adobe Web site (www.adobe.com/products/acrobat/readstep.html) .

Prepare for Capacity on Demand

Capacity on Demand provides the ability to activate processors on your server when your workload requires the additional resources. Use this topic to prepare to take advantage of Capacity on Demand on your server.

“Perform capacity planning” on page 3

This topic includes considerations and resources for doing capacity planning on servers with inactive processors.

“Determine when to activate processors” on page 3

Observe and record trends in CPU utilization to determine when to activate additional processors, and how many new resources you require.

“Electronic Service Agent requirements” on page 4

Learn about the requirements for the Electronic Service Agent, which is used to send information to IBM electronically.

“Set up your environment for Capacity on Demand” on page 4

Prepare your server to integrate new capacity, and be ready to order additional activations when required.

“Software licensing considerations for Capacity on Demand” on page 4
Find out how activating CoD processors affects OS/400^(R) software licensing.



Perform capacity planning

Capacity planning for servers with inactive processors uses essentially the same procedures and resources that are used for sizing other servers.

In addition, capacity planning for servers with inactive processors significantly affects planning for logical partitions. The set of tools, resources, and offerings available to help determine the required server capacity has been updated to support servers with inactive processors.

For help with capacity planning, consult the following resources:

Plan for logical partitions

This topic helps you develop a plan that evaluates your hardware resources, software release levels, and your company's immediate and future workload demands and guides you through the necessary steps in the planning process before you create logical partitions on your server.

Determine when and how to expand your server

This topic discusses several tools that are available to help you with capacity planning and identifying trends in resource utilization.

iSeries Benchmark Center



(www.ibm.com/servers/eserver/iseries/benchmark/cbc/)

Use this IBM Web site for help with benchmarking application environments.

iSeries Solutions Center, Capacity Planning Services




(www.ibm.com/services/its/us/as400solutionctr.html)

This IBM consulting service can help you plan a server solution that meets the growing demands of your business.

Note: Workload Estimator supports Capacity on Demand, but only returns estimates for the recommended number of active processors. The additional capacity provided by the inactive processors is not represented in the recommendations.

Determine when to activate processors

Capacity on Demand provides the ability to add processors to your system when your workload requires the additional resources. You should monitor your system CPU utilization and trends in CPU utilization to determine when to activate additional processors, and how many new resources you require.

Many performance tools are available to report CPU utilization information. In particular,  IBM Performance Management for iSeries can identify trends in resource utilization. iSeries Navigator monitors can give you more detailed information about how resources are being used, and alert you when utilization reaches a predefined critical level.

Measuring CPU utilization for servers with inactive processors

When you calculate average use of all available processors, the system functions reporting CPU utilization do not include the inactive processors in the total amount of CPU capacity. The inactive processors are not considered active within the various system functions that report CPU utilization percentages. The percentage of used CPU capacity (CPU utilization CPU percent, in iSeries Navigator) is a calculated metric based on the amount of time the processor was active within an elapsed time. This is typically reported as a percentage where 100% indicates that the processor was busy for the entire elapsed time. When multiple processors are present, CPU time must be adjusted to represent the average usage of all processors so that utilization is always reported as the percentage of total available capacity.

Interactive CPU utilization is also reported as a percentage of total system CPU. This metric affects servers with Capacity on Demand in the same manner as described previously for system CPU utilization.

Electronic Service Agent requirements

When you place an order to purchase Capacity Upgrade on Demand, IBM combines your order information with vital product data (VPD) on your server to create the activation code necessary to activate inactive processors on your server.

» When you purchase the activation features for models 830, 840, 890-2487, and 890-2488, you must also provide vital product data (VPD) for your server. You can do this by fax or electronically. «

VPD information can be sent to IBM electronically using the Electronic Service Agent, which is part of Extreme Support, the comprehensive technical service and support initiative exclusive to IBM iSeries. » For more information, see the Extreme Support topic. «

Electronic Service Agent is designed to monitor events and to transmit server inventory information to IBM on a periodic, customer-definable timetable.

For complete documentation about Electronic Service Agent, including information on installation, see the Electronic Service Agent for iSeries User's Guide  .

Set up your environment for Capacity on Demand

Before ordering any activation features, you should prepare your environment for ordering and integrating the additional capacity.

Prepare to order Capacity on Demand

When you purchase the activation features for Models 830, 840, 890-2487, and 890-2488, you must also provide vital product data (VPD) for your server. » You can do this by fax or by using the "Electronic Service Agent requirements." «

Prepare for additional capacity

To ensure your server is able to fully use the activated processors, you might want to make the following preparations:

- Perform any I/O conditioning
- Perform memory upgrades
- Prepare any logical partitions (LPAR)

For servers using logical partitions, newly-activated processors are associated with the primary partition. You must assign all activated processors to a partition before you can take advantage of the new capacity.

Software licensing considerations for Capacity on Demand

There are a number of methods used to license software, such as per user, software tier, or per processor. Typically a tool, known as a *license manager*, is used to manage the licenses. A license manager detects use of the software, compares it to the entitlement, and then takes action based on the results. There can

be soft, firm, or hard compliance for software licensing. A license manager can be provided by IBM (for example, Software License Manager) or can be made available by the software provider.

Software tier

For servers with OS/400, many business partners use the processor feature code system value (QPRCFEAT) available on the server to set tiered software licensing fees. This OS/400 system value is available on iSeries servers with inactive processors and remains the same, no matter how many inactive processors are activated.

Per processor licensing

Per processor licensing is the only software licensing method that changes when processors are activated permanently with Capacity Upgrade on Demand. When the license manager recognizes that a processor has been activated for use with licensed software, it checks the software license against customer orders and customer reported use, provides a new license key, and then bills the customer for a permanent license.

Temporary activation of processors

When the license manager recognizes that a processor has been activated for use with licensed software, it checks the software license against customer orders and customer reported use, then bills the customer for a daily license.

Capacity Upgrade on Demand

Capacity Upgrade on Demand (CUoD) offers you the capability to permanently activate one or more inactive processors without requiring you to restart your server or interrupt your business.

Use this topic to understand how Capacity Upgrade on Demand works and what you need to do to take advantage of it on your server.

“Capacity Upgrade on Demand concepts”

Start here for a conceptual understanding of Capacity Upgrade on Demand, [»](#) including the server models and processor features with inactive processors that can be permanently activated with Capacity Upgrade on Demand. [«](#)

“Order Capacity Upgrade on Demand” on page 7

You must order an activation feature to receive an activation code that enables you to activate inactive processors.

“Use Capacity Upgrade on Demand” on page 7

Begin using Capacity Upgrade on Demand on your server.

“Scenario: Capacity Upgrade on Demand” on page 10

Use this information for an example of the steps that an administrator might go through to plan for, order, and activate permanent capacity.

Capacity Upgrade on Demand concepts

Capacity Upgrade on Demand (CUoD) provides you the capability to activate additional processors on select server models by purchasing a permanent processor activation. This capability adds significant value by enabling a fast and economical way to add capacity for new workloads, enabling your server to adapt to unexpected performance demands.

You might also be able to activate processors on your server for a “Activate inactive processors for a trial period” on page 9.

The following concepts provide you with the information you need to take advantage of CUoD.

“Processors available for Capacity Upgrade on Demand”

Lists the number of active and inactive processors available for each server model.

“Activation codes”

After you have decided to permanently activate some or all of your inactive processors, you need to order and purchase one or more activation features, which results in an activation code that enables you to activate processors.

Processors available for Capacity Upgrade on Demand

Capacity Upgrade on Demand (CUoD) offers you the capability to permanently activate one or more inactive processors without requiring you to restart your server or interrupt your business.

The following table lists the iSeries server models and processor features that [»](#) have inactive processors. Capacity Upgrade on Demand can be used at any time to permanently activate inactive processors on the server. [«](#)

Model	Processor feature	Activation feature	Active processors	Inactive processors	Installed processors
825	2473	1609	3	3	6
830	2349	1605	4	4	8
830	2351*	1605	1	7	8
840	2352	1604	8	4	12
840	2353	1604	12	6	18
840	2354	1604	18	6	24
840	2416	1604	8	4	12
840	2417	1604	12	6	18
840	2419	1604	18	6	24
870	2489	1614	5	3	8
870	2486	1611	8	8	16
890	2487	1610	16	8	24
890	2488	1610	24	8	32
890	2497	1612	16	8	24
890	2498	1613	24	8	32

* Limited availability

Activation codes

When you have decided to permanently activate some or all of your inactive processors, you need to order and purchase one or more activation features, which results in an activation code.

When the order has been placed, the order record is combined with vital product data (VPD) that is collected from your server. This information is used to create an activation code specifically for your server. You can think of this as a capacity license key for you to use to activate your inactive processors.

This activation code is posted on an IBM Web site for quick access. This typically happens within one business day (24 hours) of the order being received by IBM manufacturing, assuming the order is accompanied with the required VPD collected from the server. After your activation code has been created, you can access it using your system type and serial number at the iSeries Capacity Upgrade on Demand Web site:





For instructions on how to order activation features and receive activation codes, see “Order Capacity Upgrade on Demand.”

Order Capacity Upgrade on Demand

You can order processor activation features for a new server, a model upgrade, or an installed server. For a new server or a model upgrade, your order can contain one or more processor activation features. In this case, the processor activation code is entered before the server is sent to you.

For an installed server, after you determine that you want to permanently activate some or all of your inactive processors, you need to order one or more processor activation features and then enter the resulting processor activation code to activate your inactive processors.

Notes:

1. It can take several days to process an order and post the resulting processor activation code.
 -  For 825, 870, and 890 server models, you can activate inactive processors temporarily using On/Off Capacity on Demand to satisfy workload requirements while your order for permanent activation of additional capacity is being fulfilled. See “On/Off Capacity on Demand” on page 10 for more information. 
 -  For 830 and 840 server models, you can activate inactive processors for a trial period to satisfy workload requirements while your order for permanent activation of additional capacity is being fulfilled. See “Activate inactive processors for a trial period” on page 9 for more information. 
2. An order for processor activation features can be completed more quickly if no miscellaneous features are included with the order.

To order one or more processor activation features, follow these steps:

1. Determine the number of inactive processors you want to activate.
For information, see the “Determine when to activate processors” on page 3 topic.
2. Contact your IBM Business Partner or IBM marketing representative to place your order for one or more processor activation features. The activation feature is used to create an activation code specifically for your server. The activation code is mailed to you and posted on the iSeries Capacity on Demand Web site for quick access.
3. Send vital product data from your server to IBM, if necessary.
Your order is combined with the vital product data (VPD) collected from your server before your order is processed.
4. Enter the activation code on your server to “Activate inactive processors permanently.”

Use Capacity Upgrade on Demand

Use Capacity Upgrade on Demand to permanently activate one or more inactive processors on your server.

“Activate inactive processors permanently”

Activate processors permanently with Capacity Upgrade on Demand.


“Activate inactive processors for a trial period” on page 9

Activate processors on 830 and 840 server models for a no-charge trial period with Capacity Upgrade on Demand.

Activate inactive processors permanently

When you purchase one or more processor activation features, you receive an activation code with which to activate your inactive processors.

To permanently activate some or all of your inactive processors, follow these steps:

1. Retrieve the activation code as follows:
 - a. Access the Capacity on Demand Web site:
<http://www.ibm.com/servers/eserver/series/ondemand/cod/> 
 - b. Enter the system type and serial number of your server.
 - c. Record the activation code displayed on the Web site.
2. Enter STRSST on a command line to start system service tools (SST). Sign on to SST.

Note: To use system service tools, you need a valid service tools user ID with **System capacity - administrator** privileges.

3. Select option 6 (Work with system capacity) and press Enter.
4. Select option 2 (Activate permanent system capacity) and press Enter.
5. Enter your activation code in the activation code field and press Enter. The **Confirm Activate System Capacity** display appears.
6. Press Enter to confirm the system capacity activation.
7. Exit the **Work with System Capacity** display.
8. If the server is partitioned, you must assign the newly available processors to a logical partition before you can use the new capacity.

For information about assigning the activated processors to a logical partition, see Dynamically move logical partition resources.

9. If the server is not partitioned, follow these steps:
 - a. Select option 5 (Work with system partitions) and press Enter.
 - b. Select option 3 (Work with partition configuration) and press Enter.
 - c. Type 2 (Change partition processing resources) next to PRIMARY and press Enter.
 - d. Enter a value in the the **New number of processors** field that represents the total number of active processors.

Note: A configuration error at the bottom of the display indicates that the default primary partition has been altered (logical partitioning is actively being used). Consult your logical partition plan to correctly assign the activated processors to the server.

- e. Press Enter to confirm the change.

10. Exit SST.

Note: When you enter an activation code, the inactive processors immediately become active. However, the server must run for 15 minutes in order to put the activation code into storage. If you enter an activation code and shut down the server before it has run for 15 minutes, you might need to reenter the activation code when you start the server.

You can now begin using the new capacity.

Display Capacity Information: Information about how many inactive processors are activated on the server can be reviewed by using the following steps:

1. Enter STRSST on a command line to start system service tools (SST). Sign on to SST.
2. Sign on using the service tools user ID of **System capacity - administration** or **System capacity - operator**.
3. Select the option to **Work With System Capacity** and press Enter.
4. Select the option to **Display System Capacity Information** and press Enter.

Activate inactive processors for a trial period

» For 830 and 840 server models, you can activate inactive processors for a no-charge trial period to satisfy workload requirements while your order for permanent activation of additional capacity is being fulfilled. To activate all of the inactive processors installed on your server for a trial period, follow these steps: «

1. From a console, enter STRSST on a command line to start system service tools (SST). Sign on to SST.

Note: To use system service tools, you need a valid service tools user ID with System capacity - administrator privileges.

2. Select option 6 (Work with system capacity) and press Enter. The **Work with System Capacity** display appears.
3. Select option 3 (Work with temporary system capacity) and press Enter. The **Confirm start temporary system capacity activation** display appears.
Note: This option does not appear if temporary system capacity activation is in use or has already been used.
4. Press Enter to confirm the system capacity activation.
5. Exit the **Work with System Capacity** display.
6. If the server is partitioned, you must assign the newly available processors to a logical partition before you can use the new capacity.

For information about assigning the activated processors to a logical partition, see Dynamically move logical partition resources.

7. If the server is not partitioned, follow these steps:
 - a. Select option 5 (Work with system partitions) and press Enter.
 - b. Select option 3 (Work with partition configuration) and press Enter.
 - c. Type 2 (Change partition processing resources) next to PRIMARY and press Enter.
 - d. Enter a value for the **New number of processors** that represents the total number of active processors.
Note: A configuration error at the bottom of the display indicates that the default primary partition has been altered (logical partitioning is actively being used). Consult your logical partition plan to correctly assign the activated processors to the server.
 - e. Press Enter to confirm the change.
8. Exit SST.

You can now begin using the new capacity.

Notes:

- Remove the temporarily activated processors from the logical partition configuration before to the end of the 14 day trial period in order to make them available to be reclaimed by the server. If the proper number of processors is not made available to be reclaimed before the trial period is over, the server will experience degraded performance and system reference code (SRC) A6004730 may be displayed.
- If SRC A6004730 is displayed, complete the following steps:
 1. Remove all temporarily activated processors from the logical partition configuration in order to make them available to be reclaimed by the server. For information about moving resources on a logical partition, see Dynamically move logical partition resources.
 2. Perform an IPL.

Scenario: Capacity Upgrade on Demand

Capacity Upgrade on Demand enables customers to activate inactive processors as their workload requires it. The following scenario walks through the steps of planning for, ordering, and using permanently activated capacity.

1. A Model 840 server with feature code 2416 is operating with eight active processors and four inactive processors. As the server workload grows, the available CPU resource utilization consistently approaches or exceeds 70% of the available capacity. Anticipating the need for additional resources, the administrator decides to consider activating some of the inactive processors.
2. Before activating any processors, the administrator prepares the server for Capacity on Demand. This involves performing trend analysis to learn how many additional processors are required, preparing the server to leverage additional processors, and preparing to order the new capacity. » For more information, see “Prepare for Capacity on Demand” on page 2. «
3. To investigate the benefits of activating the additional processors, the administrator decides to activate the processors for a trial period. » For more information, see “Activate inactive processors for a trial period” on page 9. «
4. After deciding that the performance improvement gained by activating the additional processors warrants purchasing the processors permanently, the administrator contacts the IBM marketing representative or IBM Business Partner, or visits www.ibm.com to place an order for four processor activation features.
5. The IBM marketing representative places the order in the IBM configurator, and receives a reminder to send the vital product data (VPD) from the server with the order. The VPD data can be faxed to IBM or sent electronically with the Electronic Service Agent. » For more information, see [Send vital product data to IBM](#).«
6. The administrator retrieves the activation code, and activates the capacity permanently. This involves entering the activation code on the target server and assigning the processors to a logical partition. » For more information, see “Activate inactive processors permanently” on page 7. «

The Model 840 now has all 12 processors available for use.

On/Off Capacity on Demand

On/Off Capacity on Demand enables you to temporarily activate and de-activate processors on iSeries 825, 870, and 890 server models to satisfy business peaks.

After you request a number of processors to be made temporarily available for a specified number of days, those processors are available immediately. You can start and stop requests for temporary capacity, and you are billed for usage at the end of each quarter.

However, like renting, this flexibility is more expensive in the long run than purchasing permanent capacity through Capacity Upgrade on Demand. The approximate break-even point is 90 processor days. That is, if you were to request and pay for 90 processor days, you pay approximately the same price you would have paid for permanently activating a processor. Consider which option is best for your business. For more information about activating processors permanently, see “Capacity Upgrade on Demand” on page 5.

An added benefit of On/Off Capacity on Demand is bonus processor days. With your initial order of On/Off Capacity on Demand, you receive 14 bonus days of temporary capacity. You are not billed for the first 14 processor days of temporary capacity that you request from the server.

Use this topic to understand how On/Off Capacity on Demand works and what you need to do to take advantage of it.

“On/Off Capacity on Demand concepts” on page 11

Start here for a conceptual understanding of On/Off Capacity on Demand, including the server models and processor features available for On/Off CoD.

“Enable On/Off Capacity on Demand” on page 13

before requesting temporary capacity on your server, enable your server to take advantage of On/Off Capacity on Demand.

“Use On/Off Capacity on Demand” on page 14

After your server is enabled for On/Off Capacity on Demand, request inactive processors to be temporarily activated.

“Manage On/Off Capacity on Demand” on page 16

Manage On/Off Capacity on Demand on your server by displaying temporary processor status, viewing a log of temporary capacity requests, stopping a request, or ending the On/Off Capacity on Demand function on your server.

On/Off Capacity on Demand concepts

On/Off Capacity on Demand enables you to activate inactive processors on a temporary basis. You can turn on inactive processors for a number of days as your business peaks demand and pay only for that usage period.

The following concepts are important to understanding On/Off Capacity on Demand:

“On/Off Capacity on Demand processor days”

Temporary capacity provided by On/Off Capacity on Demand is activated, measured, and billed in units called processor days.

» **“Processors available for On/Off Capacity on Demand” on page 12**

Lists the number of active and inactive processors available for each server model. «

“On/Off Capacity on Demand enablement code” on page 12

After you have decided to take advantage of On/Off Capacity on Demand, you need to order an On/Off CoD enablement feature, which provides you with an On/Off CoD enablement code that enables you to make requests for temporary capacity when it is needed.

“Billing for On/Off Capacity on Demand” on page 13

Find out about how billing for On/Off Capacity on Demand works.

On/Off Capacity on Demand processor days

Temporary capacity provided by On/Off Capacity on Demand is activated, measured, and billed in units called *processor days*:

Requested processor days

Requested processor days equals the number of temporarily activated processors multiplied by the number of days specified on a request for temporary capacity. When a request for temporary capacity is made on the server, a request is considered started. After the request is started, the server records one requested processor day at the beginning of each 24-hour period for each requested processor.

(number of processors) * (number of requested days)

Unreturned processor days

» Processors are considered *unreturned* when an On/Off Capacity on Demand request expires or is stopped and all the processors requested have not been removed from the logical partition configuration and made available to be returned. An unreturned processor day is a 24-hour period calculated when the server detects that a processor is no longer requested, but has not been returned by being removed from the logical partition configuration.

Unreturned processor days are the number of unreturned processors multiplied by the number of days that the processors remain unreturned.

(number of unreturned processors) * (number of processor days that the processors are unreturned) <<

Bonus days

Fourteen processor days are automatically credited to a customer's server records the first time an On/Off CoD enablement code is ordered. If and when the server is upgraded, which occurs when the processor feature is changed, and a new enablement code is ordered, the number of credit days is set to 14. >> For the iSeries Capacity BackUp server, a variable number of bonus days are provided for disaster testing. For more information about the iSeries Capacity BackUp server, see "iSeries for Capacity BackUp" on page 18. <<

Complimentary days

Complimentary processor days can, at the option of IBM, be manually credited to a customer's server records. For the iSeries Capacity BackUp server, the processor days per active processor are credited when a disaster is declared. The processor days per active processor are calculated by the number of primary processors minus the number of backup processors.

(number of primary processors) - (number of backup processors)

For more on how temporary capacity is billed, see "Billing for On/Off Capacity on Demand" on page 13.

Processors available for On/Off Capacity on Demand

>> On/Off Capacity on Demand enables you to temporarily activate and de-activate processors on iSeries 825, 870, and 890 server models to satisfy business peaks.

The following table lists the iSeries server models and processor features that offer inactive processors that can be temporarily activated.


Model	Processor feature	Enablement feature	Active processors	Inactive processors	Installed processors	Bonus days
825	2473	1773	3	3	6	14
870	2489	1774	5	3	8	14
870	2486	1776	8	8	16	14
890	2497	1777	16	8	24	14
890	2498	1779	24	8	32	14



On/Off Capacity on Demand enablement code

When you have decided to prepare your server to temporarily activate some or all of the inactive processors, you need to order an On/Off Capacity on Demand enablement feature. You can think of this as a capacity license key.

After your On/Off enablement code is created, you can access it using your system type and serial number at the iSeries Capacity on Demand Web site:

<http://www.ibm.com/servers/eserver/iseries/ondemand/cod/> 

For instructions on how to order an enablement feature and receive an On/Off enablement code, see "Enable On/Off Capacity on Demand" on page 13.

An On/Off enablement code enables the server to limit the number of processor days that can be requested as temporary capacity, up to 192 processor days. You can make requests for temporary capacity over the life of the server as long as your requests do not exceed this value.

When the limit is reached, a new On/Off CoD enablement feature must be ordered and a new enablement code entered on your server. Each time a new enablement code is entered it resets the limit of processor days that can be requested as temporary capacity, up to 192 processor days.

A new enablement code cannot be entered if an On/Off Capacity on Demand request is active or if unreturned processors exist.

Billing for On/Off Capacity on Demand

Billing for On/Off Capacity on Demand occurs in processor days. One processor day is billed for each unreturned processor at the beginning of the 24-hour period. The 24-hour period begins when the server detects that a request has expired or been stopped and the requested processors are still in use in the logical partition configuration.

For multiple processor requests, some of the processors might be made available and only the remaining processors that are in use are considered to be unreturned. The server reclaims any unreturned processors when they become available. A new On/Off Capacity on Demand request cannot be made if unreturned processors exist.

The customer contract required before receiving your On/Off enablement code requires you to report billing data, at least one time per month, regardless of whether you have used temporary capacity during the period. The billing data is used to calculate billing amounts at the end of each billing period (calendar quarter). See “Establish monthly reporting to IBM” on page 14 for instructions on setting up a method of reporting.

Failure to report billing data during a billing quarter for a server that has been enabled, which occurs after an On/Off CoD enablement feature has been ordered and the resulting On/Off CoD enablement code has been entered, results in an estimated bill for 90 processor days of temporary capacity.

Processor days of credit are applied against any requested or unreturned processor days of temporary capacity. This happens automatically until the processor days are used up.

Your IBM Business Partner or IBM marketing representative is notified of your requests for temporary capacity and places an order for a quantity of billing features.

Enable On/Off Capacity on Demand

Before requesting temporary capacity on your server, enable your server for On/Off Capacity on Demand.



Important: Install and apply the latest cumulative PTF package for OS/400 V5R3 before enabling your server for On/Off Capacity on Demand. See Install cumulative PTF packages for details.

To enable your iSeries server to use On/Off Capacity on Demand:

1. Contact your IBM Business Partner or IBM marketing representative to request On/Off Capacity on Demand.
Your IBM Business Partner or IBM marketing representative guides you through the completion of the required On/Off Capacity on Demand contracts with IBM.
2. Your IBM Business Partner or IBM marketing representative places a customer order for an On/Off CoD enablement feature. ➤ See “Processors available for On/Off Capacity on Demand” on page 12 for more information. ⏪
3. Retrieve the resulting On/Off CoD enablement code.
After your enablement code has been created, it is e-mailed to you. You can also access it using your

system type and serial number at the iSeries Capacity on Demand Web site:

<http://www.ibm.com/servers/eserver/series/ondemand/cod/> 

4. Enter the On/Off CoD enablement code on your server.  For more information, see Enter the On/Off CoD enablement code. 

Use On/Off Capacity on Demand

After you have enabled On/Off Capacity on Demand, you can begin using temporary capacity on your server. This is done by specifying the number of inactive processors you want to activate and the number of days for which you want them activated.

To begin using temporary capacity, complete the following tasks:

“Establish monthly reporting to IBM”

Set up a method for reporting your temporary capacity requests and activity to IBM. This can be done using the Electronic Service Agent function, fax, or e-mail.

“Request temporary capacity on your server” on page 15

To temporarily activate inactive processors, request temporary capacity on your server.

“Move activated processors to a logical partition” on page 16

After you have requested and activated temporary capacity on your server, assign those activated processors to a logical partition, even if you have only the single, default partition and are not actively using using logical partitions on your server.

Establish monthly reporting to IBM

The customer contract required before receiving your On/Off enablement code requires you to report billing data, at least one time per month, regardless of whether you have used temporary capacity during the period.

There are three methods for reporting information about your requests for temporary capacity to IBM. The preferred method of reporting is to send information electronically using the Electronic Service Agent. Reporting can also be done using fax or e-mail. If fax or e-mail is used, you must sign a separate contract with IBM.

Using Electronic Service Agent

Monthly reporting of your temporary capacity activity can be sent to IBM electronically using the Electronic Service Agent, which is part of Extreme Support, IBM's comprehensive technical service and support initiative exclusive to IBM iSeries. Electronic Service Agent is designed to monitor events and to transmit server inventory information to IBM on a periodic, customer-definable timetable. For more information, see “Electronic Service Agent requirements” on page 4.

Using fax or e-mail

To fax or e-mail information about your requests for temporary capacity, follow these steps:

1. From a console, enter STRSST on a command line to start system service tools (SST). Sign on to SST.
Note: To use system service tools, you need a valid service tools user ID with System capacity - administrator privileges.
2. Select option 6 (Work with System Capacity) and press Enter.
3. Select option 4 (Work with On/Off Capacity on Demand) and press Enter.
4. Press F11 (Display On/Off Capacity on Demand).

5. Press F6 to print the information to be faxed. If you e-mail the information, take a screen capture of the Display On/Off Capacity on Demand display.
6. If you are using fax, prepare a fax document with the following information:
 - Fax-to information:
 - **Send to:** Capacity on Demand Administrator (icod@us.ibm.com)
 - **Fax number:** 507-253-4553
 - **Location:** Rochester, Minnesota
 - Fax-from information:
 - **Customer name:**
 - **Customer contact name:**
 - **Customer address:**
 - **Customer telephone number:**
 - **Customer fax number:**
7. Fax the document to the following fax number:
507-253-4553

-or-

E-mail the electronic image to the following address:
icod@us.ibm.com

Request temporary capacity on your server

Temporarily activating inactive processors requires you to request temporary capacity on your server. Requesting temporary capacity turns on the number of inactive processors you specify for the number of days you specify.

To request temporary capacity on your server, follow these steps:

1. Enter STRSST on a command line to start system service tools (SST). Sign on to SST.
Note: To use system service tools, you need a valid service tools user ID with **System capacity - administrator** privileges or with **System capacity - operator** privileges.
2. Select option 6 (Work with system capacity).
3. Select option 4 (Work with On/Off Capacity on Demand).
4. Specify the number of processors you want and the number of days you want, and then press Enter.
5. Press Enter on the confirm action display. You are reminded of the contract signed before the enablement of this specific server for temporary capacity.
6. Exit SST.

Your request for temporary capacity is now started; however, you must assign the activated processors to a logical partition before they are available for use on your server. See “Move activated processors to a logical partition” on page 16 for details.

Note: The billing for each processor day begins as soon as the request for temporary capacity is confirmed, regardless of if the requested processors are assigned to a partition and therefore able to do work. One processor day is recorded for each processor requested at the beginning of each 24-hour period that the request is active, starting when the request is confirmed. If a request is stopped before the last 24 hours of the request, any whole, unused processor days are credited back as unused.

You can stop an active request for temporary capacity before it expires. See “Stop a temporary capacity request before it expires” on page 17 for details.

Move activated processors to a logical partition

After you request temporary capacity on your server, you must move or assign the activated processors to a logical partition. You are billed for the processor days you request, therefore it is important to assign the processors to a logical partition as soon as they are activated in order to get the full benefit of the temporary capacity. ➤ For more information about On/Off Capacity on Demand processor days, see “On/Off Capacity on Demand processor days” on page 11. ⏪

Important: You must assign activated processors to a logical partition even if your server is not configured to use logical partitions. Starting with V5R1, your server is configured with a primary partition whether you are actively using logical partitions or not. As a result, it is necessary to assign any activated processors to the single, default primary partition in order to use the processors after you have requested them.

You can perform logical partitions functions using iSeries Navigator, the iSeries graphical user interface, or by using SST through the character-based interface. For more information, see Manage logical partitions by using iSeries Navigator, DST, and SST.

To move activated processors to a logical partition using SST:

1. Enter STRSST on a command line to start system service tools (SST). Sign on to SST.
Note: To use system service tools, you need a valid service tools user ID with System capacity - administrator privileges. You also need logical partition authority of System partitions - administration.
2. Select option 5 (Work with system partitions) and press Enter.
3. Select option 3 (Work with partition configuration) and press Enter.
4. Select option 2 (Change partition processing resources) next to PRIMARY and press Enter.
5. Enter a value for **New number of processors** and press Enter. This value should represent the total number of active processors.
Note: If a configuration error message appears, see Logical partition error messages and reports.
6. Press Enter to confirm the change.
7. Exit SST.

- Notes:**
- ➤ If you make the temporary capacity available to be reclaimed by the server before the request expires, the request expires and is removed from the **Work With On/Off Capacity on Demand** display. Remove the temporarily activated processors from the logical partition configuration, making them available to be reclaimed by the server.
 - If you do not make the temporary capacity available to be reclaimed before the request for temporary capacity expires, the request expires and is removed from the **Work With On/Off Capacity on Demand** display. However, the server treats the temporary capacity that is still assigned to partitions as unreturned processor days and you are charged for unreturned processor days at the same rate you are charged for requested processor days. ⏪

Manage On/Off Capacity on Demand

Minimal day-to-day management of your temporary capacity is required. However, you can do the following management tasks:

“Display On/Off CoD processor activation status” on page 17

Display information about the number of inactive processors that are activated.

“View log of temporary capacity requests” on page 17

View information about temporary capacity requests, including time stamps and activity details, in the history log.

“Stop a temporary capacity request before it expires” on page 17

You can stop a particular request for temporary capacity before it expires. Follow these steps to stop

a request for temporary capacity at any time during the period of requested temporary capacity. On/Off Capacity on Demand remains enabled on your server, but the request for temporary capacity is stopped.

“End On/Off Capacity on Demand” on page 18

Use this topic to discontinue the On/Off Capacity on Demand function on your server, disabling it for future use, by entering a termination code on your server.

Display On/Off CoD processor activation status

To display information about the number of inactive processors that are activated, follow these steps:

1. From a console, enter STRSST on a command line to start system service tools (SST). Sign on to SST.

Note: To use system service tools, you need a valid service tools user ID with **System capacity - administrator** privileges.

2. Select option 6 (Work with system capacity).
3. Select option 4 (Work with On/Off Capacity on Demand).

View log of temporary capacity requests

The history log for temporary system capacity displays temporary capacity requests with a time stamp and activity detail.

To view a log of temporary capacity requests on the server, follow these steps:

1. Enter STRSST on a command line to start system service tools (SST). Sign on to SST.
Note: To use system service tools, you need a valid service tools user ID with System capacity - administrator privileges or System capacity - operator privileges.
2. Select option 6 (Work with system capacity) and press Enter.
3. Press F10 to view the history log.

Stop a temporary capacity request before it expires

You can stop a request for temporary capacity at any time during the period of requested temporary capacity.

For example, assume that you have requested the temporary activation of one inactive processor for 14 days. After seven days of this request, you determine that you do not need the temporarily activated processor for the remaining seven days of the request. You can stop the request and avoid being billed for any unused 24-hour periods of your request.

To stop an active request for temporary capacity before it expires, do the following:

1. Move the temporarily activated processors from the logical partitions they were assigned to and make them available to be reclaimed by the server. You can perform logical partitions functions by using iSeries Navigator, the iSeries graphical user interface, or using SST through the character-based interface. For more information, see *Manage logical partitions by using iSeries Navigator, DST, and SST*.

Note: If you do not deallocate the temporarily activated processors from the partitions, the server continues to count the quantity of unreturned processor days, for which you are billed for at the end of the quarter. The server might also display the system reference code (SRC) A6004730.

2. Enter STRSST on a command line to start system service tools (SST). Sign on to SST.
Note: To use system service tools, you need a valid service tools user ID with System capacity - administrator privileges or System capacity - operator privileges.
3. Select option 6 (Work with system capacity).
4. Select option 4 (Work with On/Off Capacity on Demand).
5. Select option 2 to stop the request and confirm the change.

6. A Stop request successful message appears after your stop request has completed.

Important: Avoid performing the following combination of actions in quick succession:

1. Start a temporary capacity request.
2. Stop a temporary capacity request.
3. Start a new temporary capacity request and change the LPAR configuration.

This might result in an SRC A6004730 and unreturned processor days being charged to your system. To avoid this behavior, wait 15 minutes after stopping a request for temporary capacity before starting a new request.

End On/Off Capacity on Demand

To end the On/Off Capacity on Demand function on your server, which disables the capability for future use, you must obtain and enter an On/Off termination code on your server. To obtain this termination code, send a request for an On/Off termination code to the CoD administrator (tcod@us.ibm.com).

To disable future use of temporary capacity on your server after you have obtained a termination code, follow these steps:

1. From a console, enter STRSST on a command line to start system service tools (SST). Sign on to SST.

Note: To use system service tools, you need a valid service tools user ID with **System capacity - administrator** privileges.

2. Select option 6 (Work with system capacity).
3. Select option 3 (Enable On/Off Capacity on Demand).
4. Enter your On/Off termination code and press Enter.


Note: Even though you are actually entering a termination code and not an enablement code, enter your termination code in the **On/Off enablement code** field. The termination code is not accepted if an On/Off Capacity on Demand request is active or if unreturned processors exist.

5. Press Enter to confirm.
6. Exit the Work with System Capacity display.
7. Exit SST.

iSeries for Capacity BackUp

» The iSeries for Capacity BackUp offering is intended for companies requiring an off-site, disaster recovery server. Using iSeries On/Off Capacity on Demand capabilities, the iSeries for Capacity BackUp offering has a minimum set of active processors that can be used for any workload and a large number of inactive processors that can be used at no charge in the event of a disaster. A special supplement to the On/Off Capacity on Demand customer contract should be signed for the iSeries Capacity BackUp server. For more information about On/Off Cod, see “On/Off Capacity on Demand” on page 10.

An added benefit of On/Off Capacity on Demand is bonus processor days. A specified number of no-charge bonus processor days is provided with each iSeries for Capacity BackUp offering to use for disaster testing.

For more information about the Capacity BackUp offering, see the iSeries for Capacity BackUp  Web site.

The following topics provide you with the information you need to take advantage of the iSeries for Capacity BackUp offering.

“Processors available for iSeries for Capacity BackUp”

Lists the number of active and inactive processors available for each server model.

“Software licensing on an iSeries Capacity BackUp server”

Lists the unique considerations for software licensing on an iSeries Capacity BackUp server.



Processors available for iSeries for Capacity BackUp

» The iSeries for Capacity BackUp offering is intended for companies requiring an off-site, disaster recovery server. Using iSeries “On/Off Capacity on Demand” on page 10 capabilities, the iSeries for Capacity BackUp offering has a minimum set of active processors that can be used for any workload and a large number of inactive processors that can be used at no charge in the event of a disaster.

An On/Off CoD enablement code enables the server to limit the number of processor days that can be requested as temporary capacity, up to a certain number of processor days. You can make requests for temporary capacity over the life of the server as long as your requests do not exceed this value.

When the limit is reached, a new On/Off CoD enablement feature must be ordered and a new enablement code entered on your server. Each time a new enablement code is entered it resets the limit of processor days that can be requested as temporary capacity up to the limit of processor days. A new enablement code cannot be entered if an On/Off Capacity on Demand request is active or if unreturned processors exist.

The following table lists the iSeries Capacity BackUp server models, processor feature codes, and the maximum number of processor days that can be requested as temporary capacity:

The following table lists the iSeries server models and processor features that offer inactive processors that can be temporarily activated using the iSeries for Capacity BackUp offering:

Model	Processor feature	Enablement feature	Active processors	Inactive processors	Installed processors	No-charge processor days
825	2495	1779	3	3	6	60
870	2496	1780	8	8	16	120
890	2499	1781	24	8	32	180



Software licensing on an iSeries Capacity BackUp server

OS/400 licensing is included with the start-up processors for the iSeries Capacity BackUp server and is not required with use of temporary capacity. IBM software licensing is not required on the iSeries Capacity BackUp server. Non-IBM software licensing is based on the software tier or conditional use licensing explicitly provided by the software provider.

For more information about the iSeries Capacity BackUp server, see the iSeries for Capacity BackUp  Web site.

Related information for Capacity on Demand

Listed below are the iSeries manuals (in PDF format), Web sites, and Information Center topics that relate to the Capacity on Demand topic. You can view or print any of the PDFs.

Manuals

- **Performance Tools for iSeries**



This book provides the programmer with the information needed to collect data about the system, job, or program performance. It also includes tips for printing and analyzing performance data to identify and correct inefficiencies that might exist as well as information about the Manager and Agent features.

Web sites

- **Performance Management for IBM eServer iSeries**



(www.ibm.com/servers/eserver/iseries/perfmgmt/resource.htm)

This reference provides highly technical information about server performance useful for performance benchmarking, capacity planning, and planning for server performance.

- **iSeries Capacity on Demand**



(www.ibm.com/servers/eserver/iseries/ondemand/cod/)

This reference provides information about Capacity on Demand, including marketing presentations, planning guides, and links to where to go to retrieve your activation and enablement codes.

- **iSeries for Capacity BackUp**



(www.ibm.com/servers/eserver/iseries/hardware/is4cbu/)

This reference provides information about the iSeries for Capacity BackUp offering, one of IBM's business continuity offerings available for iSeries servers. The iSeries for Capacity BackUp offering is intended for companies requiring offsite disaster recovery machines.

Other information


- Logical partitions topic
- Performance topic
- Backup and recovery topic
- Extreme support topic

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