Capacity Upgrade on Demand

IBM @server iSeries
All statements regarding IBM's plans, directions, and intent are subject to change or withdrawal without notice.
CUoD ... customers are demanding it

- Part of IBM ebusiness on demand™
- Single server capacity at your fingertips
- Reduces the need for server IPLs
- Capacity Customization Flexibility
- Address Dynamic Growth Requirements
- Easily Accommodate Business Workload Peak
- Quick, easy, and economical way to accommodate new workloads
**CUoD ... trial, permanent, and temporary**

**Trial Capacity**\(^{(1)}\) *(No additional charge)*
- 100% of Capacity for 14 Elapsed Days

**Permanent Capacity** *(Pay before use ... requires a key)*
- Ordered Capacity for Unlimited Number of Days

**Temporary Capacity**\(^{(2)}\) *(Pay after use .. requires special T&Cs)*
- Specified Capacity for Specified Days

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(1) Prior to the 15th day, the processors must be made available to be reclaimed or server performance degradation will occur

(2) IBM is currently evaluating for a future iSeries release
CUoD ... can mean more than just processor capacity

Processor-on-Demand
- Units of Processor Capacity

Memory-on-Demand*
- Units of Memory Capacity

Disk-on-Demand*
- Units of DASD Capacity

Interactive-on-Demand*
- Units of 5250 Interactive Capacity

* IBM is currently evaluating for a future iSeries release
CUoD ... it's the enabler for adding new workloads

CUoD offers a quick means of adding more cost effective capacity for new workloads (*Domino, WebSphere, Linux, etc.*) on a single iSeries server ...

Multiple workloads on a single server
CUoD ... what's new in 2002?

More iSeries Choices with On Demand Capacity
- CUoD is available on Model 830, 840, and 890

Elimination of CUoD Premium Pricing*
- CUoD is now available, on more processors than before, without premium pricing

Easier Than Ever to Activate Capacity
- Customers can purchase features to activate capacity at IBM.COM
- Activation Features can be specified on orders resulting in a new footprint
  - No CUoD Data (VPD) required to fulfill an order
  - Activation Code is applied right in manufacturing

* May not be true in 100% of Geographies where iSeries are sold
Capacity Upgrade on Demand

IBM e-server iSeries
Processor and Activation Features

- **Processor Features**

<table>
<thead>
<tr>
<th>Model</th>
<th>Processor Feature</th>
<th>Start-up Processors</th>
<th>Stand-by Processors</th>
<th>Installed Processors</th>
</tr>
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<tbody>
<tr>
<td>830</td>
<td>2349</td>
<td>4</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>830</td>
<td>2351 (Limited Availability)</td>
<td>1</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>840</td>
<td>2352</td>
<td>8</td>
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<td>890</td>
<td>2488</td>
<td>24</td>
<td>8</td>
<td>32</td>
</tr>
</tbody>
</table>

- **Standby processors can be activated by placing an order for a quantity of POD Activation Features. IBM will fulfill the order by generating a POD Activation Code.**

<table>
<thead>
<tr>
<th>Model</th>
<th>POD Activation Feature</th>
<th>US Prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>830</td>
<td>1605</td>
<td>$41,000</td>
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<tr>
<td>840</td>
<td>1604</td>
<td>$41,000</td>
</tr>
<tr>
<td>890</td>
<td>1610</td>
<td>$60,000</td>
</tr>
</tbody>
</table>

- **The POD Activation Code will be mailed and posted at the following web site:**
  
  http://www.ibm.com/eserver/iseries/ondemand/coud
BUILT-IN-CAPACITY

A machine may include computing resources or capabilities that are to remain inactive, or whose use is restricted, until the right to access and use the resources or capabilities is purchased (Built-in-Capacity). Examples of such computing resources and capabilities include but are not limited to processors, memory, storage, processing capacity identified as interactive processing capacity, and/or workload specific resources or capabilities (such as limitations on the use for a specific operating system, programming language or application). You are licensed to use the Program only to the extent of authorizations you have acquired for access to and use of Built-in-Capacity. You agree that if your use of Built-in-Capacity exceeds the authorizations you have acquired, you will be liable to IBM for the full price of permanent, unrestricted use of the Built-in-Capacity at IBM's current list price.

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Application of PTFs may disable or render ineffective programs that use system memory addresses not generated by the IBM translator, including programs that circumvent control technology designed to limit interactive capacity to purchased levels. By applying PTFs you authorize and agree to the foregoing.
**Trial Capacity**

100% Capacity for 14 Contiguous Days*

- From DST or SST screen, select START TEMPORARY ACTIVATION OPTION
- It's immediate ... no IPL ... no feature ordering ... no activation codes
- All stand-by processors on the server are activated
- 100% of stand-by processor capacity for 14 days*
- Allows time to place an order for Permanent Capacity (POD Processor Feature)
- Can be used once after the server is installed and once after each purchase of a POD Processor Feature
- Prior to the 15th day, the processors must be made available to be reclaimed or server performance degradation will occur

**Try-and-Buy ... Test Window ... Order Fulfillment Buffer**

* Equivalent to fourteen days (24 hours per day) of elapsed power up time
**Trial Capacity: Step-by-Step Activation Process**

1. Start System Service Tools (SST) with the STRSST command or start Dedicated Service Tools (DST) with function 21 on control panel (key in manual position)
2. Signon using service tools user profile of System Capacity - Administration
3. Select the option to Work With System Capacity
4. Select the option to START TEMPORARY SYSTEM CAPACITY ACTIVATION (not shown if currently in use or already used)
5. Press Enter to confirm change
6. Exit the System Capacity service function
7. Assign Activated Processors to a partition ... you must do this step even if your machine is not configured for LPAR!
   A) Start the Work With System Partitions option in DST or SST
   B) Enter Option 3 (Work With Partition Configuration)
   C) Enter Option 2 (Change Partition Processing Resources) next to PRIMARY
   D) Enter a value for "New number of processors" (The value should represent TOTAL active processors) ... press Enter
      Note: If a configuration error is signaled at the bottom of the screen, it means that the default Primary partition has been altered (logical partitioning is actively being used) and it is necessary to refer to your logical partition plan to properly assign the activated processors to the server.
   E) Press Enter to confirm the change
8. Exit DST or SST
9. Begin using the new capacity

**Cannot intentionally turn off Trial Capacity ... it automatically terminates when a new POD Activation Code is entered or when the trial period ends.**
Permanent Capacity

Box Order for a New Server (Footprint)
- Order can contain a quantity of POD Activation Features
- Order for POD Activation Features is fulfilled in Manufacturing by collecting CUoD Data (VPD) and entering the POD Activation Code before the machine ever ships

Manufactured MES order for a Model to Model Upgrade (Footprint)
- Order can contain a quantity of POD Activation Features
- Order for POD Activation Features is fulfilled in Manufacturing by collecting CUoD Data (VPD) and entering the POD Activation Code before the machine ever ships

Manufactured MES or Loose Parts MES order for a Processor Feature (Processor Parts)
- Order cannot contain a quantity of POD Activation Features
- Order cannot be placed unless 100% of the standby processors have been activated

Manufactured MES or Loose Parts MES order for an Activation Feature (Activation Code)
- Order cannot contain a Processor Feature
- Order cannot be fulfilled until CUoD Data (VPD) data is reported from the currently installed server and sent (manual or electronic) to the CUoD administrator
- Order cannot be fulfilled any faster than the date scheduled for the longest lead-time part
Permanent Capacity for Installed Servers

Once you have determined that you want to permanently activate some or all of your standby processors, you must contact your IBM Business Partner, IBM Sales rep, or place an order at IBM.com for the purchase of a quantity of POD Activation Features (one or more).

Once an order reaches the IBM manufacturing site, a POD Activation Code unique to the target server is generated, mailed, and posted at the following web-site for quick access:

http://www.ibm.com/eserver/iseries/ondemand/cuod

Several days should be allowed for order processing and the resulting POD Activation Code posting to take place. This is an important consideration when determining how and when to use Trial Capacity. Trial Capacity provides 14 days (elapsed power-up time) of 100% server capacity that can be used to satisfy any peak workload requirements while an order for the activation of additional capacity is being fulfilled.
Permanent Capacity: Step-by-Step Activation Process

Step 1: Customer determines the number of stand-by processors they wish to activate

Step 2: Customer contacts their sales rep (IBM and/or Partners) or go to IBM.com (US only) to place an order for a quantity of POD Activation Features

Step 3: Sales rep places an order in IBM configurators for a specific quantity of POD Activation Features. The Sales Rep is provided with a reminder (via configurator) that Vital Product Data from the iSeries server must be made available to IBM (CUoD Administrator) to fulfill the order.

   ELECTRONIC PROCESS .... Collect and Send Information from Server using Electronic Service Agent
   MANUAL PROCESS ... Print Information from Server and FAX to 507-253-4553

Step 4: Customer retrieves the POD Activation Code from the web or waits for the POD Activation Code to be sent by mail. The POD Activation Code will be posted on the web usually within one business day of receiving the order on the manufacturing floor if the VPD data has already been sent. To retrieve the POD Activation Code follow these steps:

   1) Go to the following Web-site.... http://www.ibm.com/eserver/iseries/ondemand/cuod
   2) Enter the Machine Type and Serial number of the target server on the web page
   3) Print and/or record the POD Activation Code displayed on the web page

(Continued on Next Page)
**Permanent Capacity: Step-by-Step Activation Process**

**Step 5:** Customer enters the POD Activation Code at the System Console for the target server

1) Start System Service Tools (SST) with the STRSST command or start DST with Function 21 on the control panel (key in manual position)

2) Sign on using service tools user profile of System capacity - administration

3) Select the option to WORK WITH SYSTEM CAPACITY

4) Enter POD Activation Code and press Enter

5) Press Enter to confirm change and exist the System Capacity service function

**Step 6** Assign Activated Processors to a partition ... you must do this step even if your machine is not configured for LPAR!

   A) Start the Work with system partitions option in DST or SST

   B) Enter Option 3 (Work with partition configuration)

   C) Enter Option 2 (Change partition processing resources) next to the PRIMARY

   D) Enter a value for "New number of processors" (The value should represent TOTAL active processors)

       Note: If a configuration error is signaled at the bottom of the screen, it means that the default Primary partition has been altered (logical partitioning is actively being used) and it is necessary to refer to your logical partition plan to properly assign the activated processors to the server.

   E) Press Enter to confirm the change

**Step 7** Exist DST or SST

Exist the new capacity
Logical Partitioning (LPAR)

- Stand-by processors, prior to being activated, are **not visible** within LPAR
- Stand-by processors, once activated, become visible and are initially designated as **available** processors
- Available processors must be **assigned** to a partition before the new capacity can be used
Maintenance/Warranty

Processor Failures

- Stand-by processors can be used as REPLACEMENTS for failed processors. Starting with V5R1, this capability is offered on iSeries servers to help minimize the impact to server performance caused by a failed processor. By re-IPLing the server after a processor fails, the customer can re-establish required performance levels without waiting for parts to arrive on-site. If a stand-by processor is not currently activated, it will automatically be assigned as a REPLACEMENT processor and the customer can continue processing.

Warranty for Processors

- Warranty for all processors (start-up and stand-by) begin when the server is installed. By having the Warranty/Service start immediately upon installation, the customer is better positioned to receive prompt service for the repair/replacement of any failing parts, helping to ensure the full complement of stand-by processors are available for immediate activation.

- Maintenance agreement charges are based on the number of processors actually activated, maintenance prices will be adjusted for each processor activation ... just like any other hardware feature add.
### Software Product Licensing

<table>
<thead>
<tr>
<th>Model</th>
<th>Processor Feature</th>
<th>SW Tier</th>
<th>SW Tier</th>
</tr>
</thead>
<tbody>
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<td></td>
<td></td>
<td>(Default Int)</td>
<td>(Optional Int)</td>
</tr>
<tr>
<td>830</td>
<td>2349</td>
<td>P30</td>
<td>P40</td>
</tr>
<tr>
<td>830</td>
<td>2351 (Limited Availability)</td>
<td>P30</td>
<td>P40</td>
</tr>
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<td>P40</td>
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<tr>
<td>890</td>
<td>2488</td>
<td>P50</td>
<td>P60</td>
</tr>
</tbody>
</table>

- Many partners use the Processor Feature Code value available on the server to set SW licensing fees for software developers' software. This value continues to be available for all iSeries servers. **It is important to understand that this value does not change, no matter how many stand-by processors get activated.** The Processor Feature Code value (QPRCFEAT) can be displayed using the command WRKSYSVAL or retrieved using the RTVSYSVAL command.

- Software providers that base their SW licensing fees on the number of processors on a server have historically utilized a "soft" compliance approach. With each processor activation, it remains the customer's responsibility to inform and pay the required SW licensing fees associated with any software resident on the server that has software licensed by the number of processors.

  Note: When a POD Activation Feature is ordered via one of the IBM configurators, additional charges for IBM SW licensing is initiated for software products currently installed on the customer's server that are licensed by processor.
Server CPU Utilization

Performance/Capacity Planning Tools

- Stand-by processors are NOT considered "active" within the various system functions that report CPU utilization percentages ... until they get "activated" by entering a POD Activation Code or starting Trial Capacity

DB2 Symmetric Multiprocessing

- Stand-by processors are NOT considered "active" within the various system functions that report CPU utilization percentages.... until they get "activated" by entering a POD Activation Code or starting Trial Capacity

IPL Time

- Stand-by processors are NOT considered "active" within the various system functions that report CPU utilization percentages. ... until they get "activated" by entering a POD Activation Code or starting Trial Capacity
Cancellation of Orders

Once an Activation Code is posted/mailed, the order is considered fulfilled and the downstream billing process will be started. If a customer decides to cancel the order, after a Code is posted/mailed, IBM will dispatch an IBM service representative to the customer location to "invalidate" the posted/mailed Code by performing a maintenance action on the Capacity Card.

- Original Capacity Card is replaced
- Level II is contacted to generate refreshed Code(s) that will reset the server to the "entitled" levels of capacity
- Original Capacity Card is returned to IBM and the machine is re-IPLed
Movement of Processor Features

iSeries server to iSeries server interchange of processor or interactive features is iSeries system password protected. iSeries server to iSeries server interchange of processor or interactive features outside IBM standard practices and procedures, may void the server warranty or service contracts.

What does it mean?
Any unauthorized (Non IBM upgrades) movement of processor hardware will disable the capability to use stand-by processors.

Any physical removal of processor hardware will make the server itself unusable (All start-up and stand-by processors must be available in the server to IPL)
Two-Steps Required to Convert Processor Features

- A two step process is used to convert Processor Features with stand-by capacity

- The conversion price for Step2 will take into account the price paid for all stand-by processors activated in Step1
  - Step1: All stand-by processors must be activated
  - Step2: Processor Feature to Processor Feature Conversion
    - Server records reflect new Processor Feature
    - Server records don't reflect any POD Activation Features (nothing carried forward)
Model 830-2351 (Limited Availability)

- On April 23, 2001... FC 2351 (Processor Feature), FC 1605 (Activation Feature) and RPQ 847125 (Administration Feature) were announced to a limited set of iSeries Business Partners with an ASP "value-add" designation

- FC 2351 and FC 1605 are available to customers/partners registered* as Application Service Providers (approval of i-Listed RPQ 847125 is required to place an order)

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- 400
- BRMS
- Host Integration Series
- JustMail
- Payment Manager
- Stylized @
- ADSTAR
- Client Series
- Host on Demand
- MQSeries
- Payment Server
- SystemView
- Advanced Function Printing
- ClusterProven
- Host Publisher
- MQSeries Integrator
- PCOM
- VisualAge for Java
- AFP
- CODE/400
- HTTP Server for AS/400
- Net.Commerce
- PowerPC
- VisualAge for RPG
- AIX
- DataGuide
- IBM
- Net.Data
- PowerPC AS
- WebSphere
- AnyNet
- DB2
- IBM Logo
- Netfinity
- Print Service Facility
- WebSphere Advanced Edition
- Application Development
- DB2 Extenders
- IBM Network Station
- NetView
- pSeries
- WebSphere Commerce Suite
- APPN
- DB2 UDB for AS/400
- Information Warehouse
- NUMA-Q
- PSF
- WebSphere Development Tools for AS/400
- AS/400
- DB2 Universal
- Integrated Language Environment
- OfficeVision
- S/390
- WebSphere Standard Edition
- AS/400e
- e-business logo
- Intelligent Printer Data Stream
- OS/2
- Workpad
- AT
- e(logo) Server
- IPDS
- Operating System/400
- Screen Publisher
- xSeries
- BrioQuery
- Enterprise Storage Server
- iSeries
- Operating System/400
- SmoothStart

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Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput or performance that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput or performance improvements equivalent to the ratios stated here.

Photographs shown are of engineering prototypes. Changes may be incorporated in production models.
Model 830
Capacity Upgrade on Demand

IBM server iSeries
Processor Feature Conversions into Model 830

One Step

- 720-2063 (2) to 830-2349 (4/8)
- 720-2064 (4) to 830-2349 (4/8)
- 730-2065 (1) to 830-2349 (4/8)
- 730-2066 (2) to 830-2349 (4/8)
- 730-2067 (4) to 830-2349 (4/8)
- 730-2068 (8) to 830-2349 (4/8)
- 740-2069 (8) to 830-2349 (4/8)
- 740-2070 (12) to 830-2349 (4/8)
- 820-2396 (1) to 830-2349 (4/8)
- 820-2397 (2) to 830-2349 (4/8)
- 820-2398 (4) to 830-2349 (4/8)
- 820-2435 (1) to 830-2349 (4/8)
- 820-2436 (1) to 830-2349 (4/8)
- 820-2437 (2) to 830-2349 (4/8)
- 820-2438 (4) to 830-2349 (4/8)
- 830-2400 (2) to 830-2349 (4/8)
- 830-2402 (4) to 830-2349 (4/8)
# Model 830 Performance (Processor CPW and Interactive CPW)

<table>
<thead>
<tr>
<th>Processor Feature</th>
<th>Processor CPW</th>
<th>Interactive Feature</th>
<th>Interactive CPW</th>
</tr>
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<tbody>
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<td>4200/7350</td>
<td>#1531 (Default)</td>
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<td>#1532</td>
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<td>4550</td>
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Model 830 Pricing (US Prices)

POD Activation Feature
FC 1605 = $41K

Total model/processor price (Based on the number of activated processors)
POD Activation Feature
FC 1605 = $41K (US Price)

Total model/processor price (Based on the number of activated processors)
Processor Feature Conversions into Model 840

- One Step
  - 730-2067 (4) to 840-2352 (8/12) or 840-2353 (12/18)
  - 730-2068 (8) to 840-2352 (8/12) or 840-2353 (12/18) or 840-2354 (18/24)
  - 740-2069 (8) to 840-2352 (8/12) or 840-2353 (12/18) or 840-2354 (18/24)
  - 740-2070 (12) to 840-2352 (8/12) or 840-2353 (12/18) or 840-2354 (18/24)
  - 820-2397 (2) to 840-2352 (8/12) or 840-2353 (12/18)
  - 820-2437 (2) to 840-2352 (8/12) or 840-2353 (12/18)
  - 820-2398 (4) to 840-2352 (8/12) or 840-2353 (12/18) or 840-2354 (18/24)
  - 820-2438 (4) to 840-2352 (8/12) or 840-2353 (12/18) or 840-2354 (18/24)
  - 830-2400 (2) to 840-2352 (8/12) or 840-2353 (12/18) or 840-2354 (18/24)
  - 830-2402 (4) to 840-2352 (8/12) or 840-2353 (12/18) or 840-2354 (18/24)
  - 830-2403 (8) to 840-2352 (8/12) or 840-2353 (12/18) or 840-2354 (18/24)
  - 840-2418 (12) to 840-2353 (12/18) or 840-2354 (18/24)
  - 840-2420 (24) to 840-2354 (18/24)

- Two Step
  - 1st Step: All stand-by processors must be activated before proceeding with conversion
  - 2nd Step:
    - 830-2349 (8/8) to 840-2352 (8/12) or 840-2353 (12/18) or 840-2354 (18/24)
    - 840-2416 (12/12) to 840-2353 (12/18) or 840-2354 (18/24)
    - 840-2417 (18/18) to 840-2354 (18/24)
    - 840-2419 (24/24) to 840-2354 (18/24)
    - 840-2352 (12/12) to 840-2353 (12/18) or 840-2354 (18/24)
    - 840-2353 (18/18) to 840-2354 (18/24)
## Model 840 Performance (Processor CPW and Interactive CPW)

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<th>Processor CPW</th>
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<th>Interactive CPW</th>
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Model 840 Pricing (US Prices)

POD Activation Feature
FC 1604 = $41K

Total model/processor price (Based on the number of activated processors)
Model 890
Capacity Upgrade on Demand

IBM @server iSeries
Processor Feature Conversions into Model 890

- **One Step**
  - 740-2069 (8) to 890-2487 (16/24)
  - 740-2070 (12) to 890-2487 (16/24)
  - 830-2402 (4) to 890-2487 (16/24)
  - 830-2403 (8) to 890-2487 (16/24)
  - 830-2461 (1) to 890-2488 (24/32)
  - 840-2418 (12) to 890-2487 (16/24)
  - 840-2420 (24) to 890-2487 (16/24)

- **Two Step**
  - 1st Step: **All stand-by processors must be activated before proceeding with conversion**
  - 2nd Step:
    - 830-2349 (8/8) to 890-2487 (16/24)
    - 840-2416 (12/12) to 890-2487 (16/24)
    - 840-2417 (18/18) to 890-2487 (16/24)
    - 840-2419 (24/24) to 890-2487 (16/24)
    - 840-2352 (12/12) to 890-2487 (16/24)
    - 840-2353 (18/18) to 890-2487 (16/24)
    - 840-2354 (24/24) to 890-2487 (16/24) or 890-2488 (24/32)
    - 890-2487 (24/24) to 890-2488 (24/32)
## Model 890 Performance (Processor CPW and Interactive CPW)

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<tr>
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Model 890 Pricing (US Prices)

POD Activation Feature
FC 1610 = $60K

Total model/processor price (Based on the number of activated processors)