

Enterprise Server Model S80
@server pSeries 680 Model S85



Capacity Upgrade on Demand Installing and Upgrading Processors

Second Edition (March 2001)

Before using this information and the product it supports, read the information in "Appendix A. Environmental Notices" on page 23 and "Appendix B. Notices" on page 25.

A reader's comment form is provided at the back of this publication. If the form has been removed, address comments to Publications Department, Internal Zip 9561, 11400 Burnet Road, Austin, Texas 78758-3493. To send comments electronically, use this commercial internet address: aix6kpub@austin.ibm.com. Any information that you supply may be used without incurring any obligation to you.

© **International Business Machines Corporation, 2001. All rights reserved.**

Note to U.S. Government Users Restricted Rights--Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Contents

Data Integrity and Verification	v
About This Book	vii
ISO 9000	vii
Online Publications	vii
Related Publications	vii
Ergonomic Information	vii
Trademarks	viii
Chapter 1. Introducing Capacity Upgrade on Demand	1
System Processors	1
Capacity Upgrade on Demand Process Flow	3
Chapter 2. Installing a System with Capacity Upgrade on Demand	5
Prerequisites	5
Verifying Prerequisites	6
Verifying Capacity Upgrade on Demand Enabling Software	6
Verifying System Communication Capabilities	6
Installing Capacity Upgrade on Demand	7
Chapter 3. Enabling Capacity Upgrade on Demand Processors	13
Using the Capacity Upgrade on Demand Feature	13
Adding Processor Capacity	15
Chapter 4. Using the chcod Command	17
Purpose	17
Syntax	17
Description	17
Flags	17
Chapter 5. System Capacity Upgrade on Demand Recovery	19
Determining Current Configuration	19
Recovery Procedures	19
System Verification	19
Capacity Upgrade on Demand Diagnostics	19
Testing the System in the Capacity Upgrade on Demand Environment	20
Appendix A. Environmental Notices	23
Product Recycling and Disposal	23
Environmental Design	23
Unit Emissions	23
Appendix B. Notices	25

Data Integrity and Verification

IBM computer systems contain mechanisms designed to reduce the possibility of undetected data corruption or loss. This risk, however, cannot be eliminated. Users who experience unplanned outages, system failures, power fluctuations or outages, or component failures must verify the accuracy of operations performed and data saved or transmitted by the system at or near the time of the outage or failure. In addition, users must establish procedures to ensure that there is independent data verification before relying on such data in sensitive or critical operations. Users should periodically check the IBM support websites for updated information and fixes applicable to the system and related software.

About This Book

This book provides an overview of the process to install and use a system that has Capacity Upgrade on Demand (CUoD) processors available. This book also provides instructions to allow enabling of additional processors after the Capacity Upgrade on Demand feature is operational.

ISO 9000

ISO 9000 registered quality systems were used in the development and manufacturing of this product.

Online Publications

RS/6000 and pSeries publications are available online. To access the online books, visit our Web site at: http://www.rs6000.ibm.com/resource/hardware_docs/

Related Publications

The following publications are available:

- The system unit's Users Guide contains information about using the service processor to help understand processor controls available in addition to what is described in this book.
- The system unit's Service Guide contains information for service representatives when they install the Capacity Upgrade on Demand feature hardware.

Ergonomic Information

After you have set up your system, we encourage you to visit the Healthy Computing Web site. Good ergonomic practice is important to get the most from your workstation and to avoid discomfort. This means that the equipment and the workplace should be arranged to suit your individual needs and the kind of work you do.

The Healthy Computing Web site gives ergonomic guidelines to help you understand the ergonomic considerations that you should know when working at a computer workstation. The address is:
<http://www.us.pc.ibm.com/healthycomputing>

Trademarks

The following terms are trademarks of International Business Machines Corporation in the United States, and other countries, or both:

- AIX
- CUoD
- e (logo)
- IBM
- pSeries

Other company, product, and service names may be trademarks or service marks of others.

Chapter 1. Introducing Capacity Upgrade on Demand

Capacity Upgrade on Demand is a flexibility option for your system that allows increased processor capacity when you want it. The feature can be ordered on a new system, or added to an installed system to ensure that you have additional processing power available if you need it. After the hardware is installed, additional processors are available anytime. When changes to the system configuration are made, Electronic Service Agent notifies the CUoD project office of the change by communicating through a modem and a dedicated phone line. You can increase your system's processing capacity in increments of two processors by entering a command on the operating system command line.

System Processors

The Capacity Upgrade on Demand feature allows a new system to be ordered with extra capacity that can be enabled by the system administrator. Also, if a system that is already in use requires additional capacity, the system can be upgraded with additional capacity that can be enabled anytime. The processors are ordered by feature code (FC) for the system on which you are installing the additional capacity. Feature codes 8300, 8302, 8304, and 5319 are used to order 450 MHz processor boards, and feature codes 8299, 8301 8303, 8305, and 5321 are used to order 600 MHz processor boards.

A system must be ordered with a minimum of four processors enabled. The following feature codes can be ordered with the system, or added as upgrades to allow additional processors to be installed in the system and then enabled later. The processor enabling is done by the system administrator when additional capacity is required. The service representative can also enable processors during hardware upgrade installation. The feature codes are as follows:

FC 8299 (Model S85)

This Capacity Upgrade on Demand feature code causes a processor board with six processors to be installed, but four of the processors are enabled. Two processors are available for upgrade on demand. This feature is available only when a new system is ordered.

FC 8300 (Model S80), FC8301 (Model S80, Model S85)

These Capacity Upgrade on Demand feature codes cause a processor board with six processors to be installed, but none of the processors are enabled. Up to three of these features can be installed.

FC 8302 (Model S80), FC8303 (Model S80, Model S85)

These Capacity Upgrade on Demand feature codes cause a processor board with six processors to be installed, and two of the processors are enabled.

FC 8304 (Model S80), FC8305 (Model S80, Model S85)

These Capacity Upgrade on Demand feature codes, cause a processor board with six processors to be installed, and four of the processors are enabled.

FC 5319 (Model S80), FC5321 (Model S80, Model S85)

These feature codes cause a processor board with six processors to be installed, with all six of the processors enabled. If a system that has any of the

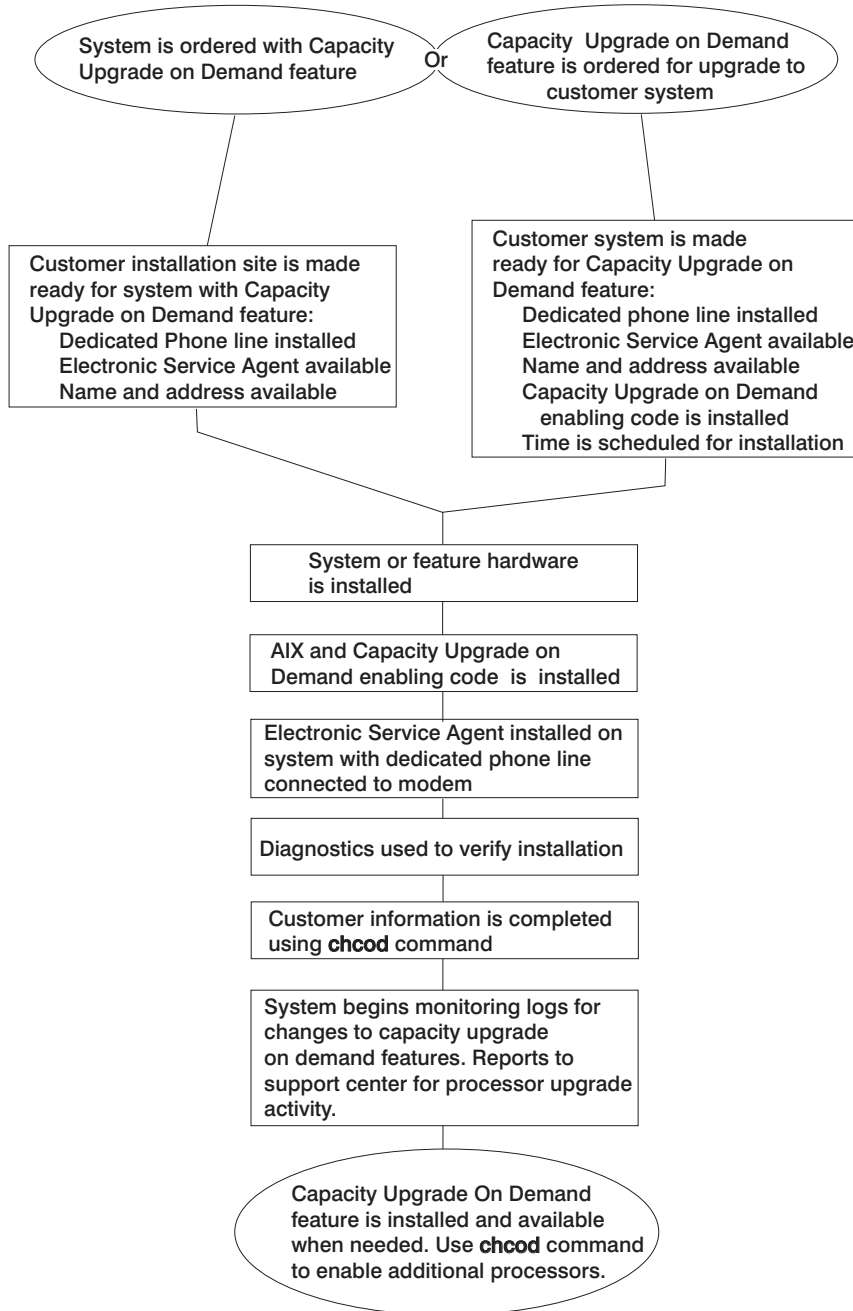
above feature codes is upgraded to use all six processors of a processor board, then the system records are updated to show one of these feature codes.

After the system is running with any of the above features installed, if the system administrator enables additional processors on a processor board, the records for the system are changed to show that the appropriate feature code is in use.

As processors are enabled by the system administrator, the feature records for the system are automatically updated in the AIX error logs to reflect the number of processors in use. For system records purposes, the error logs record changes to the processor configuration and the changes are sent, using the Electronic Service Agent, to the CUoD project office.

Capacity Upgrade on Demand Process Flow

The following flowchart provides an overview of the process that is required to enable Capacity Upgrade on Demand on systems that need reserve capacity.



Chapter 2. Installing a System with Capacity Upgrade on Demand

If you are installing a system that was ordered with a processor Capacity Upgrade on Demand feature, follow the instructions in this chapter to install and verify the Capacity Upgrade on Demand feature. If the Capacity Upgrade on Demand feature is already installed in your system and you want to upgrade to use additional processors, go to “Chapter 3. Enabling Capacity Upgrade on Demand Processors” on page 13.

The following steps are required to install a system that has the processor Capacity Upgrade on Demand feature installed:

1. Verifying that the Capacity Upgrade on Demand prerequisites are installed on the system.
2. Recording the Capacity Upgrade on Demand settings.
3. Shutting down, rebooting the system, and testing all the processors that are installed in the system.
4. Configuring the processors on the system using the **chcod** command.
5. Shutting down and rebooting the system.
6. Verifying the configuration.

Continue with “Prerequisites”.

Prerequisites

The following prerequisites are required before installing or configuring a system that uses the processor Capacity Upgrade on Demand feature:

- AIX version 4.3.3 or later
- Capacity Upgrade on Demand enabling code is installed on the system. This software is installed for the Capacity Upgrade on Demand feature. This code may have been installed with the operating system.
- Electronic Service Agent is installed on the system and communicates with field support through a dedicated phone line. Electronic Service Agent is installed by the service representative typically during system installation.
- A processor Capacity Upgrade on Demand feature is installed in the system.

Continue with “Verifying Prerequisites” on page 6.

Verifying Prerequisites

The information in this section helps to verify that all the prerequisites are in place to enable the Capacity Upgrade on Demand feature.

Verifying Capacity Upgrade on Demand Enabling Software

To determine if the Recommended Maintenance Package is installed, and if the AIX software for Capacity Upgrade on Demand has been updated, perform this procedure.

Note: The system must be installed with AIX 4330–06 Recommended Maintenance package or higher.

1. Log in to the system as root user or a user with system group privileges.
2. At the command line, type the following:

```
oslevel
```

Record the operating system level displayed. If the operating system is at a level greater than 4.3.3.0 go to “Verifying System Communication Capabilities”. If the result is 4.3.3.0 continue with the next step.

3. Type the following:

```
instfix -ik 4330-06_AIX_ML
```

The output on the screen should show:

```
All filesets for 4330-06_AIX_ML were found.
```

- a. If you do not see this message, have the customer install the CD labeled:
AIX V4.3 Update CD
Product Number 5765–C34
11/2000
 - b. If you do see this message, continue with the next step.
4. After the system is installed with AIX 4330–06 Recommended Maintenance Package, check the fileset level. Type the following command:

```
lspp -L devices.chrp.base.rte
```

The output on the screen shows the `devices.chrp.base.rte` fileset and its level.

- a. If the fileset level is 4.3.3.27 or higher, continue with “Verifying System Communication Capabilities”.
 - b. If the fileset is lower than 4.3.3.27, use the “AIX 4.3.3 Additional CUoD Software” CD shipped with the system to update the `devices.chrp.base.rte` fileset to the 4.3.3.27 level.
5. After the software is installed on the system, continue with “Verifying System Communication Capabilities”.

Verifying System Communication Capabilities

The system **must** have Electronic Service Agent installed and configured to call out on a dedicated phone line. The service representative is responsible for ensuring that the Electronic Service Agent is operational.

1. As part of the Capacity Upgrade on Demand system installation, it is the responsibility of the service representative to, configure, and test the Electronic Service Agent. Locate the CD that contains the Electronic Service Agent application and User Guide PDF document provided with the system.
2. Use the Electronic Service Agent Installation and User Guide to complete the tasks in Sections:
 - Prerequisites
 - Obtaining and Installing Electronic Service Agent
 - Basic Electronic Service Agent Configuration
 - Advanced Configuration tasks that MUST be completed to support Capacity Upgrade on Demand:
 - If the system having Capacity Upgrade on Demand installed is not the Electronic Service Agent gateway, the Electronic Service Agent client code must be installed on this system and this system must be added to the list of Electronic Service Agent monitored systems.
 - A Test PMR must be sent to the Electronic Service Agent Server and completed successfully.
3. Return here and continue with these instructions after completing the Electronic Service Agent sections listed above.

Installing Capacity Upgrade on Demand

Use the following procedure when installing a system with the Capacity Upgrade on Demand feature hardware. This procedure configures the Capacity Upgrade on Demand feature and allows the system to update the system records.

1. The system and all new hardware should be installed at this time.
If the Capacity Upgrade on Demand processor feature is not installed, the service representative should install the processor feature at this time. Refer to the instructions that were shipped with the feature for installation instructions.
2. Log in to the system as root user or a user with system group privileges.
3. Type the following command:

```
chcod
```

Record the displayed information below:

Current MailAddress _____ Reserved_____

Current CustInfo _____

Current Model and System ID = IBM, 7017-_____IBM, _____

Current number of authorized proc(s) out of (xx____) installed on system = (yy____)

Where (xx) is the number processors installed in the system, (yy) is the number of Capacity Upgrade on Demand enabled processors.

If (yy) is equal to zero, then Capacity Upgrade on Demand is not enabled.

If (yy) is equal to 4 or higher, then Capacity Upgrade on Demand is enabled.

4. To enable testing of all the installed processors, disable Capacity Upgrade on Demand by setting the (number_of_processors) yy = 0:

```
chcod -r proc -n 0
```

5. Shutdown and reboot the system:

```
shutdown -Fr
```

6. At the command line, type the following command to verify the installed processors.

```
bindprocessor -q
```

Information about installed processor boards is displayed

- If 1 processor board is installed, the available processors are 0 - 5.
- If 2 processor boards are installed, the available processors are 0 - 11.
- If 3 processor boards are installed, the available processors are 0 - 17.
- If 4 processor boards are installed, the available processors are 0 - 23.

If the number of installed processors is not correct, use the normal maintenance package procedures to correct any problems.

7. Test the system, at the command line, type the following command:

```
diag
```

8. Select Advanced Diagnostics

9. Select System Verification mode on sysplanar0 and all processors. Use the normal maintenance package procedures to correct any problems.

10. When the system is ready to return to normal operations, enable the Capacity Upgrade on Demand feature:

- a. Log in to the system as root user or a user with system group privileges.
- b. At the command line, type the following command:

```
chcod -c "CustomerNname-CustomerNumber_nnnnnnn-CustomerPhoneNumber_(333)_444-5555"
```

Note: Information such as the customer number, and the customer phone number can be obtained from the customer or the marketing representative. Use this information when entering the commands in this procedure.

For example:

```
chcod -c Jane_Doe-CustomerNumber_9999999-Phone_(333)_444-5555
```

Note: The customer information cannot contain any blank spaces. To verify that the information was entered correctly, type the following command:

```
chcod
```

The following information is displayed:

```
Current MailAddress _____Reserved_____
```

```
Current CustInfo      Jane_Doe-CustomerNumber_9999999-Phone_(333)_444-5555
```

```
Current Model and System ID = IBM, 7017-XXX_IBM,XXXXXXX
```

```
Current number of authorized proc(s) out of (xx____) installed on system = (0)
```

- c. At the command line, type the following command:

```
chcod -r proc -n total_number_of_processors
```

Where the total number of processors is equal to the value of yy recorded in step 3 on page 7.

11. At the command line, type the following command to verify the error log:
`errprt -a | pg`

The following displays:

```
LABEL :          COD_CHANGED
IDENTIFIER :     nnnnnAnnB
Date/Time :     DDD MM YY  TIME
Machine ID :    nnnnnnnnnnnnnn
Note ID :       abcdefXXX
Class :         X
Type :          INFO
Resource Name : Cod Notify
Description
CHANGING CAPACITY UPGRADE ON DEMAND
Probable Causes
User Causes
USER RAN Chcod COMMAND
Recommended Action
NONE
Detail Data
SYSTEM MODEL
IBM, 7017-XXX_IBM, XXXXXXXXX
RESOURCE CHANGE
proc
RESOURCE INSTALLED
.....
```

(The number is equal to the total number installed processors (XX), this value can be 6, 12, 18, or 24)

```
OLD VALUE
0
NEW VALUE
.....
```

(This value must = yy, recorded in step 3 on page 7)

12. Shutdown and reboot the system:
`shutdown -Fr`
13. Log in to the system as root user or a user with system group privileges.

14. At the command line, type the following command:

```
chcod
```

The following information is displayed:

```
Current MailAddress _____Reserved_____
```

```
Current CustInfo      Jane_Doe-CustomerNumber_9999999-Phone_(333)_444-5555
```

```
Current Model and System ID = IBM, 7017-XXX_IBM,XXXXXXX
```

```
Current number of authorized proc(s) out of (xx____) installed on system = (yy____)
```

The values of (XX) and (YY) should match the values recorded in step 3 on page 7.

15. The processor Capacity Upgrade on Demand feature is enabled and ready to be used. If you want to enable additional processors, continue with “Chapter 3. Enabling Capacity Upgrade on Demand Processors” on page 13.

Chapter 3. Enabling Capacity Upgrade on Demand Processors

This section provides instructions to use the **chcod** command to enable the appropriate processors as they are needed. See “Chapter 4. Using the chcod Command” on page 17 for the command syntax.

If you are upgrading your system to use more available processors, go to “Using the Capacity Upgrade on Demand Feature”.

Using the Capacity Upgrade on Demand Feature

If your system has a Capacity Upgrade on Demand processor board feature, use this procedure to configure the additional processors for use:

1. Log in to the system as root user or as a member of the system group.
2. At the command line, type the following command:

```
chcod
```

The screen displays information about the installed and authorized processors.

```
Current MailAddress _____Reserved_____
```

```
Current CustInfo      Jane_Doe-CustomerNumber_9999999-Phone_(333)_444-5555
```

```
Current Model and System ID = IBM, 7017-XXX_IBM,XXXXXXX
```

```
Current number of authorized proc(s) out of (xx____) installed on system = (yy____)
```

The values of (xx) and (yy) are the current values for the number of processors installed (xx) and the number of authorized processors (yy). Record the information at this time. The following tables show how many of each feature code must be installed on a system to enable each level of processors available. Use the following tables and the information about the current configuration to determine the number of processors to enable in “Adding Processor Capacity” on page 15.

Note: If feature code 8300 (450 MHz) or 8301 (600 MHz) processors were ordered for the system, a processor board with zero processors enabled is installed. A maximum of three of these feature codes can be installed.

Feature codes for systems with 450 MHz Processors are shown in the following table.

Total Number of 450 MHz Processors Enabled on System	FC 5318 6-Way	FC 5319 6-Way	FC 8302 2-Way CUoD	FC 8304 4-Way CUoD	FC 8300 0-Way CUoD Possible
6-Processors	1				3
8-Processors	1		1		2
10-Processors	1			1	2
12-Processors	1	1			2
14-Processors	1	1	1		1
16-Processors	1	1		1	1
18-Processors	1	2			1
20-Processors	1	2	1		0
22-Processors	1	2		1	0
24-Processors	1	3			0

Feature codes for systems with 600 MHz Processors are shown in the following table.

Total Number of 600 MHz Processors Enabled on System	FC 8299 4-Way CUoD	FC 5320 6-Way	FC 5321 6-Way	FC 8303 2-Way CUoD	FC 8305 4-Way CUoD	FC 8301 0-Way CUoD Possible
4-Processors	1					3
6-Processors		1				3
8-Processors		1		1		2
10-Processors		1			1	2
12-Processors		1	1			2
14-Processors		1	1	1		1
16-Processors		1	1		1	1
18-Processors		1	2			1
20-Processors		1	2	1		0
22-Processors		1	2		1	0
24-Processors		1	3			0

- Continue with "Adding Processor Capacity" on page 15 to enable additional processors that you need

Adding Processor Capacity

If you want to enable additional processors in the configuration of a system that has the Capacity Upgrade on Demand feature installed and running, use this procedure.

1. Log in to the system as root user or a user with system group privileges.
2. At the command line, type the following command:

```
chcod
```

The following information is displayed:

```
Current MailAddress _____Reserved_____
```

```
Current CustInfo      Jane_Doe-CustomerNumber_9999999-Phone_(333)_444-5555
```

```
Current Model and System ID = IBM, 7017-XXX_IBM,XXXXXXX
```

```
Current number of authorized proc(s) out of (xx_____) installed on system = (yy_____)
```

The values of (xx) and (yy) are the current values for the number of processors installed (xx) and the number of authorized processors (yy).

3. To increase the number of authorized processors, At the command line, type the following command:

```
chcod -r proc -n total_number_of_processors
```

An example of the above command is as follows:

```
chcod -r proc -n 10
```

In the example above, the value for -n 10 is equal to the total number of processors that you want to have authorized (yy) by entering this command. To upgrade your system to use more of the installed processors, increase the value of yy in increments of 2. In this case, 10 would represent 6 base processors plus 4 additional Capacity Upgrade on Demand processors.

When the system performs the command to enable additional processors, information about the new system configuration is added to the error log and sent out through the Electronic Service Agent to the service support center.

4. Shut down and reboot the system to enable the additional processors:

```
shutdown -Fr
```

5. Log in to the system as root user or a user with system group privileges.

6. At the command line, type the following command:

```
chcod
```

The following information is displayed:

```
Current MailAddress _____Reserved_____
```

```
Current CustInfo      Jane_Doe-CustomerNumber_9999999-Phone_(333)_444-5555
```

```
Current Model and System ID = IBM, 7017-XXX_IBM,XXXXXXX
```

```
Current number of authorized proc(s) out of (xx____) installed on system = (yy____)
```

The values of (yy) should match the value you entered for the *total_number_of_processors* in step 3 on page 15.

For details about the flag variables entered in the command above, see “Chapter 4. Using the chcod Command” on page 17.

Chapter 4. Using the `chcod` Command

Purpose

Manages Capacity Upgrade on Demand

Syntax

```
chcod [-r ResourceType -n NbrResource] [-c CustomerInfo] [-h]
```

Description

The **chcod** command manages Capacity Upgrade on Demand. Capacity Upgrade on Demand allows configuration of more *ResourceType*, in this instance processors, on the system than were initially configured. The additional resources may be enabled if they are available, and if the system supports Capacity Upgrade on Demand for the specified *ResourceType*. Only one *ResourceType* can be managed at a time. The change in the number of *ResourceType* takes effect after the next system boot.

Capacity Upgrade on Demand management also includes displaying the current number of *ResourceType* that have Capacity Upgrade on Demand support, monitoring the number of *ResourceType* on the system, and notifying appropriately. Notification occurs when *NbrResources* changes and also on a periodic basis.

Notification in the form of error logging is sent through Electronic Service Agent to the service support center. An entry is made in the system error log whenever the specified *ResourceType* changes and also on a periodic basis. The *CustomerInfo* text is included in the error log.

Flags

-c *CustomerInfo*

Specifies the text string to include in the error log. *CustomerInfo* may not be more than 255 characters. Blank spaces may not be included in the string. After *CustomerInfo* has been specified, subsequent uses of the **chcod** command do not have to specify the **-c** flag, but you do have the option of changing it. *CustomerInfo* can consist of alphanumeric characters and any of "." (decimal point), "," (comma), "-" (hyphen), "(" (open parenthesis), or ")" (close parenthesis). This flag is optional.

-h Displays the usage message. This flag is optional.

-n *NbrResources*

Specifies the number of *ResourceType* to be authorized on the system. The value for *NbrResources* should be entered in increments of 2. The number that is entered represents the total number of processors for the system. If you are adding the first additional processor board, the number should be 6, 8, 10, or 12. Each time a processor board is added, the total number of desired

processors is entered. If the number is 0, capacity on demand will be disabled for the specified *ResourceType*. This flag is optional. If **-n** is specified, then **-r** must also be specified.

-r *ResourceType*

Specifies the *ResourceType*, proc for processors, to be enabled and monitored on the system. The system must support Capacity Upgrade on Demand for *ResourceType*. If **-r** is specified, then **-n** must also be specified.

The default for the **chcod** command (with no flags) displays the current value of *CustomerInfo*, a reserved field named *MailAddr*, the system's model name and serial number, and the current values for any *ResourceType*.

Chapter 5. System Capacity Upgrade on Demand Recovery

Because Capacity Upgrade on Demand data is stored in system hardware, if a system failure occurs where certain hardware must be replaced, the Capacity Upgrade on Demand data may be lost. Use the procedures in this chapter to ensure that the Capacity Upgrade on Demand data is restored (if necessary) after a service action.

Determining Current Configuration

Before performing any other actions, use this procedure to determine the system configuration:

1. Log in to the system as root user or a user with system group privileges.
2. At the command line, type the following command:
`chcod`
3. The configured Capacity Upgrade on Demand features are displayed. Make a note of the current configuration.

Recovery Procedures

Perform any required service actions to repair the system. After the service action is complete, use the following procedure to check the Capacity Upgrade on Demand information and if necessary, return the system to its original configuration.

1. Log in to the system as root user or a user with system group privileges.
2. At the command line, type the following command:
`chcod`
3. The configured Capacity Upgrade on Demand features are displayed. Compare the current configuration with the configuration you recorded earlier.

If the system configurations do not match, use the procedures beginning with “Chapter 2. Installing a System with Capacity Upgrade on Demand” on page 5 to reinstall the Capacity Upgrade on Demand feature and reconfigure the hardware as appropriate.

System Verification

Refer to the system user or service documentation and perform the system verification procedures.

Capacity Upgrade on Demand Diagnostics

Capacity Upgrade on Demand means delivering to a customer more hardware capacity in a system than is initially enabled, and providing the means for enabling the remainder of the capacity at a later time.

Capacity Upgrade on Demand monitors its resources. Notification of the number of enabled devices is sent monthly and whenever the number of resources change.

Capacity Upgrade on Demand is used to increase the number of processors when needed. Unauthorized devices cannot be tested by AIX Diagnostics, nor do they appear when running the **lscfg** command on the NEW RESOURCE menu, or any AIX Diagnostic task. For example, a system may have 12 processors originally installed, but only 10 of the 12 have been authorized for use. Diagnostics will only show the 10 authorized processors in the diagnostic test list or NEW RESOURCE list. The 2 unused processors cannot be tested by Standalone and Online Diagnostics, and will not display in the diagnostic test list. However, they are tested by the power-on self-test (POST), and if a processor has failed, the failure is:

- Logged in the POST error log
- Logged in the AIX error log
- Reported at boot time by Automatic Error Log Analysis
- Reported if the sysplanar0 diagnostics are run

System Management Services and Service Processor Menus are not affected by Capacity Upgrade on Demand and all processors are tested at boot time. If one processor failed at IPL, Capacity Upgrade on Demand will still enable the number of authorized processors, having the remaining good processors marked as available for future capacity and the failed processors marked as failed. The customer is able to continue to run the system without degradation. However, in such a case, the failing processor card should be replaced at the customer's convenience to allow the customer to add capacity as needed.

The **chcod** command is used to manage Capacity Upgrade on Demand resources. It is also used to determine the number of resources that are authorized and the total number of resources installed.

Testing the System in the Capacity Upgrade on Demand Environment

In order to test all the processors installed in a machine that has a Capacity Upgrade on Demand feature installed, you must use the following procedure to allow the diagnostics to test each processor.

1. Log in to the system as root user or a user with system group privileges.
2. Type the following command to determine if Capacity Upgrade on Demand is currently enabled:

```
chcod
```

Record the displayed information below:

```
Current MailAddress _____ Reserved _____
```

```
Current CustInfo _____
```

```
Current Model and System ID = IBM, 7017-_____IBM, _____
```

```
Current number of authorized proc(s) out of (xx____) installed on system = (yy____)
```

Where (xx) is the number processors installed in the system, (yy) is the number of Capacity Upgrade on Demand enabled processors.

If (yy) is equal to zero, then Capacity Upgrade on Demand is not enabled.

If (yy) is equal to 4 or higher, then Capacity Upgrade on Demand is enabled.

3. To enable testing of all the installed processors, disable Capacity Upgrade on Demand by setting the (number_of_processors) yy = 0:

```
chcod -r proc -n 0
```

4. Shutdown and reboot the system:

```
shutdown -Fr
```

5. At the command line, type the following command to verify the installed processors.

```
bindprocessor -q
```

- If 1 processor board is installed, the available processors are 0 - 5.
- If 2 processor boards are installed, the available processors are 0 - 11.
- If 3 processor boards are installed, the available processors are 0 - 17.
- If 4 processor boards are installed, the available processors are 0 - 23.

If the number of installed processors is not correct, use the normal maintenance package procedures to correct any problems.

6. Test the system, at the command line, type the following command:

```
diag
```

7. Select Advanced Diagnostics
8. Select System Verification mode on sysplanar0 and all processors. Use the normal maintenance package procedures to correct any problems.
9. When the system is ready to return to normal operations, reset the Capacity Upgrade on Demand feature:
 - a. Log in to the system as root user or a user with system group privileges.
 - b. At the command line, type the following command:

```
chcod -r proc -n total_number_of_processors
```

Where the total number of processors is equal to the value of yy recorded in step 2 on page 20.

10. Shutdown and reboot the system:

```
shutdown -Fr
```

11. Allow the system to do a normal boot.

Appendix A. Environmental Notices

Product Recycling and Disposal

This unit contains materials such as circuit boards and connectors with lead that require special handling and disposal at end of life. Before this unit is disposed of, these materials must be removed and recycled or discarded according to applicable regulations. This manual contains specific information on batteries where applicable. This product may contain nickel-cadmium and/or lithium batteries. The battery(s) must be recycled or disposed of properly. Recycling facilities may not be available in your area. In the United States, IBM has established a collection process for reuse, recycling, or proper disposal of used sealed lead acid, nickel cadmium and nickel metal hydride batteries and battery packs from IBM equipment. For information on proper disposal of the nickel cadmium batteries in this product, please contact IBM at 1-800-426-4333. For information on battery disposal outside the United States, contact your local waste disposal facility.

Environmental Design

The environmental efforts that have gone into the design of this system signify IBM's commitment to improve the quality of its products and processes. Some of these accomplishments include the elimination of the use of Class I ozone-depleting chemicals in the manufacturing process and reductions in manufacturing wastes. For more information, contact an IBM account representative.

Unit Emissions

The unit-related emission value is equal to or lower than 70dB(A).

Der Geräuschpegel der Einheit ist kleiner oder gleich 70 db(A).

Appendix B. Notices

This information was developed for products and services offered in the U.S.A.

The manufacturer may not offer the products, services, or features discussed in this document in other countries. Consult the manufacturer's representative for information on the products and services currently available in your area. Any reference to the manufacturer's product, program, or service is not intended to state or imply that only that product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any intellectual property right of the manufacturer may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any product, program, or service.

The manufacturer may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to the manufacturer.

The following paragraph does not apply to the United Kingdom or any country where such provisions are inconsistent with local law: THIS MANUAL IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions; therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. The manufacturer may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Information concerning products made by other than the manufacturer was obtained from the suppliers of those products, their published announcements, or other publicly available sources. The manufacturer has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to products made by other than the manufacturer. Questions on the capabilities of products made by other than the manufacturer should be addressed to the suppliers of those products.

Readers' Comments — We'd Like to Hear from You

**Enterprise Server Model S80
@server pSeries 680 Model S85
Capacity Upgrade on Demand
Installing and Upgrading Processors**

Publication No. SA38-0583-01

Overall, how satisfied are you with the information in this book?

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Overall satisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How satisfied are you that the information in this book is:

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Accurate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Complete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Easy to find	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Easy to understand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Well organized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Applicable to your tasks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please tell us how we can improve this book:

Thank you for your responses. May we contact you? Yes No

When you send comments to IBM, you grant IBM a nonexclusive right to use or distribute your comments in any way it believes appropriate without incurring any obligation to you.

Name

Address

Company or Organization

Phone No.



Cut or Fold
Along Line

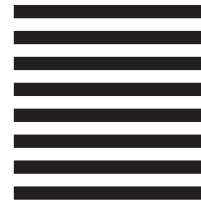
Fold and Tape

Please do not staple

Fold and Tape



NO POSTAGE
NECESSARY
IF MAILED IN THE
UNITED STATES



BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 40 ARMONK, NEW YORK

POSTAGE WILL BE PAID BY ADDRESSEE

Information Development
Department H6DS-9561
11400 Burnet Road
Austin, TX 78758-3493



Fold and Tape

Please do not staple

Fold and Tape

Cut or Fold
Along Line



Part Number: 09P3686



Printed in the United States of America
on recycled paper containing 10%
recovered post-consumer fiber.

March 2001

SA38-0583-01



(1P) P/N: 09P3686

