Advanced Technical Skills (ATS) North America

zPCR Capacity Sizing Lab – Part 2 Hands-on Lab

SHARE - Session 11497

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John Burg
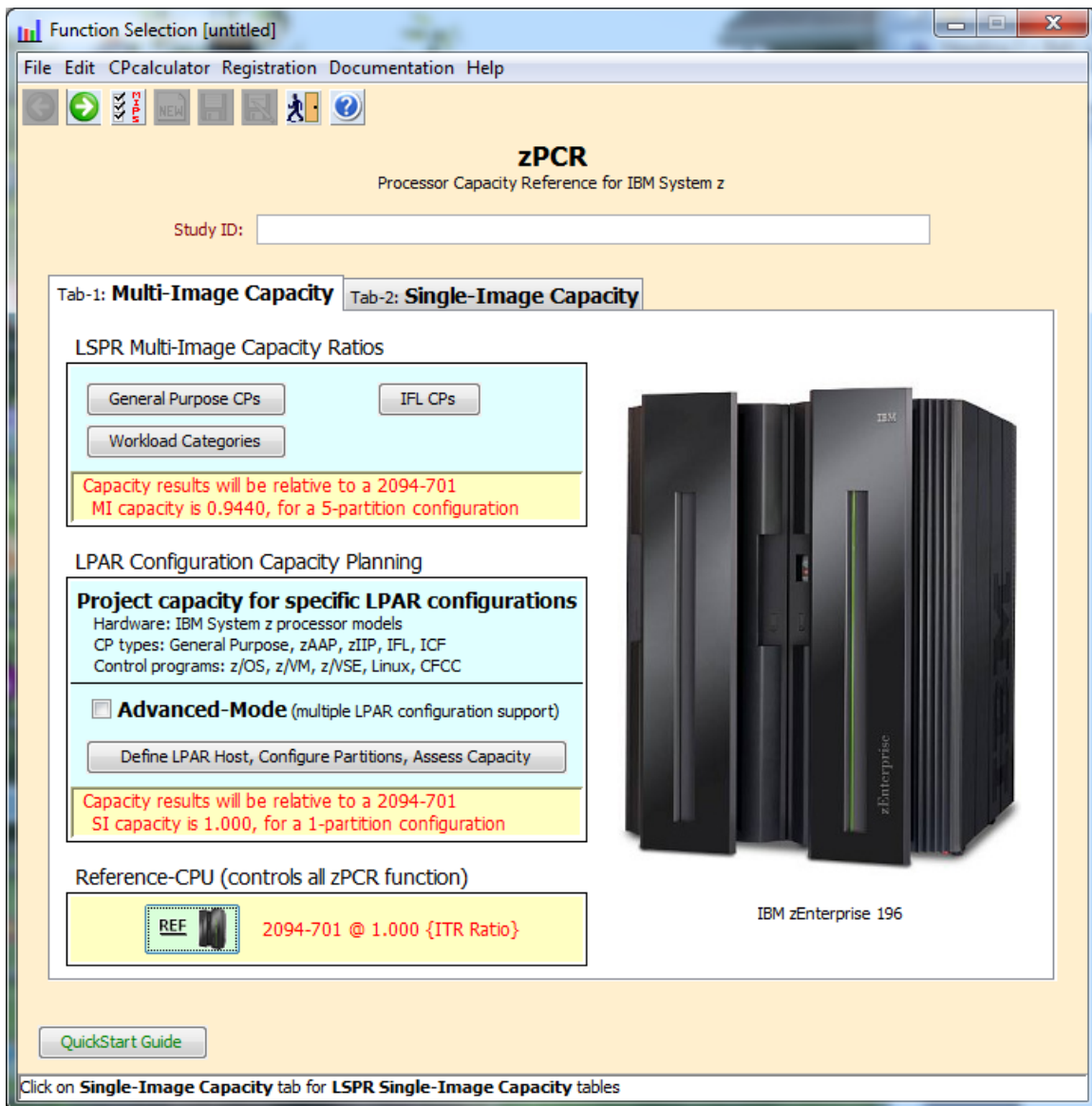
Brad Snyder

Materials created by John Fitch and Jim Shaw

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zPCR Capacity Sizing Lab – Part 2 Hands On Lab Exercise

John Burg

Brad Snyder

Function Selection Window

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Objective

You will use **zPCR** (in Advanced Mode) to define a customer's current LPAR configuration and then project the capacity expectation for an upgrade to newer technology. The capacity results will then be used to determine if the upgrade model is adequate to support all of the work, and to determine if the amount of CP resource available to each partition is adequate to support that partition's workload with the anticipated growth applied.

Problem

XYZ Corporation currently has a **z10 2097-707** (7-way processor) installed, which they view as having **5,100 MIPS** of usable capacity, (so we will need to calibrate zPCR to this view). The 2097-707 is currently averaging **92% busy** during peak processing periods. The workload environment includes multiple logical partitions, all running on General Purpose CPs, as shown in the table below.

	Partition	LP-mode	LCPs	Busy	Weight	Capped	Workload Category
1	Batch	Share	3	15%	150	No	z/OS-1.11 Average
2	CICS-1	Share	7	35%	350	No	z/OS-1.11 Avg-High
3	CICS-2	Share	3	10%	100	No	z/OS-1.11 Avg-High
4	CICS-3	Share	2	10%	100	No	z/OS-1.11 Avg-High
5	IMS	Share	4	20%	200	No	z/OS-1.11 Avg-High
6	Test	Share	2	2%	20	Yes	z/VM High/LV

A plan is being developed to **replace the z10 2097-707 with a newer technology zEnterprise 196 processor**. The specific model chosen must provide **20%+ additional capacity**, or at least **6,150 MIPS**. The current partitions are to be moved to the new processor with the partitions and their workloads as being run today. You already have a zPCR study file containing the configuration from the last time you did an upgrade.

Tasks

Here are the 6 tasks that comprise this zPCR familiarization exercise, addressing the problem described above.

- ▪ **Task 1** - Load a model of the current LPAR Configuration

- ▪ **Task 2** - Calibrate the model to XYZ Company's capacity designation

- ▪ **Task 3** - Save the current study in Advanced-Mode (e.g. task2.zpcr)

- ▪ **Task 4** - Find an appropriate Enterprise 196 (z196) replacement processor

- ▪ **Task 5** - Model the intended z196 LPAR host

- ▪ **Task 6** - Review the Capacity results and save the Study (use a different file name than Task 3, e.g. task6.zpcr)

- ▪ **Additional**
  - – Model 1 zIIP in the proposed configuration

Note: When instructed to **Return** the icon should be used

The **Double Return** icon may also be used to return two windows where available

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Task 1: **Load a model of the current LPAR configuration**

In this task you will load the current LPAR configuration into zPCR from the file supplied.

Note: **zPCR**'s default Reference-CPU setting is the 2094-701 rated at 1.00. When this study was saved, the Reference-CPU was set to a 2094-701 rated at 593 MIPS, so we need to restore the **zPCR** Reference-CPU to that setting.

Analysis Steps

1. Start **zPCR**. After the Logo window stages, you will be viewing the *Function Selection* window, on the *Multi-Image Capacity* tab.

2. Select the *Advanced-Mode* check box if it is not already checked

3. Click the **Enter Advanced-Mode** button

4. On the *Advanced-Mode Control Panel* window, double click on the **Reference-CPU** icon , currently tagged with "**2094-701 @ 1.000 {ITR Ratio}**". The *Reference-CPU* window will appear.

   a) Click **Typical** to set the Reference-CPU to the 2094-701 rated at 593 MIPS.

   b) Click **Return**

5. Open Windows Explorer (by clicking on "Start", "All Programs", "Accessories", "Windows Explorer"). Then using Windows Explorer (under My Computer/Local Disk (C:)) select to the CPSTOOLS/zPCR7.9b directory, where the **Task 1.zpcr** file is located and visible. You'll probably want to size the Windows Explorer window down, so that it can be visible with zPCR active.

6. Drag the "**Task 1.zpcr**" study file from the "**zPCR**" subdirectory underneath or on top of the "**Current**" icon .

Advanced-Mode Control Panel Window

Task 1.zpcr

Advanced-Mode Control Panel [I:\...Task 1.zpcr]

File CPcalculator Documentation Help

Advanced-Mode Capacity Planning Control Panel

Study ID:

Double click on a tree branch below to access the relevant windows

Reference-CPU
- REF 2094-701 @ 593.00 MIPS

LSPR Processor Table
- LSPR General Purpose CPs
- LSPR IFLs

LPAR Configurations
- #1 Current

Manage | Compare | Migrate & Analyze

QuickStart Guide

#1	Current — Loaded from Basic Mode Study D:...Task 1.zpcr z10-EC LPAR Host: 2097-E12/700					
Pool CP Type	#1 GP	#2 zAAP	#3 zIIP	#4 IFL	#5 ICF	CPC Total
RCPs	7	0	0	0	0	7
Partitions	6	0	0	0	0	6
LCPs	21	0	0	0	0	21
Capacity	5,115.3					5,115.3
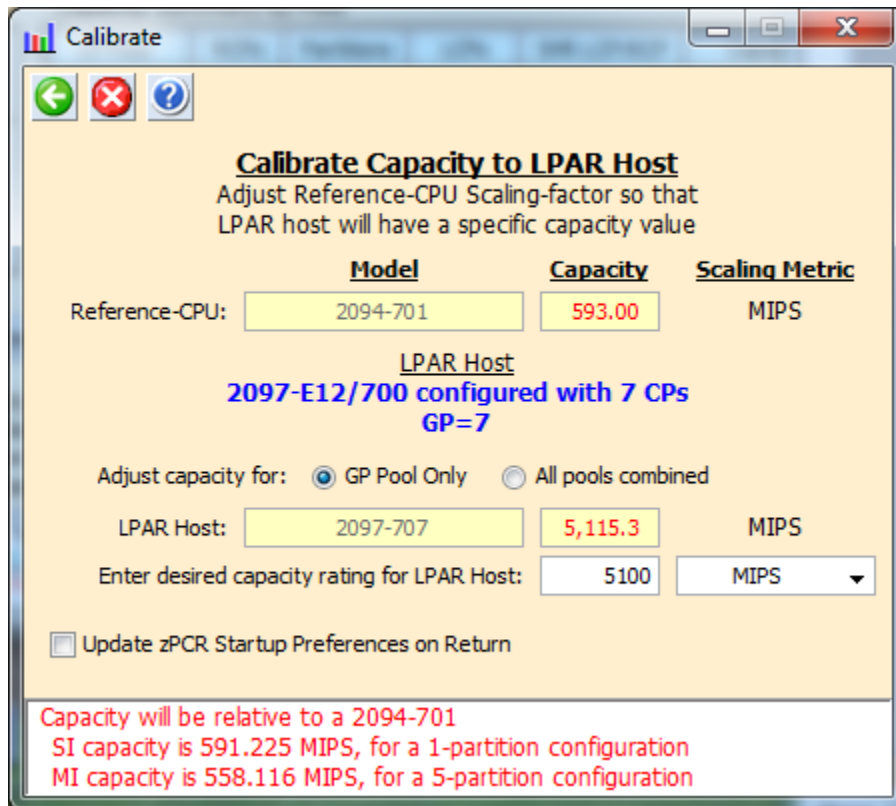
Capacity basis: 2094-701 @ 593.00 MIPS for a shared single-partition configuration

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Task 2: **Calibrate the model to XYZ Company's capacity designation**

Review the capacity assessment and alter the *Reference-CPU* scaling-factor such that the company's capacity designation is provided in the results.

Analysis Steps

1. Refer to the "**Rename a Configuration**" at the end of this document to rename the configurations as shown in the lab

2. Using the directions above to relabel "**Current**" to "**Current z10 2097-707**"

3. Double-click on the **Current z10 2097-707** LPAR configuration icon #1 to open the *LPAR Host and Partition Configuration* window for the **Current z10 2097-707** LPAR configuration.

4. Click **Partition Detail** in the **Capacity *Reports Groupbox*** to open the *Partition Detail Report* window. This window will reveal the total GP capacity available as **5,115.3 MIPS**. The XYZ Company believes that the total GP capacity of this machine for their environment is **5,100 MIPS**. We will adjust the Reference-CPU scaling factor so that the GP capacity result will be **5,100 MIPS**.

5. Click **Calibrate Capacity** to open the *Calibrate* window.

6. Key in **5100** in the *Enter desired capacity rating for LPAR Host* entry field and press **Enter**.

7. Click **Return**

Partition Detail Report

Partition Detail Report
Based on LSPR Data for IBM System z Processors
Study ID: Not specified

#1 z Current z10 2097-707
Description: Loaded from Basic Mode Study D:\...Task 1.zpcr
z10-EC Host = 2097-E12/700 with 7 CPs: GP=7
6 Active Partitions: GP=6
Capacity basis: 2094-701 @ 591.225 MIPS for a shared single-partition configuration
Capacity for z/OS on z10 and later processors is represented with HiperDispatch turned ON

| | | Partition Identification | | | | Partition Configuration | | | | | Partition Capacity | |
Include	No.	Type	Name	SCP	Workload	Mode	LCPs	Weight	Weight %	CAP	Minimum	Maximum
☑	1	GP	Batch	z/OS-1.11	Average	SHR	3	150	16.30%	☐	888.2	2,334.7
☑	2	GP	CICS-1	z/OS-1.11	Avg-High	SHR	7	350	38.04%	☐	1,888.8	4,964.9
☑	3	GP	CICS-2	z/OS-1.11	Avg-High	SHR	3	100	10.87%	☐	554.6	2,186.8
☑	4	GP	CICS-3	z/OS-1.11	Avg-High	SHR	2	100	10.87%	☐	554.4	1,457.2
☑	5	GP	IMS	z/OS-1.11	Avg-High	SHR	4	200	21.74%	☐	1,109.8	2,917.1
☑	6	GP	Test	z/VM	High/LV	SHR	2	20	2.17%	☑	104.2	104.2

Table View Controls

Display zAAP/zIIP/IFL Partitions

◉ With Associated GP ◯ Separate by Pool

Show | GP Pool | Specialty Pools
◉ All Partitions | ☑ GP | ☐ zAAP ☐ zIIP
◯ Includes Only | ☐ IFL | ☐ ICF

Capacity Summary by Pool

CP Pool	RCPs	Partitions	LCPs	SHR LCP:RCP	Capacity
GP	7	6	21	3.000	5,100.0
zAAP	None				n/a
zIIP	None				n/a
IFL	None				n/a
ICF	None				n/a
Totals	7	6	21		5,100.0

[Host Summary] [Modify SCP/Workload] [LCP Alternatives] [zAAP/zIIP Loading] [Calibrate Capacity]

For significant configuration changes, capacity comparisons should be considered to have a +/-5% margin-of-error.
Upgrading the processor family is considered a significant configuration change.
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Input fields have white background; Single-click a "selection field" for drop-down list; Double click a "key-in field" to open.

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Task 3: **Save the study**

Analysis Steps

1. Click **Return** twice (or click the **Double Return**) to close the LPAR configuration windows.

2. From the menu-bar on the *Advanced-Mode Control Panel* window, click **File**→**Save as**, to save your LPAR definitions for the current LPAR host processor. (e.g. task2.zpcr)

Task 4: **Find an appropriate replacement processor**

Browsing the *z/OS-1.11 Multi-Image LSPR Capacity Ratios* table, find the IBM z196 processor that can provide the required capacity increment using the z/OS Average workload

Analysis Steps

1. From the Advanced-Mode window, double click on **General Purpose CPs** to open the *LSPR Multi-Image Processor Capacity Ratios* table.

2. Find an IBM zEnterprise 196 processor that can provide the required **6,150 MIPS**. (tip right click for a list of the Families, then select via scroll to IBM, then select z196/700)

    For the purposes of this exercise, choose the **2817-706**, which appears to have just a bit more capacity than we require, (e.g. **6,251** for Average etc) **Remember that capacity values in the multi-image table represent typical (or average) partition configurations, and therefore can only generalize on capacity.**

3. Click **Return**   to go back to the *Advanced-Mode Control Panel* window.

LSPR Capacity Ratios

File Workload Graph Help

z/OS-1.11 LSPR Data (07/12/2011)

LSPR Multi-Image Capacity Ratios
General Purpose CPs
Values are applicable for z/OS; representative of z/VM and Linux
Capacity basis: 2094-701 @ 558.116 MIPS for a typical multi-partition configuration
Capacity for z/OS on z10 and later processors is represented with HiperDispatch turned ON

Processor	Features	Flag	MSU	Low	Average	High	
2817-615	15W	=	1,084	9,742	8,891	8,169	
zEnterprise 196/700							
2817-701	1W	=	150	1,195	1,202	1,151	
2817-702	2W	=	281	2,325	2,272	2,117	
2817-703	3W	=	408	3,431	3,311	3,055	
2817-704	4W	=	531	4,513	4,320	3,964	
2817-705	5W	=	650	5,575	5,300	4,847	
2817-706	6W	=	766	6,617	6,251	5,704	
2817-707	7W	=	879	7,639	7,175	6,537	
2817-708	8W	=	988	8,641	8,072	7,345	
2817-709	9W	=	1,091	9,625	8,943	8,130	
2817-710	10W	=	1,191	10,590	9,788	8,892	
2817-711	11W	=	1,286	11,536	10,609	9,632	
2817-712	12W	=	1,381	12,465	11,407	10,351	
2817-713	13W	=	1,473	13,376	12,181	11,049	
2817-714	14W	=	1,562	14,269	12,932	11,726	
2817-715	15W	=	1,648	15,146	13,662	12,384	
2817-716	16W	=	1,731	16,006	14,371	13,023	
2817-717	17W	=	1,816	16,861	15,076	13,659	
2817-718	18W	=	1,899	17,710	15,778	14,293	
2817-719	19W	=	1,983	18,555	16,476	14,924	
2817-720	20W	=	2,064	19,395	17,171	15,553	
2817-721	21W	=	2,144	20,229	17,862	16,179	
2817-722	22W	=	2,224	21,059	18,550	16,802	
2817-723	23W	=	2,306	21,883	19,234	17,423	

Processors

In entire table: 747
In this view: 636
Currently selected: 1

Table View

Families & Models
- ◉ Subset ○ All
- ○ Selected

z196 Power
- ◉ Full
- ○ Saving

[Provisional Reference-CPU] [Processor Families] [Workloads]

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You are responsible for the results obtained from your use of this tool.
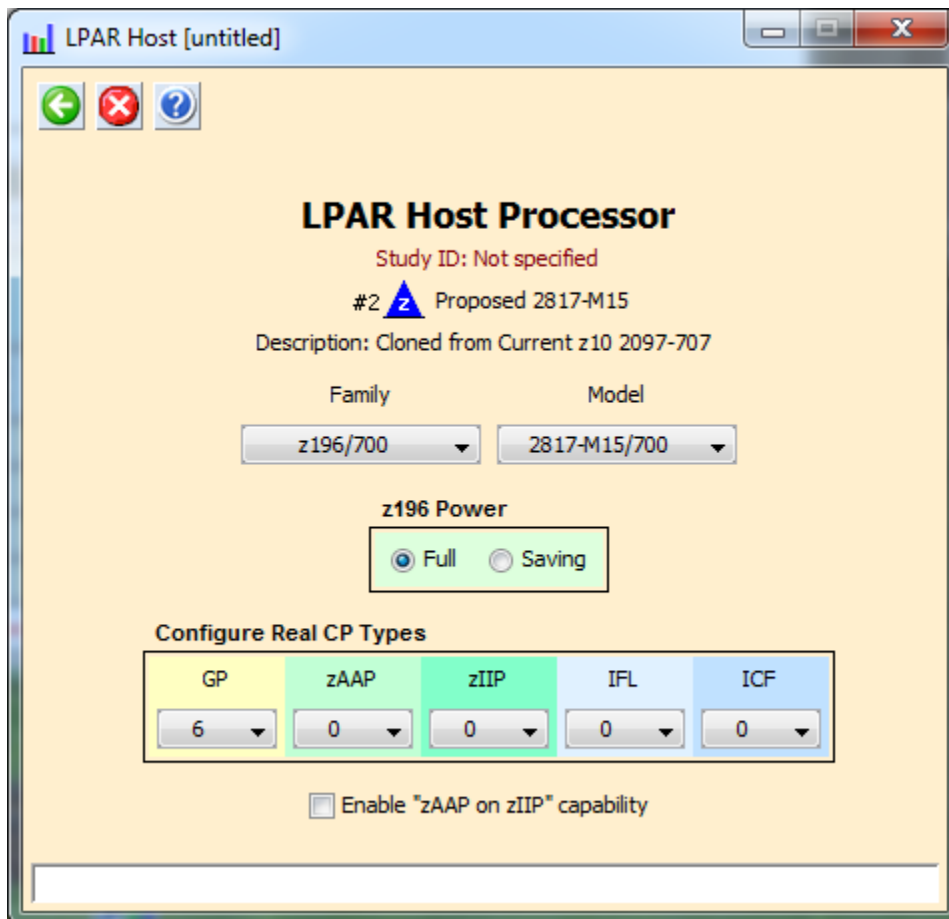
Global Reference-CPU is active; double click any processor row to set it as a Provisional Reference-CPU
Select multiple processors with **Ctrl+LeftClick** or **Shft+LeftClick**; For flag explanation, position mouse on indicator

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Task 5: **Model the intended LPAR host**

Using the current LPAR configuration as a starting point, we will transfer it to the new IBM zEnterprise 196 processor, making any necessary adjustments to the partition definitions.

Analysis Steps

1. Single-click the **Current z10 2097-707** icon on the *Advanced-Mode Control Panel* window to select it.

2. Click the **Clone** toolbar button. A second LPAR configuration is created as an exact copy of the first. It is icon #2 **z** , Rename it to **Proposed 2817-M15**

3. Double-click the **Proposed 2817-M15** icon #2 **z** to open the *LPAR Host and Partition Configuration* window for the **Proposed 2817-M15** LPAR configuration.

4. Click **Specify Host** to open the *LPAR Host* window.

    a) Set the *Family* to be **z196/700**.

    b) Set the *Model* to **2817-M15/700** (this model has a maximum total of 15 configurable GCPs).

    c) Leave z196 Power checked to Full

    d) Set *General Purpose CPs* to 6 (seen as a 2817-706). There are no other CP types planned at this time.

e) Click **Return**.

5. Click **Partition Detail** in the **Capacity Reports** group box.

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8. Correct **CICS-1** partition in error

    a. Set the **LCPs** to **6** (the maximum allowed on a 2817-706).

    b. Check the **Include** box

Partition Detail Report

Graph CPcalculator Documentation

Partition Detail Report
Based on LSPR Data for IBM System z Processors
Study ID: Not specified

#2 ▲ Proposed 2817-M15
Description: Cloned from Current z10 2097-707
z196/700 Host = 2817-M15/700 with 6 CPs: GP=6
6 Active Partitions: GP=6
Capacity basis: 2094-701 @ 591.225 MIPS for a shared single-partition configuration
Capacity for z/OS on z10 and later processors is represented with HiperDispatch turned ON

| | | | Partition Identification | | | Partition Configuration | | | | Partition Capacity | |
Include	No.	Type	Name	SCP	Workload	Mode	LCPs	Weight	Weight %	CAP	Minimum	Maximum
✓	1	GP	Batch	z/OS-1.11	Average	SHR	3	150	16.30%	☐	1,050.5	3,221.5
✓	2	GP	CICS-1	z/OS-1.11	Avg-High	SHR	6	350	38.04%	☐	2,303.7	6,055.4
✓	3	GP	CICS-2	z/OS-1.11	Avg-High	SHR	3	100	10.87%	☐	668.1	3,073.5
✓	4	GP	CICS-3	z/OS-1.11	Avg-High	SHR	2	100	10.87%	☐	667.8	2,048.0
✓	5	GP	IMS	z/OS-1.11	Avg-High	SHR	4	200	21.74%	☐	1,336.9	4,099.9
✓	6	GP	Test	z/VM	High/LV	SHR	2	20	2.17%	✓	127.7	127.7

Table View Controls

Display zAAP/zIIP/IFL Partitions
◉ With Associated GP   ○ Separate by Pool

Show   GP Pool   Specialty Pools
◉ All Partitions ☑ GP   ☐ zAAP   ☐ zIIP
○ Includes Only   ☐ IFL   ☐ ICF

Capacity Summary by Pool

CP Pool	RCPs	Partitions	LCPs	SHR LCP:RCP	Capacity
GP	6	6	20	3.333	6,154.8
zAAP	None				n/a
zIIP	None				n/a
IFL	None				n/a
ICF	None				n/a
Totals	6	6	20		6,154.8

Host Summary   Modify SCP/Workload   LCP Alternatives   zAAP/zIIP Loading

For significant configuration changes, capacity comparisons should be considered to have a +/-5% margin-of-error.
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expressed or implied. You are responsible for the results obtained from your use of this tool.

Input fields have white background; Single-click a "selection field" for drop-down list; Double click a "key-in field" to open.

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Task 6: **Review capacity results and save the study**

Using the capacity results for this new LPAR host, determine if we realized the desired 20% capacity increase (**6,150 MIPS**), for the overall host and for each individual partition.

Analysis Steps

1. On the **Partition Detail Report** window, the overall effective capacity for the 2817-706 is **6,154.8 MIPS** for this LPAR configuration. The effective capacity for the 2097-707 was **5,100 MIPS.** (see page 8)

2. Click two **Return** buttons (or click the **Double Return** button) to close the LPAR configuration windows.

3. On the **Advanced-Mode Control Panel** window, select the two configurations (hold the cntl key and click on both) and click the **Compare** [icon] tool bar icon. The **Host Capacity Comparison** window presents a processor oriented summary of the two LPAR host configurations. The first LPAR configuration is shown on the left, and the second is shown on the right. The partition types are listed in separate rows; the metrics presented are their combined values representing the number of partitions, the number of RCPs, the number of LCPs and the resulting capacity.

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Click **Minimum Capacity** in the *Comparison Report by Partition* group box. Note that most of the partitions see an increase of approximately 20% or more, but there is 1 of them that does not, Batch.

4. Click **Optimize SHR LCPs** for GPs in the *Change Controls* group box to see if you can improve the results by reducing the number of LCPs assign to each partition to that required to accommodate its weight.

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5. Click **Optimize** using the default "Moderate" to see if you can improve the results by reducing the number of LCPs assign to each partition. Note: The weight percent is used to determine the exact number of LCPs (rounded up to the nearest whole number) to be assigned. You can see that all the partitions improved, and that Batch is now greater than 20%.

Partition Capacity Comparison

Partition Capacity Comparison Report
Based on Partition Minimum Capacity
Current z10 2097-707: Loaded from Basic Mode Study D:\...Task 1.zpcr
Proposed 2817-M15: Cloned from Current z10 2097-707
Capacity basis: 2094-701 @ 591.225 MIPS for a shared single-partition configuration
Capacity for z/OS on z10 and later processors is represented with HiperDispatch turned ON

Type	Name	SCP	Workload	LP#	Mode	LCPs	Weight%	CAP	Minimum Capacity	LP#	Mode	LCPs	Weight	Weight%	CAP	Minimum Capacity	Net Change	% Delta
GP	Batch	z/OS-1.11	Average	1	SHR	3	16.30%		888.2	1	SHR	1	150	16.30%		1,072.3	+184.1	+20.7%
GP	CICS-1	z/OS-1.11	Avg-High	2	SHR	7	38.04%		1,888.8	2	SHR	3	350	38.04%		2,393.2	+504.4	+26.7%
GP	CICS-2	z/OS-1.11	Avg-High	3	SHR	3	10.87%		554.6	3	SHR	1	100	10.87%		683.1	+128.5	+23.2%
GP	CICS-3	z/OS-1.11	Avg-High	4	SHR	2	10.87%		554.4	4	SHR	1	100	10.87%		683.1	+128.7	+23.2%
GP	IMS	z/OS-1.11	Avg-High	5	SHR	4	21.74%		1,109.8	5	SHR	2	200	21.74%		1,366.9	+257.1	+23.2%
GP	Test	z/VM	High/LV	6	SHR	2	2.17%	✔	104.2	6	SHR	1	20	2.17%	✔	130.8	+26.6	+25.5%

For significant configuration changes, capacity comparisons should be considered to have a +/-5% margin-of-error.

6. Click **Consider Margin-of-Error**

    The capacity expectation derived from **zPCR** for a new machine should normally be considered to have up to a ±5% margin-of-error. The full ±5% margin of error should be considered whenever the LPAR host processor family is changed, or when very significant changes are made to either the LPAR host CP configuration or to the partition configuration itself. At this point only the CICS-1 partition has met the 20% capacity increase when factoring in the -5% margin of error.

Partition Margin-of-Error								

Margin-of-Error Consideration
Partition Minimum Capacity
Current z10 2097-707: Loaded from Basic Mode Study D:\...Task 1.zpcr
Proposed 2817-M15: Cloned from Current z10 2097-707
Capacity basis: 2094-701 @ 591.225 MIPS for a shared single-partition configuration
Capacity for z/OS on z10 and later processors is represented with HiperDispatch turned ON

Partition Identification				Current z10 2097-707 #1	#2 Proposed 2817-M15			
					Projected		Projected minus 5%	
Type	Name	SCP	Workload	Projected Capacity	Capacity	% Delta	Capacity	% Delta
GP	Batch	z/OS-1.11	Average	888.2	1,072.3	+20.7%	1,018.7	+14.7%
GP	CICS-1	z/OS-1.11	Avg-High	1,888.8	2,393.2	+26.7%	2,273.5	+20.4%
GP	CICS-2	z/OS-1.11	Avg-High	554.6	683.1	+23.2%	649.0	+17.0%
GP	CICS-3	z/OS-1.11	Avg-High	554.4	683.1	+23.2%	649.0	+17.1%
GP	IMS	z/OS-1.11	Avg-High	1,109.8	1,366.9	+23.2%	1,298.5	+17.0%
GP	Test	z/VM	High/LV	104.2	130.8	+25.5%	124.3	+19.3%

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7. First close the *Partition-Margin-of- Error* window. Then click **Commit Changes** in the Change Controls group box to change the LPAR configuration to permanently include the modified metrics, (from the Optimize). Note that the *Host Capacity Comparison* window now shows we are delivering **6,329.4 MIPS**, which is more than the **6,150 MIPS** objective.
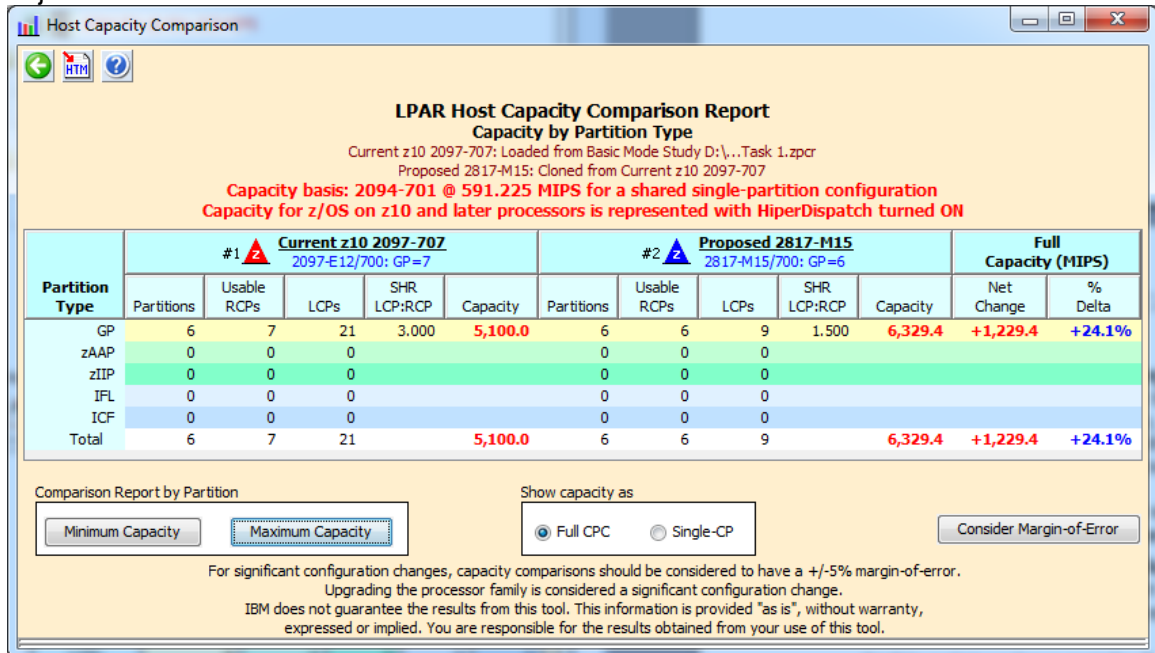
8. Close all of the comparison windows by clicking the **Return** toolbar icon on the *Host Capacity Comparison* window.

9. From the menu bar on the *Advanced-Mode Control Panel* window click **File→Save as**, and save the complete study which will include both LPAR configurations. (Use a different file name than in Task 3, e.g. "Task6.zpcr".)

At this point we have met the 6,150 MIPS objective and 20% for each partition. If we want to meet the 20% with the -5% margin of error, there may be additional configuration options to handle this, so continue with the next step to determine if they can make an impact.

Additional analyses to try

Add a zIIP to the Configuration

How might the addition of a zIIP change the capacity picture? Assume partition #2 (CICS-1) is running a WebSphere application, and at least 50% of that workload could be run on zIIP LCPs. Alter the LPAR configuration to include and exploit the zIIP CPs.

Analysis Steps

1. Single-click the **Proposed 2817-M15** icon #2 on the *Advanced-Mode Control Panel* window to select it.

2. Click the **Clone** toolbar button. A forth LPAR configuration is created as an exact copy of the second. Its icon #3 , Rename it **2817-M15 with zIIP**

3. Double-click the **2817-M15 with zIIP** #3 icon to open the *LPAR Host and Partition Configuration* window for the **2817-M15 with zIIP** LPAR configuration.

4. Click **Specify Host** and change the LPAR host to include 1 zIIP CP in addition to the current 6 General Purpose CPs. **Click Return**

5. Click **GP / zIIP** (*Define Partitions* group box) and enable 1 zIIP LCP for partition #2 (CICS-1) by clicking on the z/OS zIIPs field. Close the zAAP and zIIP LCP notice. Then **Click Return**.

6. Click **Partition Detail** in the **Capacity *Reports*** group box, and review the capacity picture.

Partition Detail Report

Graph CPcalculator Documentation

Partition Detail Report
Based on LSPR Data for IBM System z Processors
Study ID: Not specified

#3 **z** 2817-M15 with zIIP
Description: Cloned from Proposed 2817-M15
z196/700 Host = 2817-M15/700 with 7 CPs: GP=6 zIIP=1
7 Active Partitions: GP=6 zIIP=1
Capacity basis: 2094-701 @ 591.225 MIPS for a shared single-partition configuration
Capacity for z/OS on z10 and later processors is represented with HiperDispatch turned ON

			Partition Identification			Partition Configuration					Partition Capacity	
Include	No.	Type	Name	SCP	Workload	Mode	LCPs	Weight	Weight %	CAP	Minimum	Maximum
✓	1	GP	Batch	z/OS-1.11	Average	SHR	1	150	16.30%	☐	1,073	1,097
✓	2	GP	CICS-1	z/OS-1.11	Avg-High	SHR	3	350	38.04%	☐	2,320	3,049
✓		zIIP	CICS-1	z/OS-1.11	Avg-High	SHR	1	350	100.00%	☐	1,106	1,106
✓	3	GP	CICS-2	z/OS-1.11	Avg-High	SHR	1	100	10.87%	☐	683	1,048
✓	4	GP	CICS-3	z/OS-1.11	Avg-High	SHR	1	100	10.87%	☐	683	1,048
✓	5	GP	IMS	z/OS-1.11	Avg-High	SHR	2	200	21.74%	☐	1,368	2,097
✓	6	GP	Test	z/VM	High/LV	SHR	1	20	2.17%	✓	131	131

Table View Controls

Display zAAP/zIIP/IFL Partitions
- ◉ With Associated GP   ◉ Separate by Pool

Show   GP Pool   Specialty Pools
◉ All Partitions ☑ GP   ☐ zAAP   ☑ zIIP
◉ Includes Only   ☐ IFL   ☐ ICF

Capacity Summary by Pool

CP Pool	RCPs	Partitions	LCPs	SHR LCP:RCP	Capacity
GP	6	6	9	1.500	6,258
zAAP	None				n/a
zIIP	1	1	1	1.000	1,106
IFL	None				n/a
ICF	None				n/a
Totals	7	7	10		7,364

[Host Summary]   [Modify SCP/Workload]   [LCP Alternatives]   [zAAP/zIIP Loading]

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a) With the additional zIIP CP configured, the total capacity available has increased above our **6,150 MIPS** requirement, (**7,364** Total with **6,258** in GP). In this case, we could reduce the number of General Purpose CPs.

b) Click **Return**

c) Click **Specify Host** to open the *LPAR Host* window. Change the LPAR host configuration from 6 to 5 General Purpose CPs. Click **Return**

d) Click **Partition Detail**. Note that adequate Total capacity remains (**6357** vs 6150 requirement). Click **Return** 2 times (or click the **Double Return**) to get back to **Advanced-Mode Control Panel**

e) Select both **Current z10 2097-707** #1 ▲z and the **2817-M15 with zIIP** #3 ▲z configurations and then click **Compare** 🖥 icon on the *Advanced-Mode Control Panel* window.

f) Click **Minimum Capacity**. Note that now all partitions are not seeing the required 20% capacity increase over the old 2097-707 configuration. Because a large part of partition #2's capacity requirement can now be satisfied by the zIIP LCPs, its weight for the General Purpose pool should be reduced to achieve a new balance.

g) Try reducing partition #2's (CICS-1) weight from **350** to **177,** by double clicking in the weight field to edit the field and hit enter **.** Now all partitions except #2 (CICS-1) see well over a 20% increase. Partition #2 originally needed **1,889 MIPS**, and with 20% growth, it would need **2,266 MIPS**. Since 50% of partition #2's workload can be offloaded to the zIIP LCPs, its General Purpose LCPs would only need **1,133 MIPS**. Does the modified LPAR configuration satisfy partition #2's capacity requirement? Yes, since Partition #2 is now at **1,214**.

h) Notice that we have created a new problem Partition #1 (Batch - it's weight is now in red) is not receiving the new weight of 20.08. Previously it had been 16.30 before we made the last change.

Partition Capacity Comparison

Partition Capacity Comparison Report
Based on Partition Minimum Capacity
Current z10 2097-707: Loaded from Basic Mode Study D:\...Task 1.zpcr
2817-M15 with zIIP: Cloned from Proposed 2817-M15
Capacity basis: 2094-701 @ 591.225 MIPS for a shared single-partition configuration
Capacity for z/OS on z10 and later processors is represented with HiperDispatch turned ON

Partition Identification — List of All Included Partitions With Unique ID Metrics				#1 ▲ Current z10 2097-707 2097-E12/700: GP=7						#3 ▲ 2817-M15 with zIIP 2817-M15/700: GP=5 zIIP=1						Full Capacity (MIPS)	
				Partition Definition				Minimum Capacity	Partition Definition					Minimum Capacity	Net Change	% Delta
Type	Name	SCP	Workload	LP#	Mode	LCPs	Weight%	CAP		LP#	Mode	LCPs	Weight	Weight%	CAP		
GP	Batch	z/OS-1.11	Average	1	SHR	3	16.30%		888	1	SHR	1	150	20.08%	☐	1,104	+216	+24.3%
GP	CICS-1	z/OS-1.11	Avg-High	2	SHR	7	38.04%		1,889	2	SHR	3	177	23.69%	☐	1,214	-675	-35.7%
zIIP	CICS-1	z/OS-1.11	Avg-High								SHR	1	177	100.00%		1,106		
GP	CICS-2	z/OS-1.11	Avg-High	3	SHR	3	10.87%		555	3	SHR	1	100	13.39%	☐	707	+152	+27.4%
GP	CICS-3	z/OS-1.11	Avg-High	4	SHR	2	10.87%		554	4	SHR	1	100	13.39%	☐	707	+153	+27.6%
GP	IMS	z/OS-1.11	Avg-High	5	SHR	4	21.74%		1,110	5	SHR	2	200	26.77%	☐	1,414	+304	+27.4%
GP	Test	z/VM	High/LV	6	SHR	2	2.17%	✔	104	6	SHR	1	20	2.68%	☑	135	+31	+29.8%

Change Controls

[Commit Changes]   [Undo Changes]   [Optimize SHR LCPs]   [Consider Margin-of-Error]

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i) Click **Optimize SHR LCPs** (use "Moderate" and click Optimize) since we have changed the weight assigned to Partition # 2. Does the over all capacity increase? Yes from **6357 (page 22 d)** to **6393 (Look at the LPAR Host Capacity Comparison Report window)**. Partition #2 CICS-1, went from **1,214 MIPS** to **1,197** but it is still greater than **1,133 MIPS** requirement. We have now met all objectives

Partition Capacity Comparison

Partition Capacity Comparison Report
Based on Partition Minimum Capacity
Current z10 2097-707: Loaded from Basic Mode Study D:\...Task 1.zpcr
2817-M15 with zIIP: Cloned from Proposed 2817-M15
Capacity basis: 2094-701 @ 591.225 MIPS for a shared single-partition configuration
Capacity for z/OS on z10 and later processors is represented with HiperDispatch turned ON

Partition Identification — List of All Included Partitions With Unique ID Metrics			#1 ⚠ Current z10 2097-707 2097-E12/700: GP=7						#3 ⚠ 2817-M15 with zIIP 2817-M15/700: GP=5 zIIP=1						Full Capacity (MIPS)	
			Partition Definition					Minimum Capacity	Partition Definition					Minimum Capacity	Net Change	% Delta
Type	Name	SCP	Workload	LP#	Mode	LCPs	Weight%	CAP		LP#	Mode	LCPs	Weight	Weight%	CAP	Minimum Capacity	Net Change	% Delta
GP	Batch	z/OS-1.11	Average	1	SHR	3	16.30%		888	1	SHR	2	150	20.08%	☐	1,109	+221	+24.9%
GP	CICS-1	z/OS-1.11	Avg-High	2	SHR	7	38.04%		1,889	2	SHR	2	177	23.69%	☐	1,197	-692	-36.6%
zIIP	CICS-1	z/OS-1.11	Avg-High								SHR	1	177	100.00%	☐	1,126		
GP	CICS-2	z/OS-1.11	Avg-High	3	SHR	3	10.87%		555	3	SHR	1	100	13.39%	☐	706	+151	+27.2%
GP	CICS-3	z/OS-1.11	Avg-High	4	SHR	2	10.87%		554	4	SHR	1	100	13.39%	☐	706	+152	+27.4%
GP	IMS	z/OS-1.11	Avg-High	5	SHR	4	21.74%		1,110	5	SHR	2	200	26.77%	☐	1,413	+303	+27.3%
GP	Test	z/VM	High/LV	6	SHR	2	2.17%	✔	104	6	SHR	1	20	2.68%	✔	135	+31	+29.8%

Change Controls

[Commit Changes]   [Undo Changes]   [Optimize SHR LCPs]   [Consider Margin-of-Error]

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j) Click **Consider Margin-of-Error.** We also want to validate that all of the partitions have enough capacity to ensure they cover the -5% Margin-of-Error. We can see that all partitions are >20% delta on the projected minus 5% except Partition #1 (Batch) which is below the 20% threshold at 18.6%. Partition #2, CICS-2, margin-of-Error is at **1,137 MIPS**, still above the needed **1,133 MIPS** requirement.

Partition Margin-of-Error

Margin-of-Error Consideration
Partition Minimum Capacity

Current z10 2097-707: Loaded from Basic Mode Study D:\...Task 1.zpcr
2817-M15 with zIIP: Cloned from Proposed 2817-M15
Capacity basis: 2094-701 @ 591.225 MIPS for a shared single-partition configuration
Capacity for z/OS on z10 and later processors is represented with HiperDispatch turned ON

| Partition Identification | | | | #1 Current z10 2097-707 | #3 2817-M15 with zIIP | | | |
| | | | | | Projected | | Projected minus 5% | |
Type	Name	SCP	Workload	Projected Capacity	Capacity	% Delta	Capacity	% Delta
GP	Batch	z/OS-1.11	Average	888	1,109	+24.9%	1,053	+18.6%
GP	CICS-1	z/OS-1.11	Avg-High	1,889	1,197	-36.6%	1,137	-39.8%
zIIP	CICS-1	z/OS-1.11	Avg-High		1,126		1,070	
GP	CICS-2	z/OS-1.11	Avg-High	555	706	+27.2%	671	+20.9%
GP	CICS-3	z/OS-1.11	Avg-High	554	706	+27.4%	671	+21.1%
GP	IMS	z/OS-1.11	Avg-High	1,110	1,413	+27.3%	1,343	+21.0%
GP	Test	z/VM	High/LV	104	135	+29.8%	129	+24.0%

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k) Click **Return**

l) Try increasing partition #1's (Batch) weight from 1**50** to **153** .

Partition Capacity Comparison

Partition Capacity Comparison Report
Based on Partition Minimum Capacity
Current z10 2097-707: Loaded from Basic Mode Study D:\...Task 1.zpcr
2817-M15 with zIIP: Cloned from Proposed 2817-M15
Capacity basis: 2094-701 @ 591.225 MIPS for a shared single-partition configuration
Capacity for z/OS on z10 and later processors is represented with HiperDispatch turned ON

Type	Name	SCP	Workload	LP#	Mode	LCPs	Weight%	CAP	Minimum Capacity	LP#	Mode	LCPs	Weight	Weight%	CAP	Minimum Capacity	Net Change	% Delta
GP	Batch	z/OS-1.11	Average	1	SHR	3	16.30%		888	1	SHR	2	153	20.40%		1,126	+238	+26.8%
GP	CICS-1	z/OS-1.11	Avg-High	2	SHR	7	38.04%		1,889	2	SHR	2	177	23.60%		1,192	-697	-36.9%
zIIP	CICS-1	z/OS-1.11	Avg-High								SHR	1	177	100.00%		1,126		
GP	CICS-2	z/OS-1.11	Avg-High	3	SHR	3	10.87%		555	3	SHR	1	100	13.33%		703	+148	+26.7%
GP	CICS-3	z/OS-1.11	Avg-High	4	SHR	2	10.87%		554	4	SHR	1	100	13.33%		703	+149	+26.9%
GP	IMS	z/OS-1.11	Avg-High	5	SHR	4	21.74%		1,110	5	SHR	2	200	26.67%		1,408	+298	+26.8%
GP	Test	z/VM	High/LV	6	SHR	2	2.17%	✔	104	6	SHR	1	20	2.67%	✓	135	+31	+29.8%

Partition Identification
List of All Included Partitions
With Unique ID Metrics

#1 ⚠ **Current z10 2097-707**
2097-E12/700: GP=7

#3 ⚠ **2817-M15 with zIIP**
2817-M15/700: GP=5 zIIP=1

Full Capacity (MIPS)

Change Controls

[Commit Changes] [Undo Changes] [Optimize SHR LCPs]   [Consider Margin-of-Error]

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m) Click **Consider Margin-of-Error.** We also want to validate that all of the partitions have enough capacity to ensure they cover the -5% Margin-of-Error. We can see that all partitions are >20% delta on the projected minus 5%. Partition #2, CICS-2, margin-of-Error is at **1,133 MIPS**, meeting the needed **1,133 MIPS** requirement.

Partition Margin-of-Error

Margin-of-Error Consideration
Partition Minimum Capacity
Current z10 2097-707: Loaded from Basic Mode Study D:\...Task 1.zpcr
2817-M15 with zIIP: Cloned from Proposed 2817-M15
Capacity basis: 2094-701 @ 591.225 MIPS for a shared single-partition configuration
Capacity for z/OS on z10 and later processors is represented with HiperDispatch turned ON

| | Partition Identification | | | #1 Current z10 2097-707 | #3 2817-M15 with zIIP | | | |
| | | | | | Projected | | Projected minus 5% | |
Type	Name	SCP	Workload	Projected Capacity	Capacity	% Delta	Capacity	% Delta
GP	Batch	z/OS-1.11	Average	888	1,126	+26.8%	1,070	+20.5%
GP	CICS-1	z/OS-1.11	Avg-High	1,889	1,192	-36.9%	1,133	-40.0%
zIIP	CICS-1	z/OS-1.11	Avg-High		1,126		1,070	
GP	CICS-2	z/OS-1.11	Avg-High	555	703	+26.7%	668	+20.4%
GP	CICS-3	z/OS-1.11	Avg-High	554	703	+26.9%	668	+20.6%
GP	IMS	z/OS-1.11	Avg-High	1,110	1,408	+26.8%	1,337	+20.5%
GP	Test	z/VM	High/LV	104	135	+29.8%	128	+23.1%

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Click one **Return** buttons to close the Partition Margin of Error
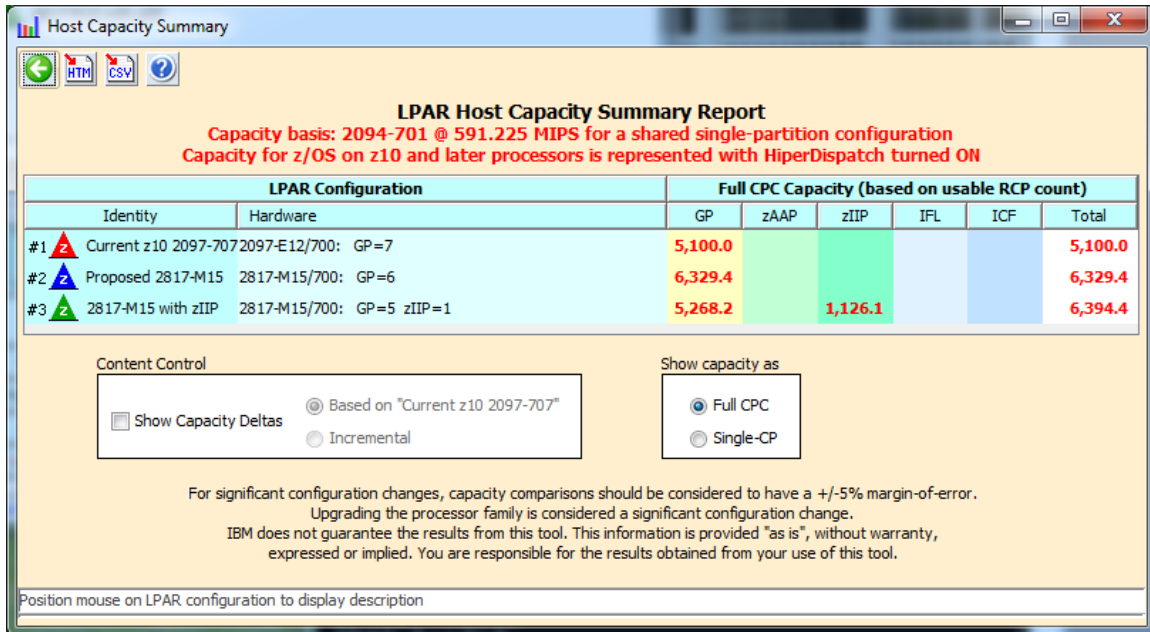

Click **Commit Changes**

Click two **Return** buttons to close the windows

---

n) From the Advanced-Mode Control Panel, click LPAR Host Capacity Summary Report

⬛ . This report relates the capacity projections by partition type (CP pool) for each LPAR configuration that is defined. The sum of the individual pool capacity values is shown as a total for the entire CPC on the right.
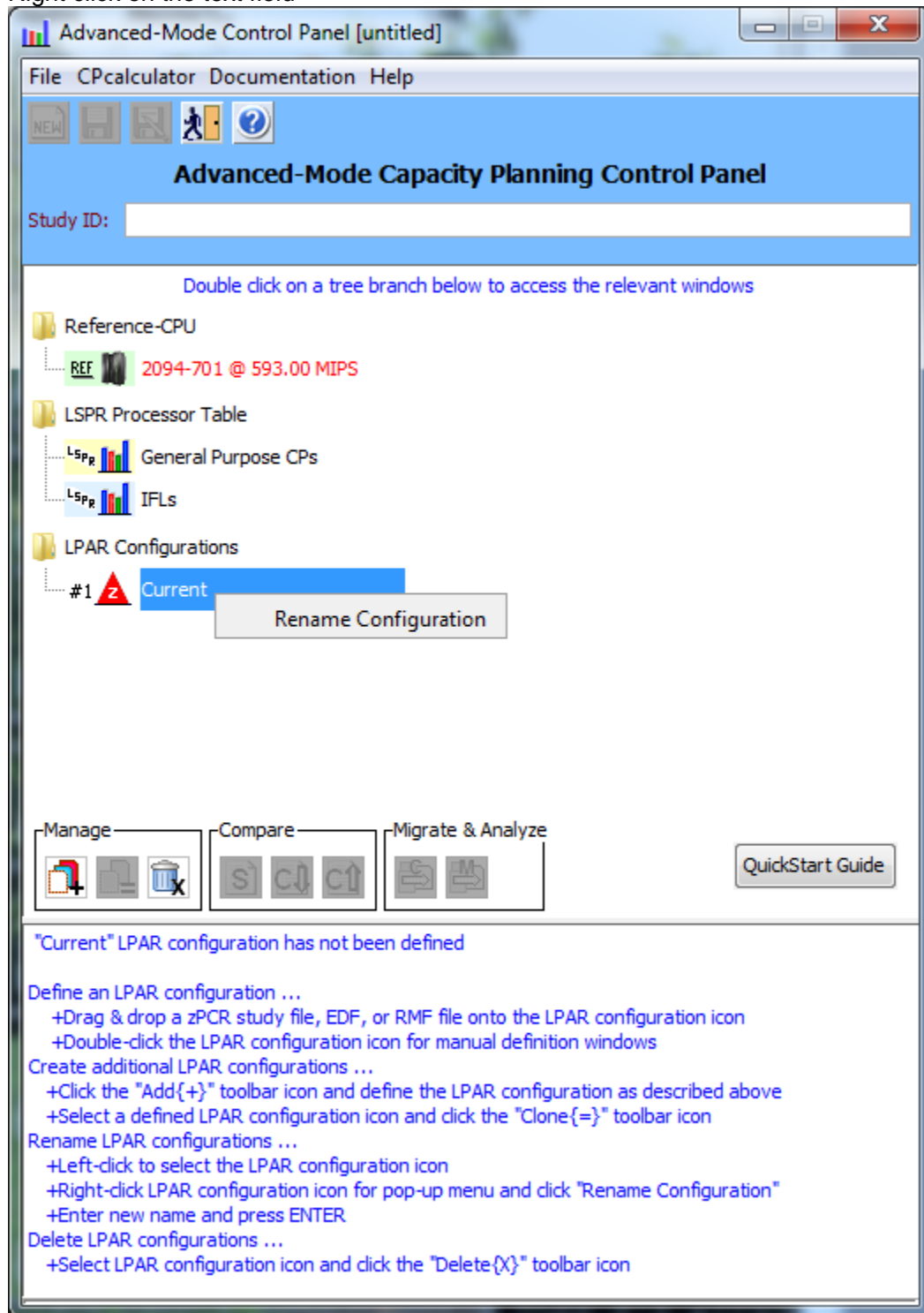
LPAR Host Capacity Summary Report
Capacity basis: 2094-701 @ 591.225 MIPS for a shared single-partition configuration
Capacity for z/OS on z10 and later processors is represented with HiperDispatch turned ON

LPAR Configuration		Full CPC Capacity (based on usable RCP count)					
Identity	Hardware	GP	zAAP	zIIP	IFL	ICF	Total
#1 Current z10 2097-707	2097-E12/700: GP=7	5,100.0					5,100.0
#2 Proposed 2817-M15	2817-M15/700: GP=6	6,329.4					6,329.4
#3 2817-M15 with zIIP	2817-M15/700: GP=5 zIIP=1	5,268.2		1,126.1			6,394.4

Content Control

☐ Show Capacity Deltas   ◉ Based on "Current z10 2097-707"
                          ○ Incremental

Show capacity as

◉ Full CPC
○ Single-CP

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Position mouse on LPAR configuration to display description

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Rename a Configuration

Procedure

1. Single-click the **Current** icon on the *Advanced-Mode Control Panel* window to select it.

2. Right click on the text field

3. Key in the name that you wish to use and hit enter

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