zPCR Capacity Sizing Lab
Part 2 Hands-on Lab

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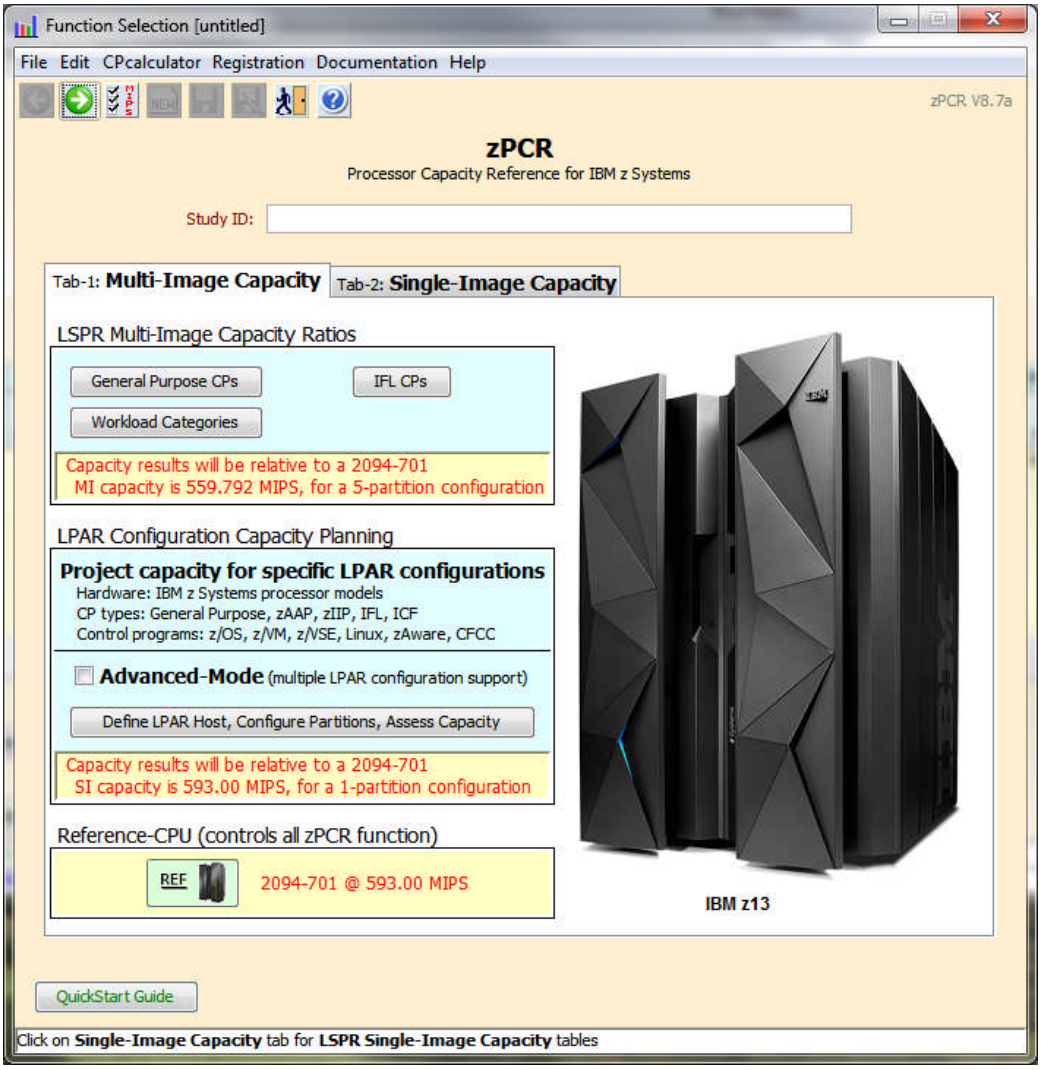
zPCR Capacity Sizing Lab – Part 2 Hands On Lab Exercise

John Burg

Function Selection Window



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 **z196 2817-707** (7-way processor) installed, which based on their last **zPCR** study as having about **7,164 MIPS** of usable capacity. The 2817-707 is currently averaging **100% 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	Weight	Capped	Workload Category
1	CICSA	Share	7	340	No	z/OS-2.1 Average
2	BATCHA	Share	7	195	No	z/OS-2.1 Average
3	BATCHB	Share	2	32	No	z/OS-2.1 Average
4	TESTB	Share	2	12	No	z/OS-2.1 Average
5	TESTIMS	Share	5	36	No	z/OS-2.1 Average
6	CICSB	Share	7	297	No	z/OS-2.1 Average
7	IMSA	Share	5	73	No	z/OS-2.1 Average
8	TESTCICS	Share	2	15	No	z/OS-2.1 Average

A plan is being developed to **replace the z196 2817-707 with a newer technology z Systems (z13) processor**. The specific model chosen must provide at least **36% additional capacity**, or **9,743 MIPS** (7,164 x 1.36). The current configuration is to be moved to the new processor with the partitions and their workloads continuing as today. The customer has turned on **CPU MF** counters and has collected **SMF 113** data. They ran **CP3KEXTR** and created an EDF file containing data from 2/03. The data spans from 8:00 am through 12:00 pm using 15 minute intervals. In addition the customer is looking at moving some work to **Linux on IBM z Systems**.

Tasks Overview

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

*** The actual Lab starts on the next page ***

- **Task 1** - Load the **EDF** which contains the latest RMF/SMF data including SMF 113 data.
- **Task 2** - Rename the configuration.
- **Task 3** - Save the current study in Advanced-Mode (e.g. task2.zpcr).
- **Task 4** - Find an appropriate **IBM z13/700** model replacement processor.
- **Task 5** - Model the intended **IBM z13/700** processor.
- **Task 6** - Review the capacity results and save the study (use a different file name than Task 3, e.g. task6.zpcr).
- **Additional Analysis To Try**
  - A. Model a **z13/600** as an alternative.
  - B. Add 1 IFL partition to the **z13/700** running **Linux guests under z/VM** using SMT with a 20% capacity benefit, and add 1 zIIP partition to the **CICSA** partition (2 zIIPs) using SMT with a 25% capacity benefit.

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

The **Double Return**  icon may be used to close multiple open windows, returning directly to the ***Advanced-Mode Control Panel*** window.

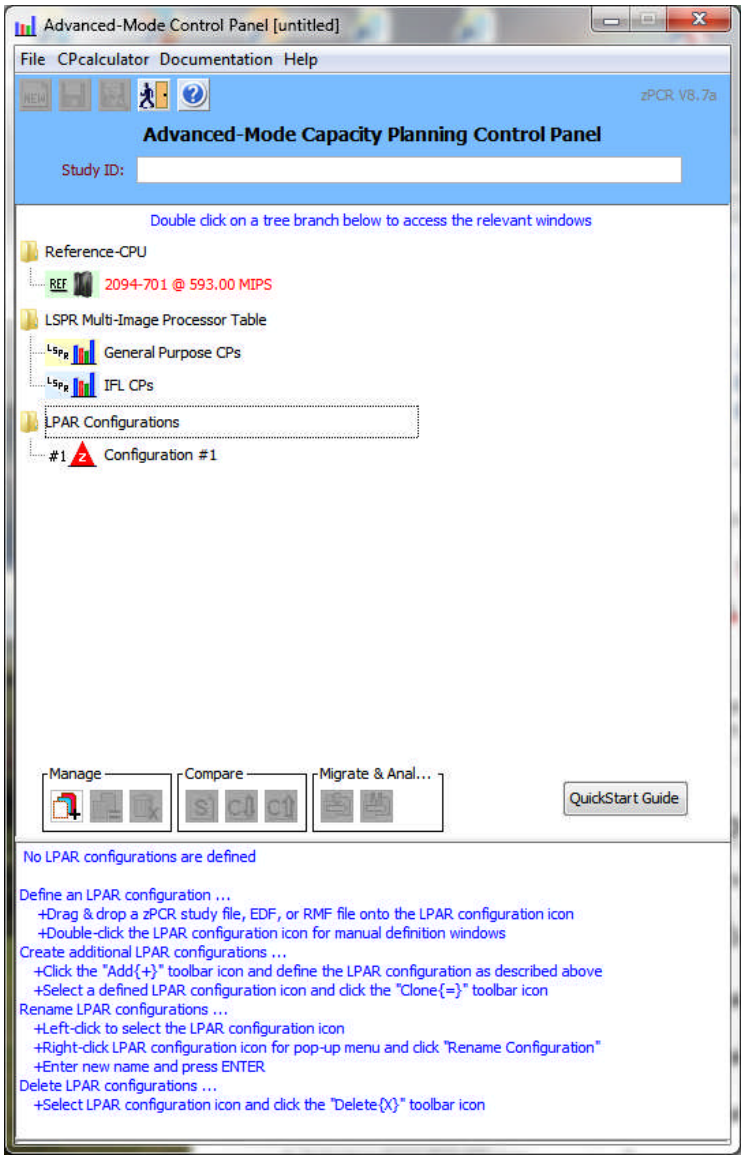
Task 1: **Load the EDF with the RMF/SMF data**

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**. In order to have capacity results represented with typical MIPS values, we need to set the ***Reference-CPU*** to the **2094-701 rated at 593 MIPS**.

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 the ***C:\CPSTOOLS\zPCR\EDF Files*** directory, where the **Task 1.edf** 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. ***** For the lab there is a shortcut to this folder on the desktop *****

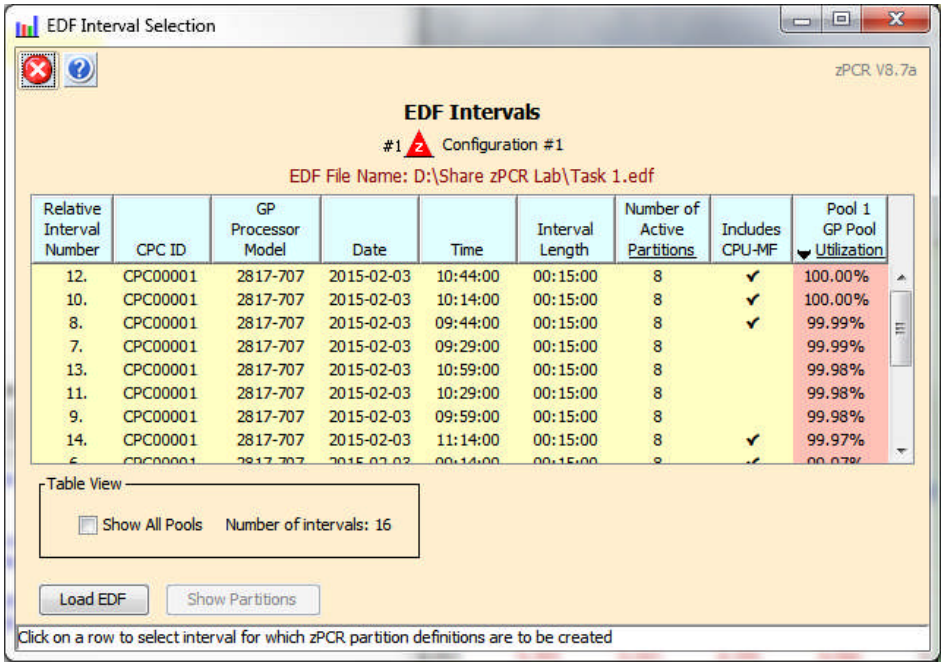
6. Drag the "**Task 1.edf**" file from the "**zPCR**" subdirectory underneath or on top of the "**Configuration #1**" icon 

to open the ***EDF Interval Selection*** window.

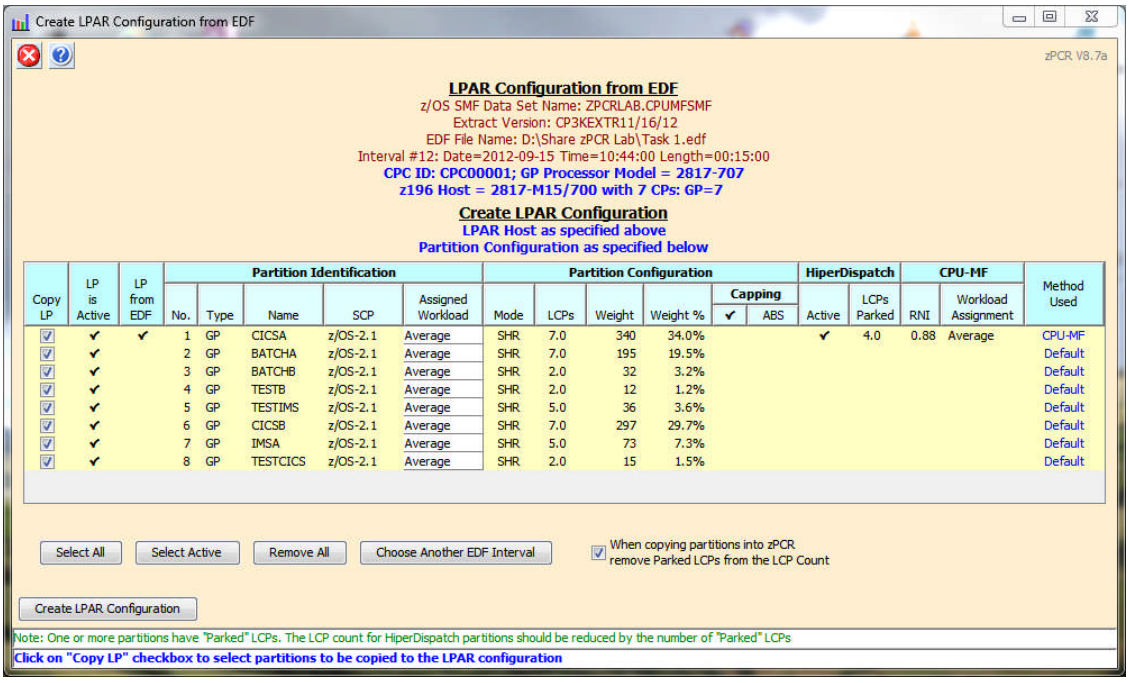
EDF Interval Selection Window

Analysis Steps

1. Sort (Click) on the **Pool 1 GP Pool Utilization** column.

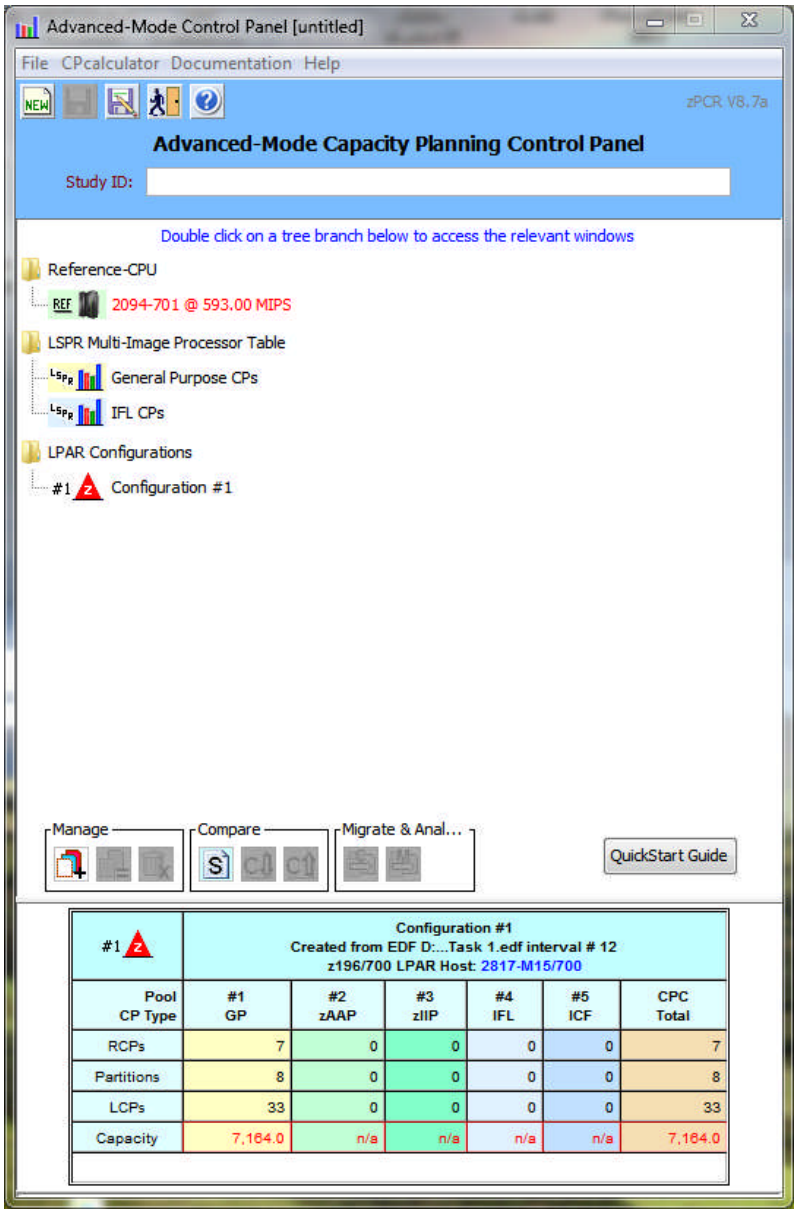


2. Select Interval #12 and double click to open the ***Create LPAR Configuration* from *EDF*** window.



3. Click on **Create LPAR Configuration** to transfer the LPAR host processor and its 8 partitions to the active **zPCR** study.
4. Click **OK** to dismiss the ***zPCR EDF Copy Partitions*** transfer dialog.

Advanced-Mode Control Panel Window

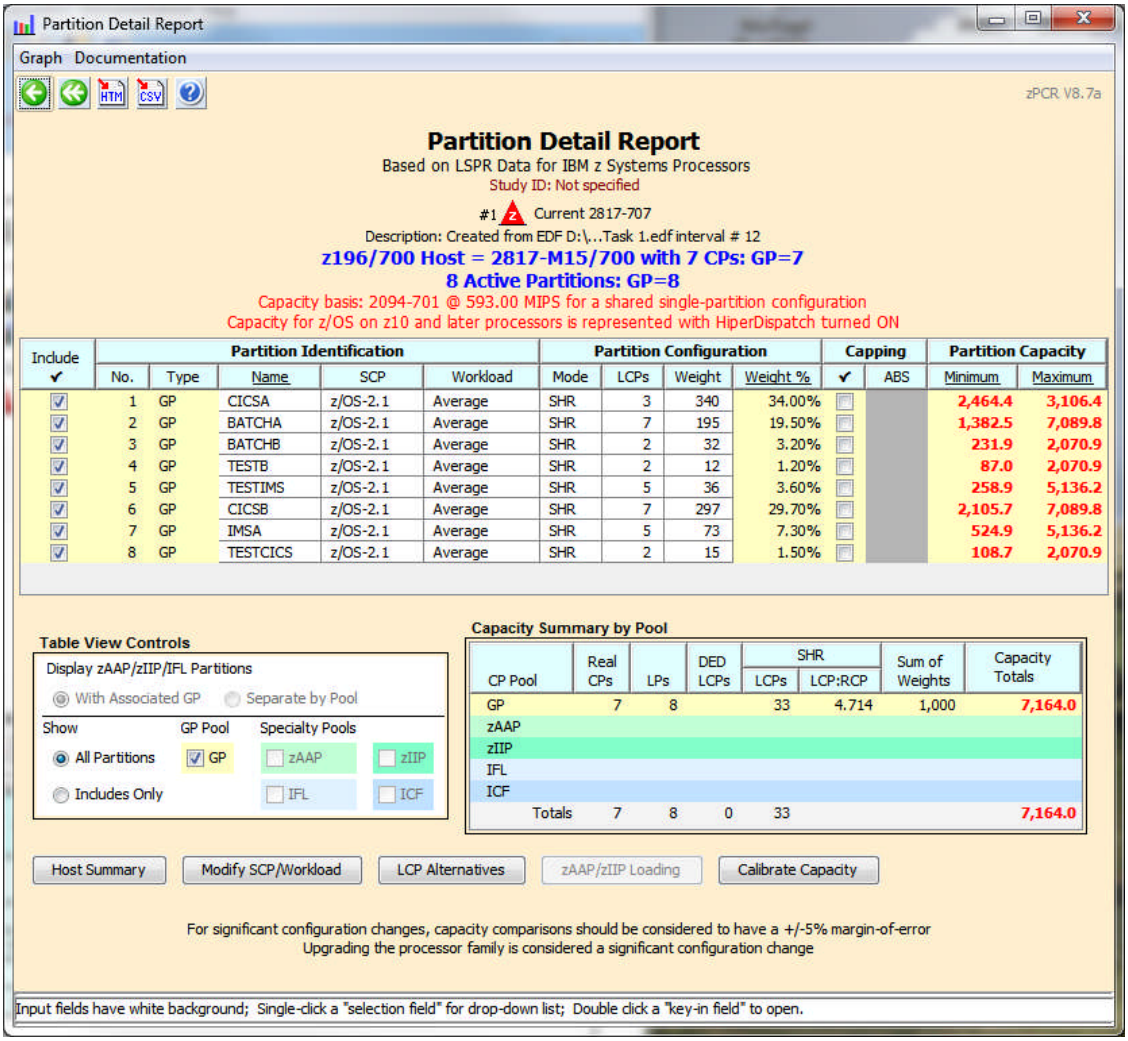


Task 2: **Rename the configuration**

Review the capacity assessment and rename the configuration.

Analysis Steps

1. Refer to the "**Rename an LPAR Configuration**" at the end of this document to rename the configurations as shown in the lab.
2. Using the directions above to rename "**Configuration #1**" to "**Current 2817-707**"
3. Double-click on the **Current 2817-707** LPAR configuration icon  to open the ***LPAR Host and Partition Configuration*** window for the **Current 2817-707** 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 **7,164 MIPS**.



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)

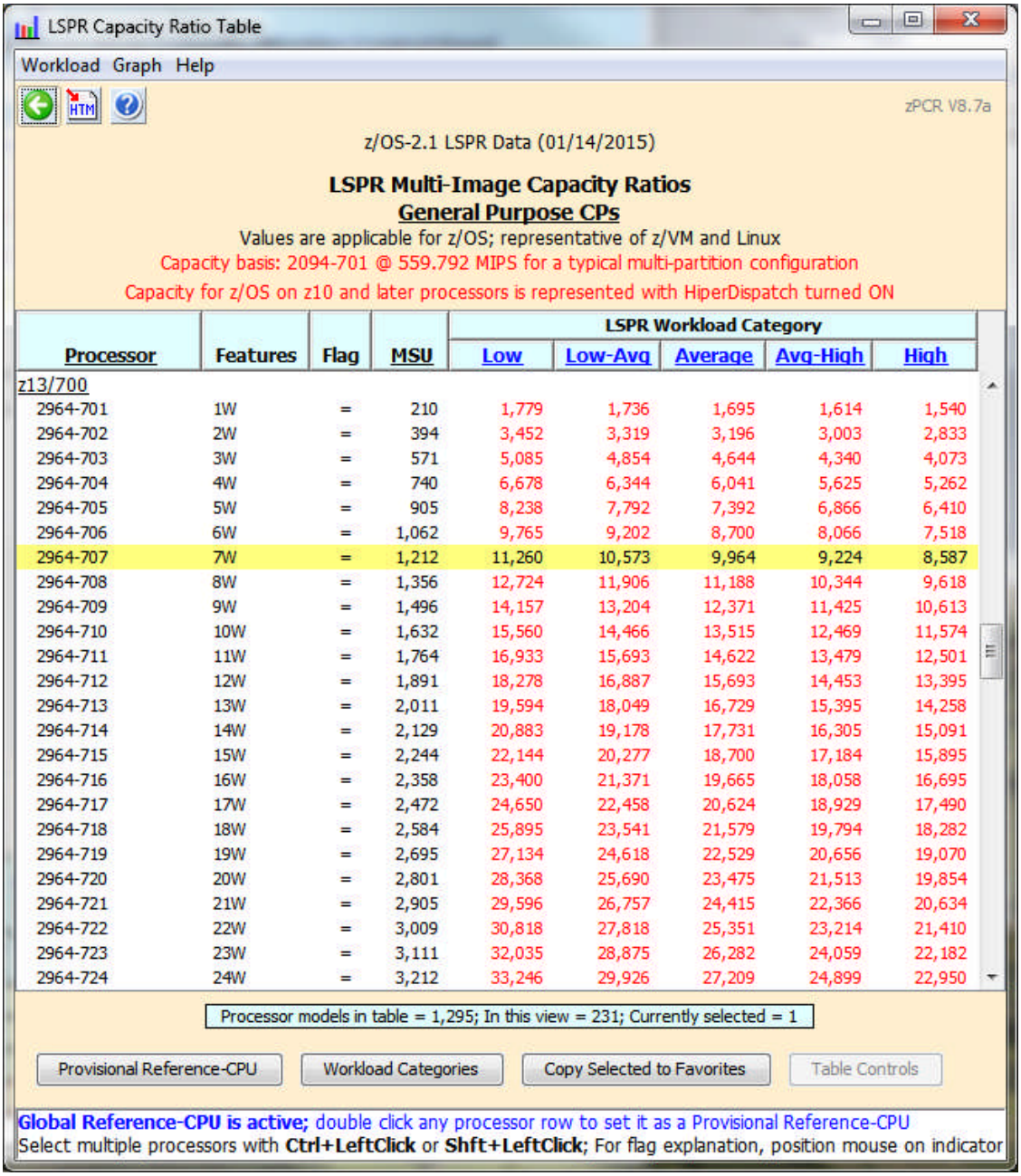
Task 4: **Find an appropriate replacement processor**

Browsing the ***z/OS-2.1 Multi-Image LSPR Capacity Ratios*** table, find the **IBM z13** processor that can provide the required capacity increment using the z/OS Average workload category.

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 z13** processor that can provide the required **9,743 MIPS**. (tip: right click for a list of the ***Families***, select ***Scroll to IBM***, then select ***z13/700***).

   For the purposes of this exercise, choose the **2964-707**, which appears to have just a bit more capacity than we require, (e.g. **9,964** for ***Average***). **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 Ratio Table

Workload Graph Help

zPCR V8.7a

z/OS-2.1 LSPR Data (01/14/2015)

LSPR Multi-Image Capacity Ratios

General Purpose CPs

Values are applicable for z/OS; representative of z/VM and Linux

Capacity basis: 2094-701 @ 559.792 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	LSPR Workload Category				
				Low	Low-Avg	Average	Avg-High	High
z13/700								
2964-701	1W	=	210	1,779	1,736	1,695	1,614	1,540
2964-702	2W	=	394	3,452	3,319	3,196	3,003	2,833
2964-703	3W	=	571	5,085	4,854	4,644	4,340	4,073
2964-704	4W	=	740	6,678	6,344	6,041	5,625	5,262
2964-705	5W	=	905	8,238	7,792	7,392	6,866	6,410
2964-706	6W	=	1,062	9,765	9,202	8,700	8,066	7,518
2964-707	7W	=	1,212	11,260	10,573	9,964	9,224	8,587
2964-708	8W	=	1,356	12,724	11,906	11,188	10,344	9,618
2964-709	9W	=	1,496	14,157	13,204	12,371	11,425	10,613
2964-710	10W	=	1,632	15,560	14,466	13,515	12,469	11,574
2964-711	11W	=	1,764	16,933	15,693	14,622	13,479	12,501
2964-712	12W	=	1,891	18,278	16,887	15,693	14,453	13,395
2964-713	13W	=	2,011	19,594	18,049	16,729	15,395	14,258
2964-714	14W	=	2,129	20,883	19,178	17,731	16,305	15,091
2964-715	15W	=	2,244	22,144	20,277	18,700	17,184	15,895
2964-716	16W	=	2,358	23,400	21,371	19,665	18,058	16,695
2964-717	17W	=	2,472	24,650	22,458	20,624	18,929	17,490
2964-718	18W	=	2,584	25,895	23,541	21,579	19,794	18,282
2964-719	19W	=	2,695	27,134	24,618	22,529	20,656	19,070
2964-720	20W	=	2,801	28,368	25,690	23,475	21,513	19,854
2964-721	21W	=	2,905	29,596	26,757	24,415	22,366	20,634
2964-722	22W	=	3,009	30,818	27,818	25,351	23,214	21,410
2964-723	23W	=	3,111	32,035	28,875	26,282	24,059	22,182
2964-724	24W	=	3,212	33,246	29,926	27,209	24,899	22,950

Processor models in table = 1,295; In this view = 231; Currently selected = 1

Provisional Reference-CPU | Workload Categories | Copy Selected to Favorites | Table Controls

Global Reference-CPU is active; double click any processor row to set it as a Provisional Reference-CPU

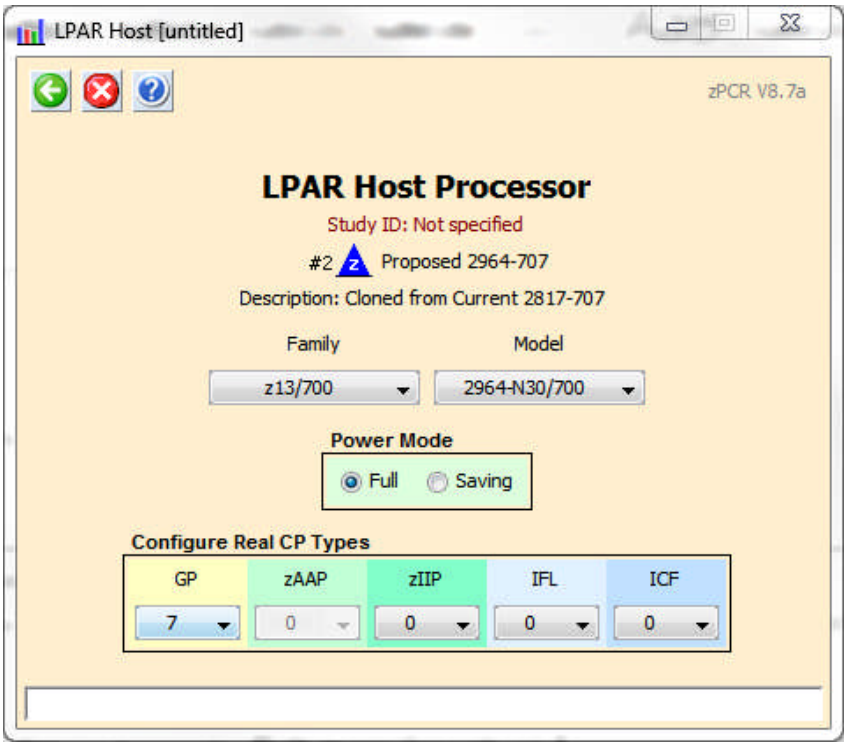
Select multiple processors with **Ctrl+LeftClick** or **Shft+LeftClick**; For flag explanation, position mouse on indicator

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

Using the current z196 LPAR configuration as a starting point, we will transfer it to the new **IBM z13** processor, making any necessary adjustments to the partition definitions.

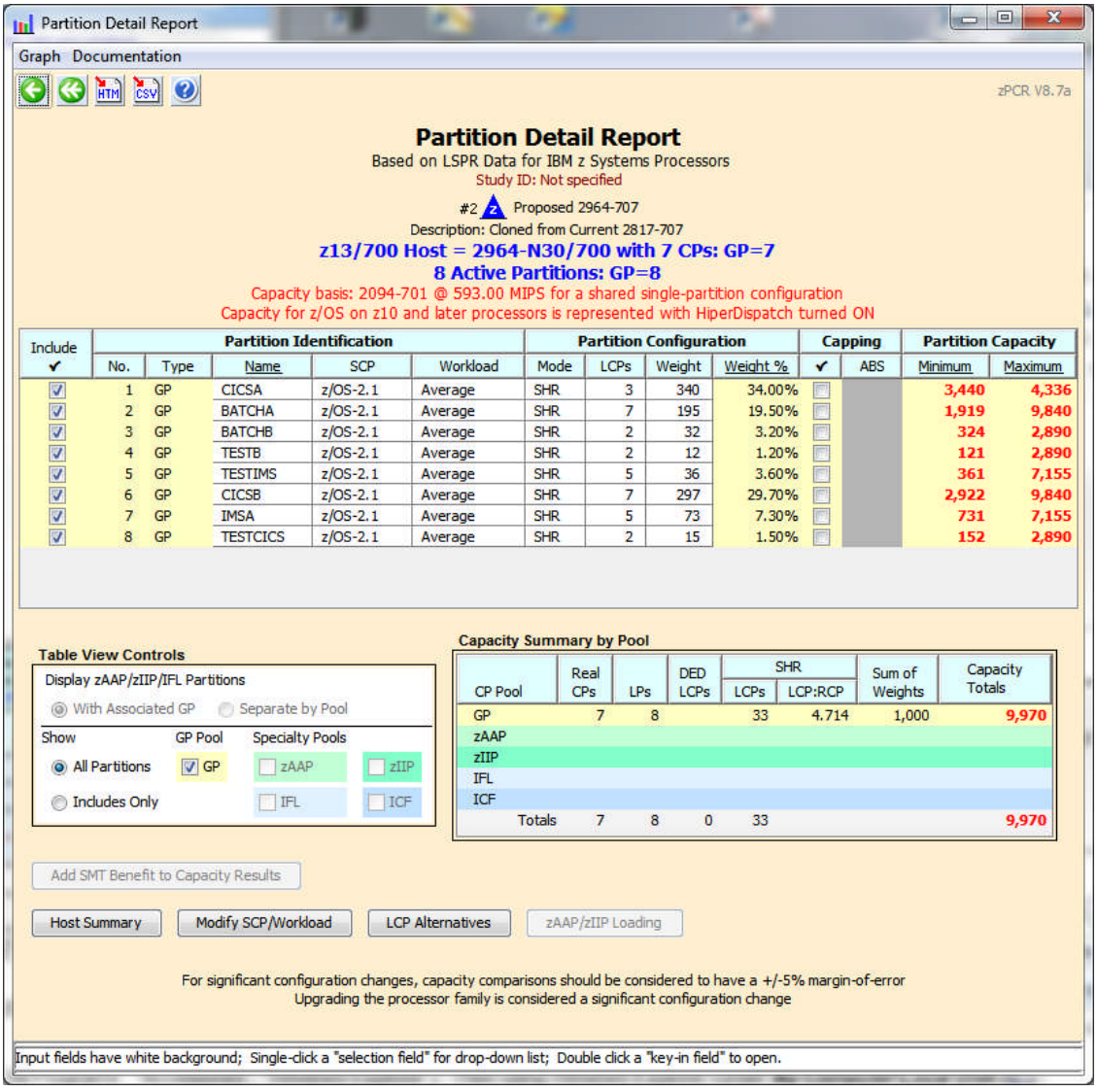
Analysis Steps

1. Single-click the **Current 2817-707** icon on the ***Advanced-Mode Control Panel*** window to select it.
2. Click the **Clone** toolbar button. A 2nd LPAR configuration is created as an exact copy of the first. It is icon #2 , Rename it to **Proposed 2964-707**.
3. Double-click the **Proposed 2964-707** icon #2 to open the ***LPAR Host and Partition Configuration*** window for the **Proposed 2964-707** LPAR configuration.
4. Click **Specify Host** to open the ***LPAR Host*** window.
   a) Set the ***Family*** to be **z13/700**.
   b) Set the ***Model*** to **2964-N30/700** (this model has a maximum total of 30 CPs).
   c) Leave **z13** & **z196 Power** set to **Full**.
   d) Leave ***General Purpose CPs*** set at **7** (recognized as a **2964-707**). There are no other CP types planned at this time.



   e) Click **Return**.

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

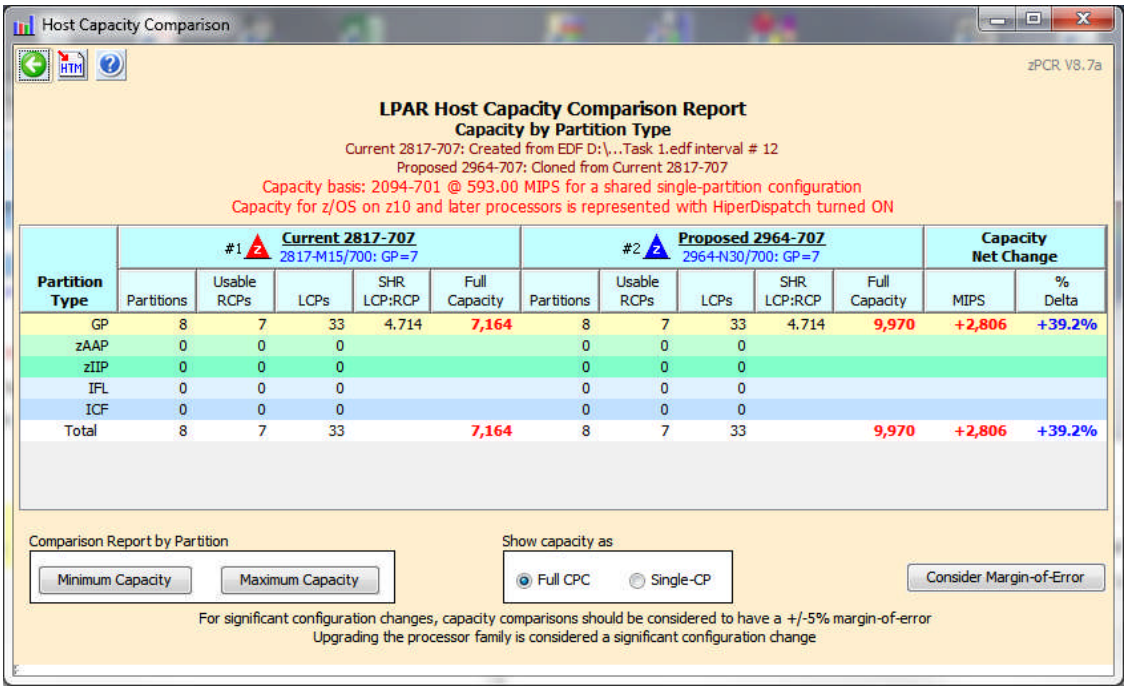


Task 6: **Review capacity results and save the study**

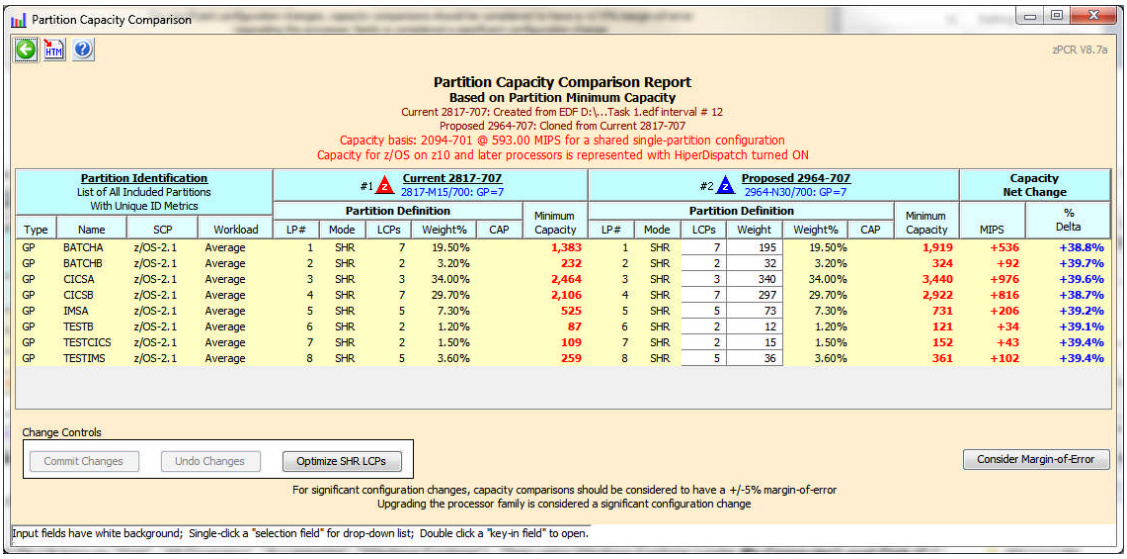
Using the capacity results for this new LPAR host, determine if we realized the desired 36% capacity increase (**9,743 MIPS**), for the overall host and for each individual partition.

Analysis Steps

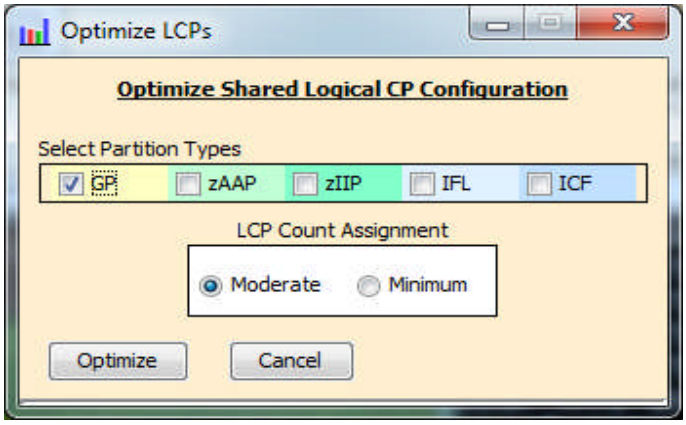
1. On the ***Partition Detail Report*** window, the overall effective capacity for the **z13 2964-707** is **9,970 MIPS** for this LPAR configuration. The effective capacity for the **z196 2817-707** is **7,164 MIPS.** (see page 9)
2. Click two **Return** buttons (or click the **Double Return** button) to close the ***LPAR Configuration*** windows.
3. On the ***Advanced-Mode Control Panel*** window, select the two configurations (hold the **Ctrl** key and click on both) and click the **Compare** 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.



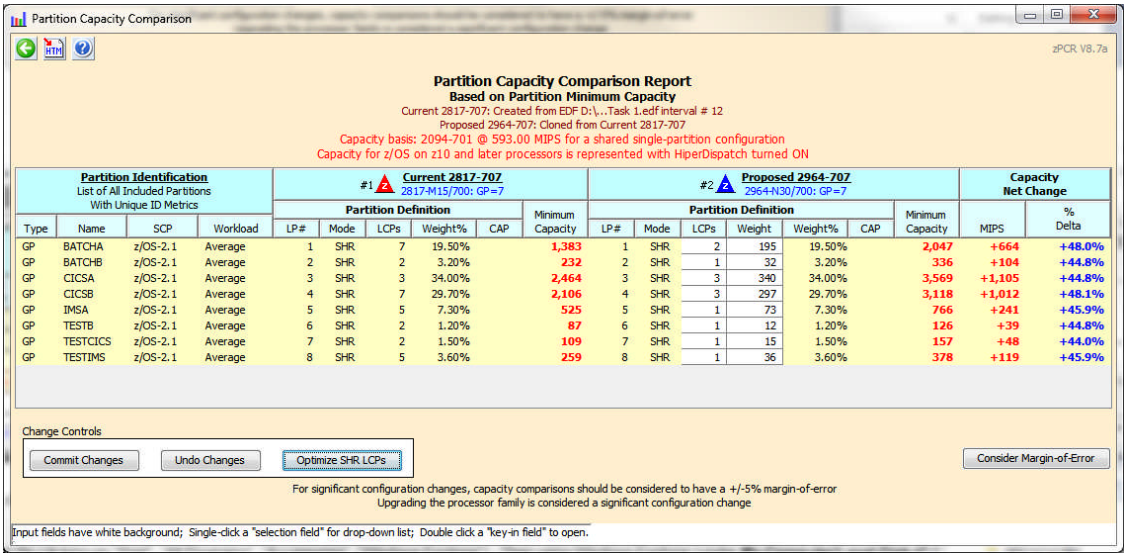
4. Click **Minimum Capacity** in the ***Comparison Report by Partition*** group box. Note that all of the partitions see an increase of approximately 36% or more.



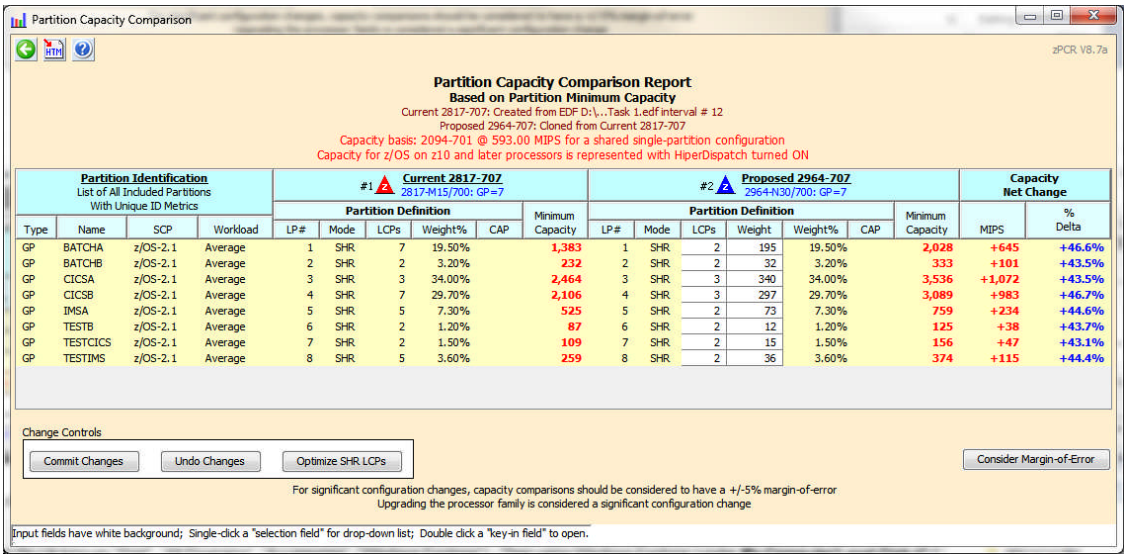
5. Click **Optimize SHR LCPs** for GPs in the ***Change Controls*** group box to see if you can improve the results by reducing the number of LCPs assign to each partition to that required to accommodate its weight.



6. 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.

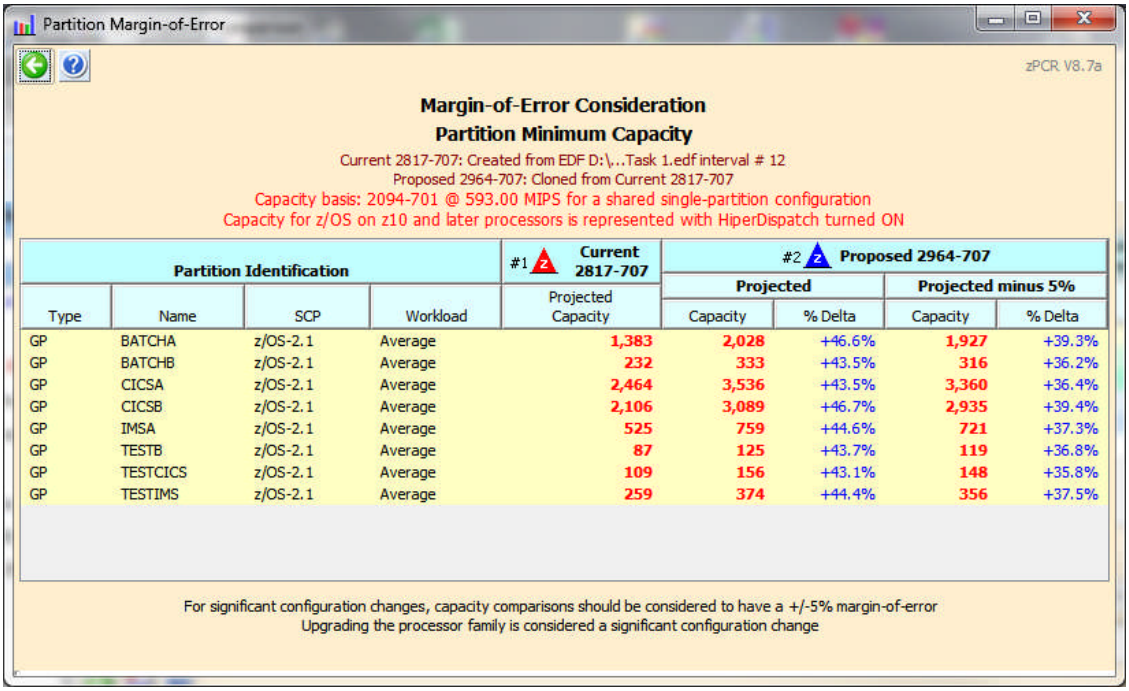


7. For availability reasons we will increase all of the partition LCPs showing only 1 LCP (i.e., **BATCHB**, **IMSA**, **TESTB**, **TESTCICS**, and **TESTIMS**) to have 2 LCPs as shown below.

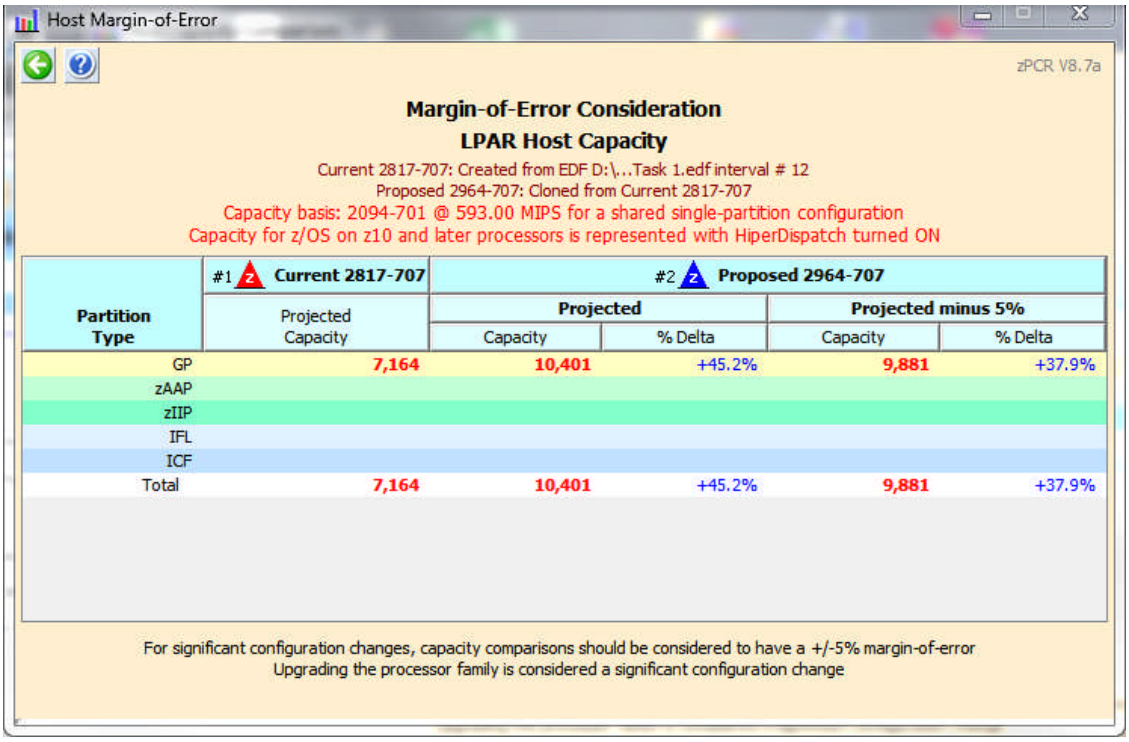


8. Click **Consider Margin-of-Error**

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 all of the partitions realize the intended 36% capacity increase when considering the ±5% Margin-of-Error.



9. 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 **10,401 MIPS** (**9,881 MIPS** when considering the ±5% Margin-of-Error), both of which are greater than the **9,743 MIPS** objective.



10. Close all of the comparison windows by clicking the **Return** toolbar icon on the ***Host Capacity Comparison*** window.
11. 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 **9,743 MIPS** overall objective and 36% for each partition even when considering a potential ±5% Margin-of-Error.

*** End of Task 6 ***

Additional Analysis To Try

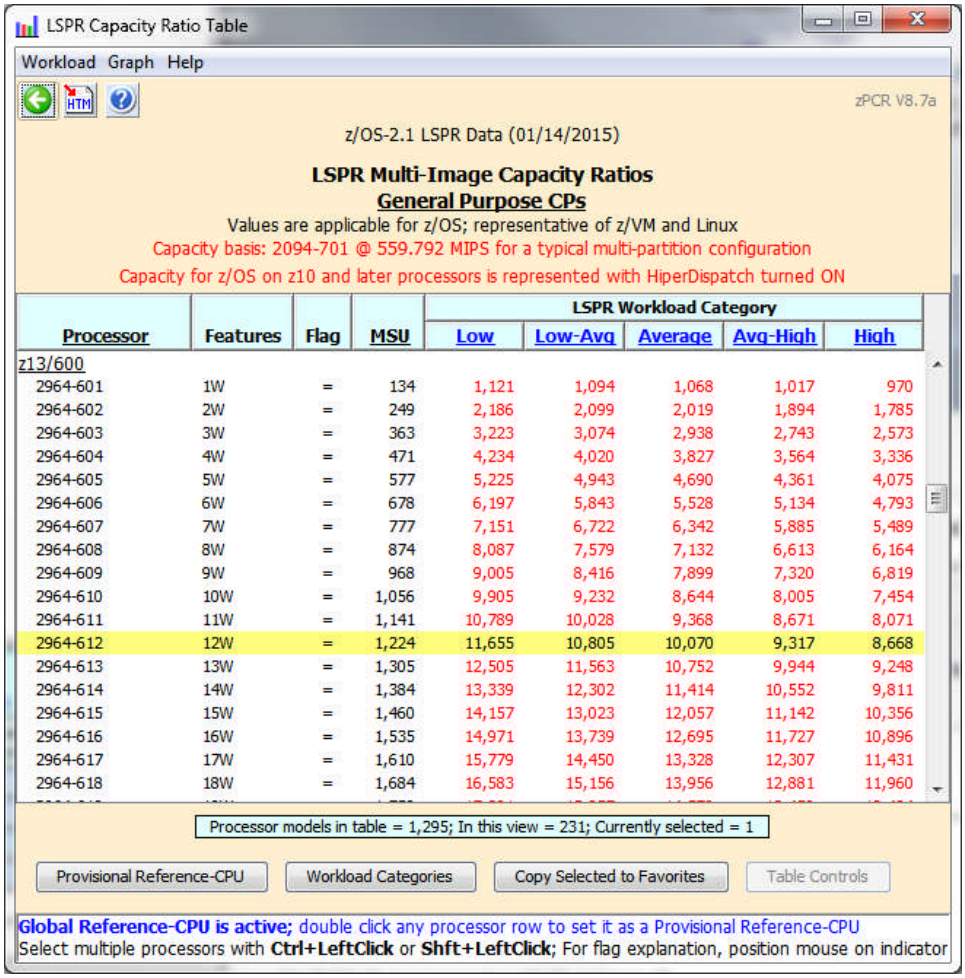
A. Evaluate a z13/600 as an alternative

Browsing the ***z/OS-2.1 Multi-Image LSPR Capacity Ratios*** table, find the **IBM z13/600** 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 z13/600** processor that can provide the required **9,743 MIPS**. (tip right click for a list of the Families, then select via **Scroll to IBM**, then select **z13/600**)

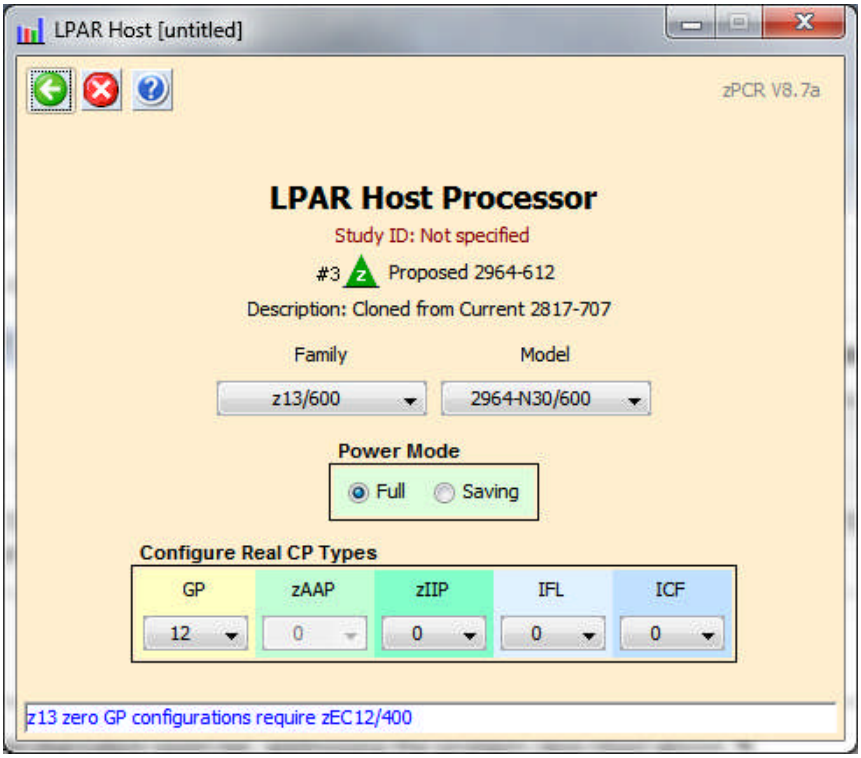
For the purposes of this exercise, choose the **2964-612**, which appears to have a bit more capacity than we require, (e.g. **10,070 MIPS** for Average etc). **Remember that capacity values in the Multi-Image LSPR table represent typical (or average) partition configurations, and therefore can only generalize on capacity**.



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

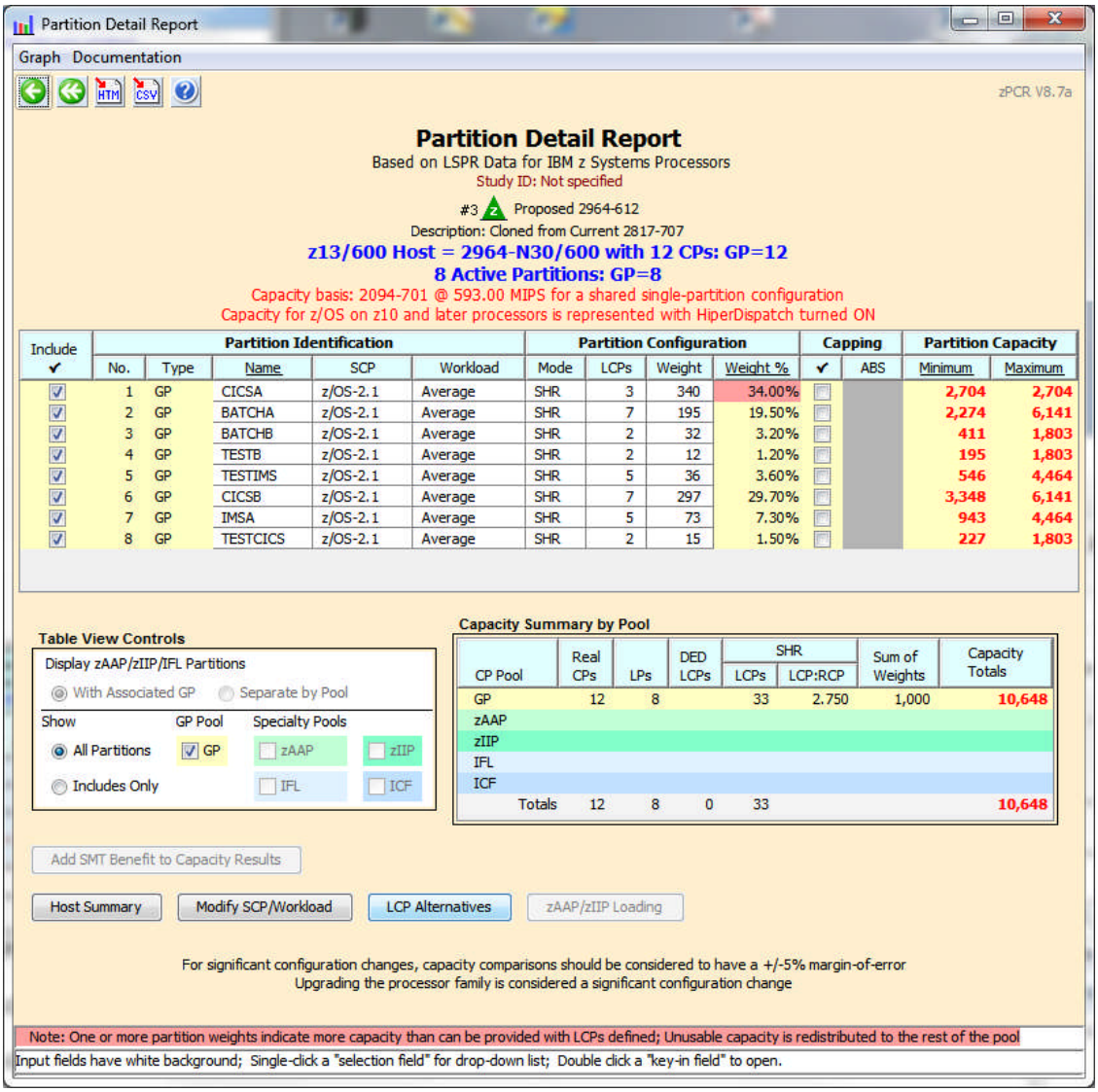
Analysis Steps

1. Single-click the **Current 2817-707** #1 on the ***Advanced-Mode Control Panel*** window to select it.
2. Click the **Clone** toolbar button. A third LPAR configuration is created as an exact copy of the second. Its icon #3 , Rename it **Proposed 2964-612**
3. Double-click the **Proposed 2964-612** #3 icon to open the ***LPAR Host and Partition Configuration*** window for the **Proposed 2964-612** LPAR configuration.
4. Click **Specify Host**
   a) Set the ***Family*** to **z13/600**.
   b) Set the ***Model*** to **2964-N30/600** (this model has a maximum of 30 CPs).
   c) Leave **z13** and **z196 Power** set to **Full**.
   d) Set ***General Purpose CPs*** to **12** (recognized as a **2964-612**).



   e) Click **Return**

5. Click **Partition Detail**. In the ***Capacity Reports*** group box, review the capacity for the General Purpose CP pool.

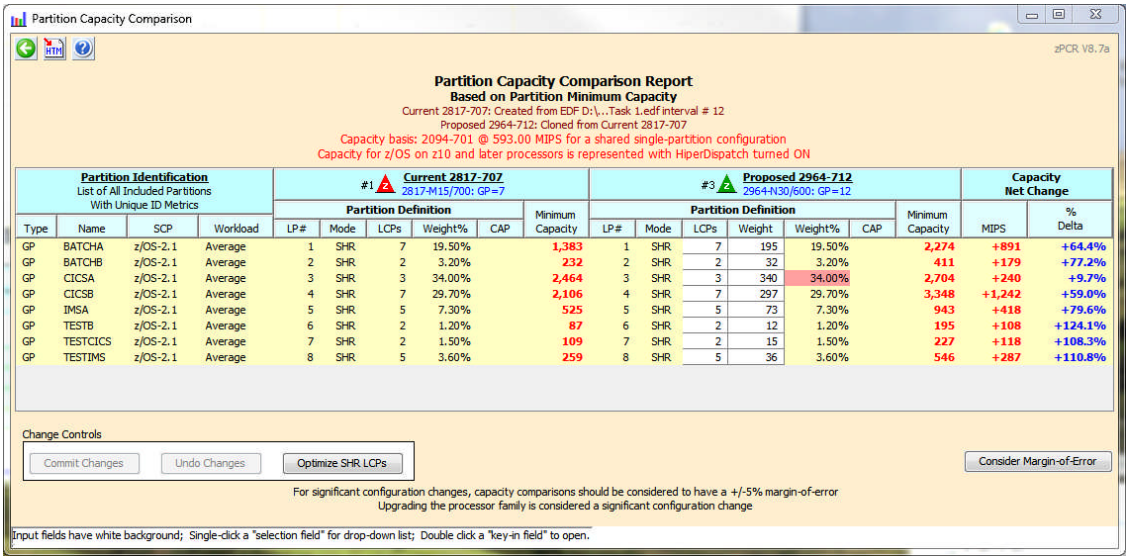


a) Note that one partition, **CICSA**, doesn't have a sufficient number of LCPs to satisfy the weight assigned. We will fix this later

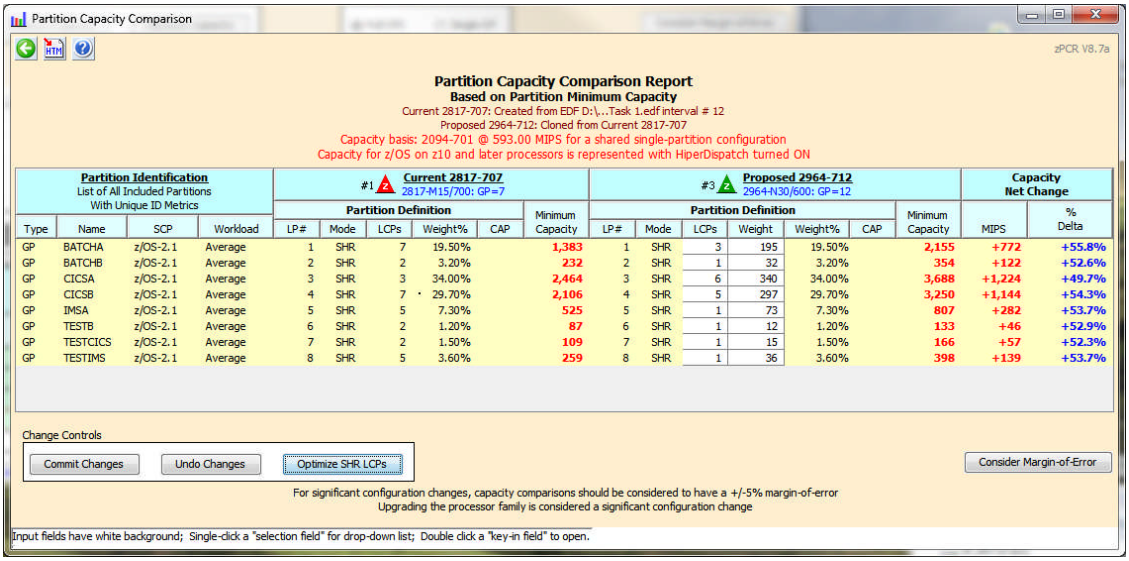
b) Note that Total capacity (**10,648** MIPS vs **9,671** requirement). Click **Return** 2 times (or click the **Double Return**) to get back to ***Advanced-Mode Control Panel*** window.

c) Select both the **2817-707** #1 and the **2964-612** #3 configurations and then click **Compare** icon on the ***Advanced-Mode Control Panel*** window.

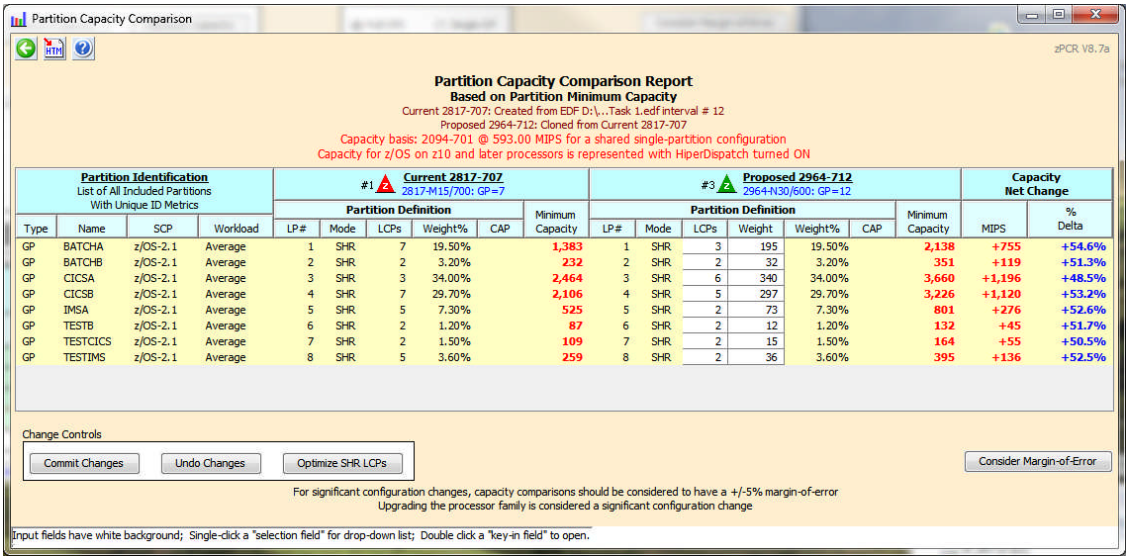
d) Click **Minimum Capacity**. Note that now all partitions are seeing more than the required 35% capacity increase over the old 2817-707 configuration except for **CICSA**.



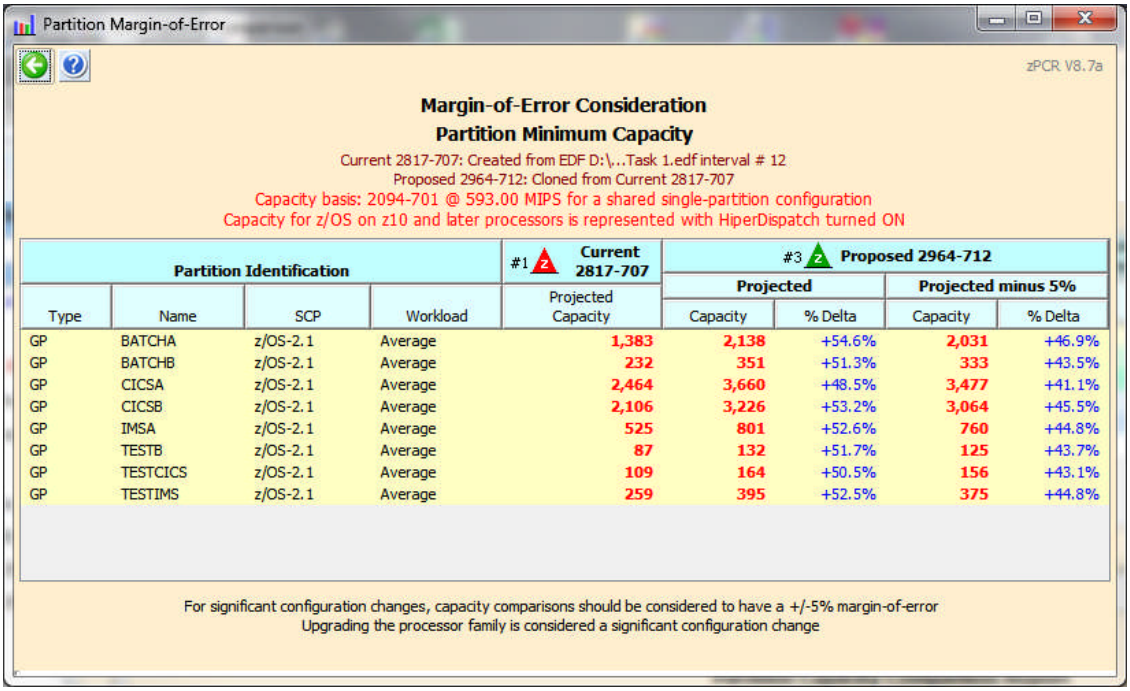
e) Click **Optimize SHR LCPs** for GPs in the ***Change Controls*** group box to see if you can improve the results by reducing (increasing) the number of LCPs assign to each partition to that required to accommodate its weight. Click **Optimize** with the **Moderate** option.



f) The **CICSA** partition has 49.7% more capacity and we have more than met our 35% objective for all partitions. We should also consider changing all of the partitions with only 1 LCP to have 2 LCPs for availability reasons as shown below. Increase the LCPs to 2 for partitions **BATCHB**, **IMSA**, **TESTB**, **TESTCICS**, and **TESTIMS**. (**CICSA** now has 48.5% more capacity).



g) Click on **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 >35% delta on the projected minus 5%. more capacity.



h) 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 **10,866 MIPS**, which is more than the **9,743 MIPS** objective.

i) Click two **Return** buttons to close the windows.

While we won't execute the following in this lab, there are some things to consider since this **z13 2964-612** has more capacity than is required. Perhaps a **z13 2964-611** could be an option, although getting 36% more capacity with a ±5% Margin-of-Error is unlikely. If the partitions have **zIIP/zAAP eligible workload content**, perhaps their GCP requirement / weight could be reduced making a 2964-611 an option closer to the GCP capacity requirement.

In addition, this sub-capacity model has "more & slower" engines than the **z196 2817-707** and the **z13 2964-707** option (which will be shown and briefly discussed at the end of the lab).

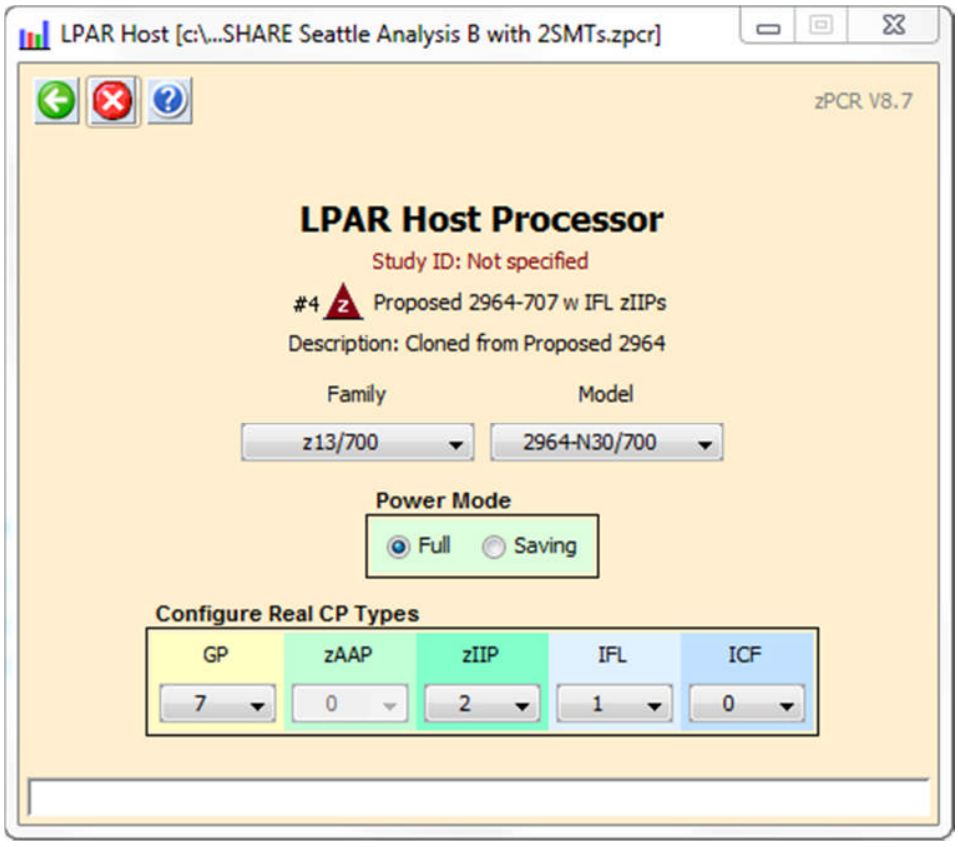
In summary there are many additional "real world" considerations when utilizing **zPCR** to analyze **z Systems** configuration alternatives to achieve desired capacity.

*** End of Additional Analysis A ***

B. Add an IFL to the z13 2964-707 Configuration for the Linux workload Add zIIPs to the z13 2964-707 Configuration for the CICSA workload

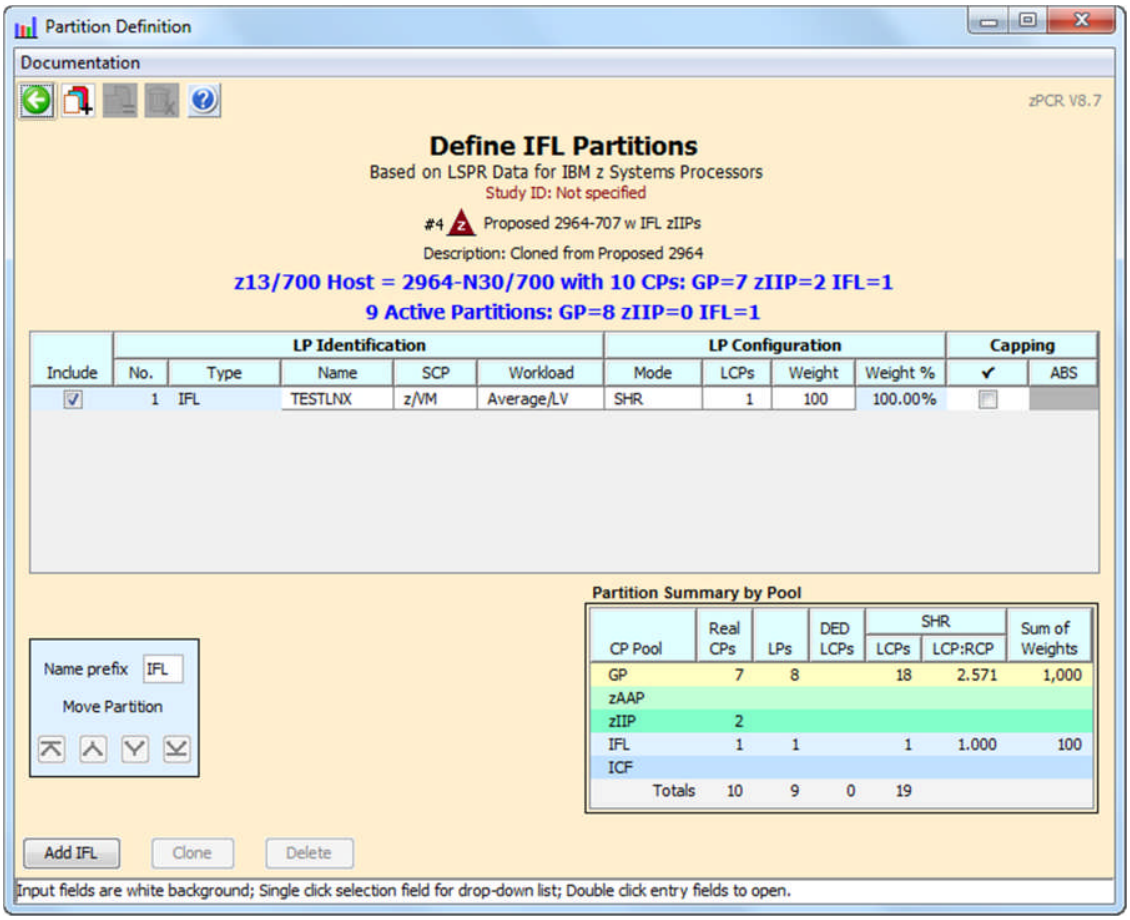
Analysis Steps

1. Single-click on the **Proposed 2964-707** icon #2 on the ***Advanced-Mode Control Panel*** window to select it.
2. Click the **Clone** toolbar button. A 4th LPAR configuration is created as an exact copy of the second. Its icon #4 , Rename it **Proposed 2964-707 with IFL**.
3. Double-click the **Proposed 2964-707 w IFL zIIPs** #4 icon to open the ***LPAR Host and Partition Configuration*** window for the **Proposed 2964-707 w IFL zIIPs** LPAR configuration.
4. Click **Specify Host**
   a) Add 1 IFL CP.
   b) Add 2 zIIP CPs.



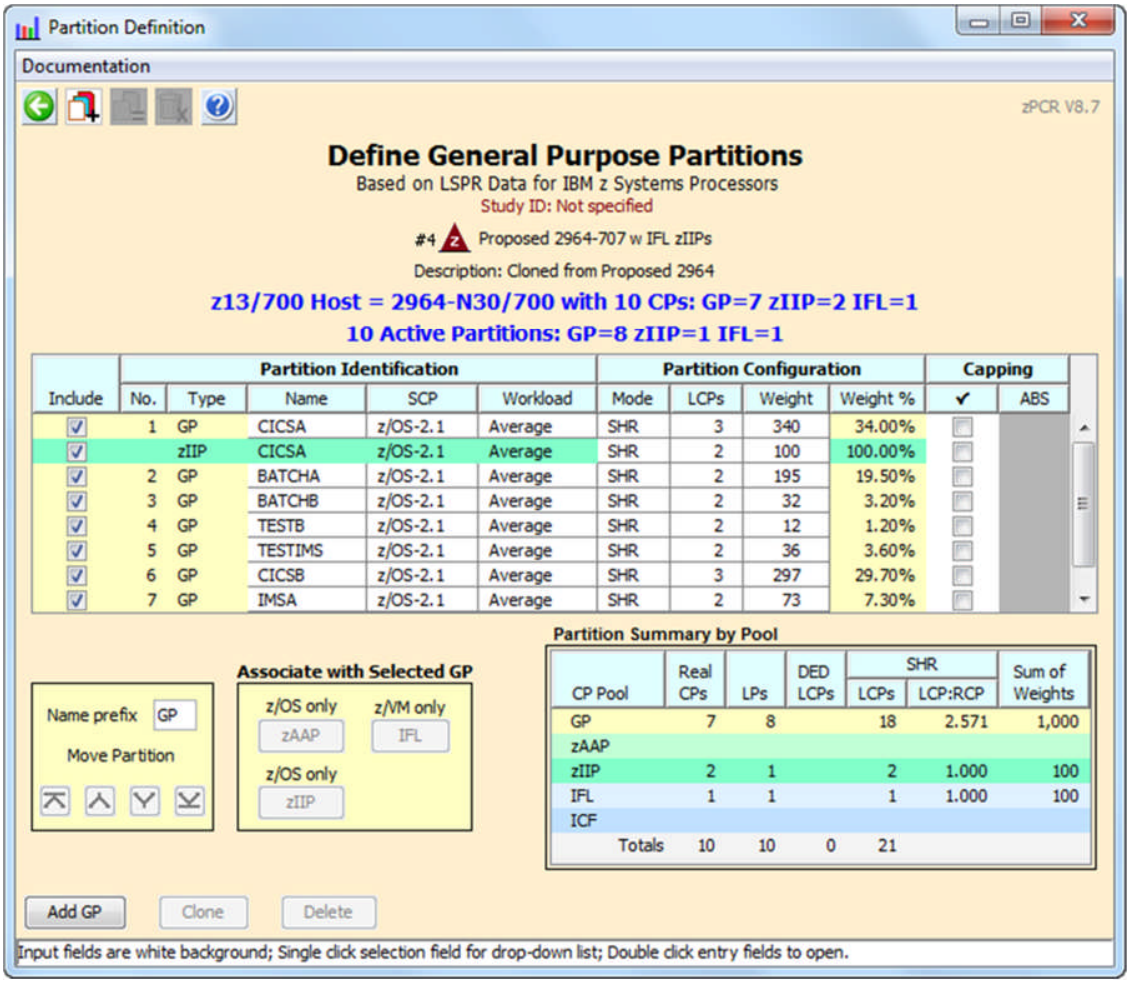
   c) Click **Return**.

5. From the ***LPAR Host and Partition Configuration*** window, click **IFL** in the ***Define Partitions*** group box.
6. From the ***LPAR Partition Definition*** window, edit the partition name (from IFL-01) by double-clicking the name field to open it and entering text to “TESTLNX", and hitting enter.



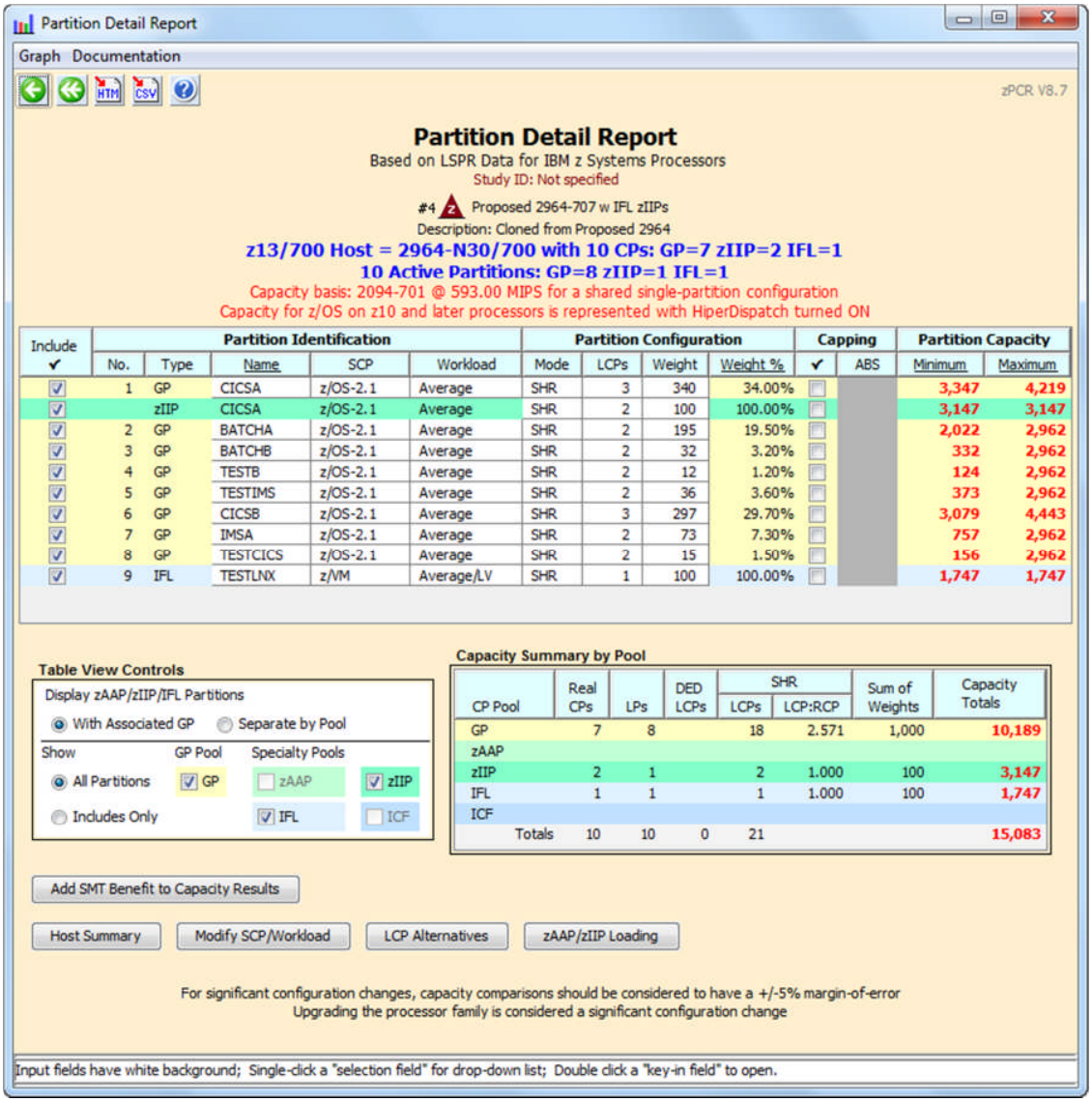
Click **Return**.

7. From the ***LPAR Host and Partition Configuration*** window, click **GP / zIIP** in the ***Define Partitions*** group box.
8. From the ***LPAR Partition Definition*** select the **CICSA** partition, then click on the z/OS only **zIIP** in the ***Associate with Selected GP*** group box. This will create the associated zIIP partition for **CICSA**. Assign 2 LCPS to the zIIP partition.



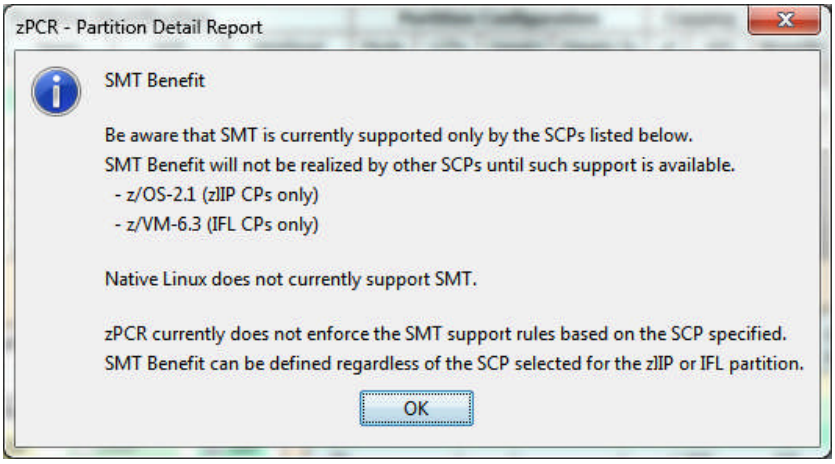
Click **Return**.

9. From the ***LPAR Host and Partition Configuration*** window, click **Partition Detail** in the **Capacity *Reports*** group box to open the **Partition *Detail Report*** window, revealing the updated capacity picture. The overall capacity increased to **15,083 MIPS**.

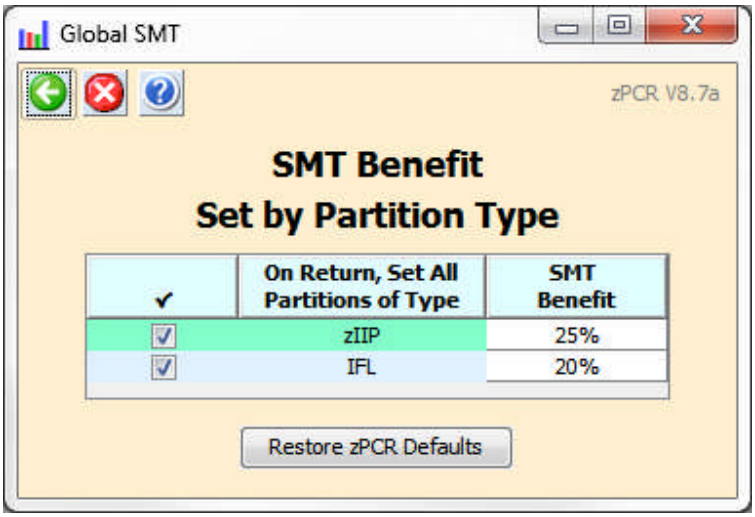


Click **Return**

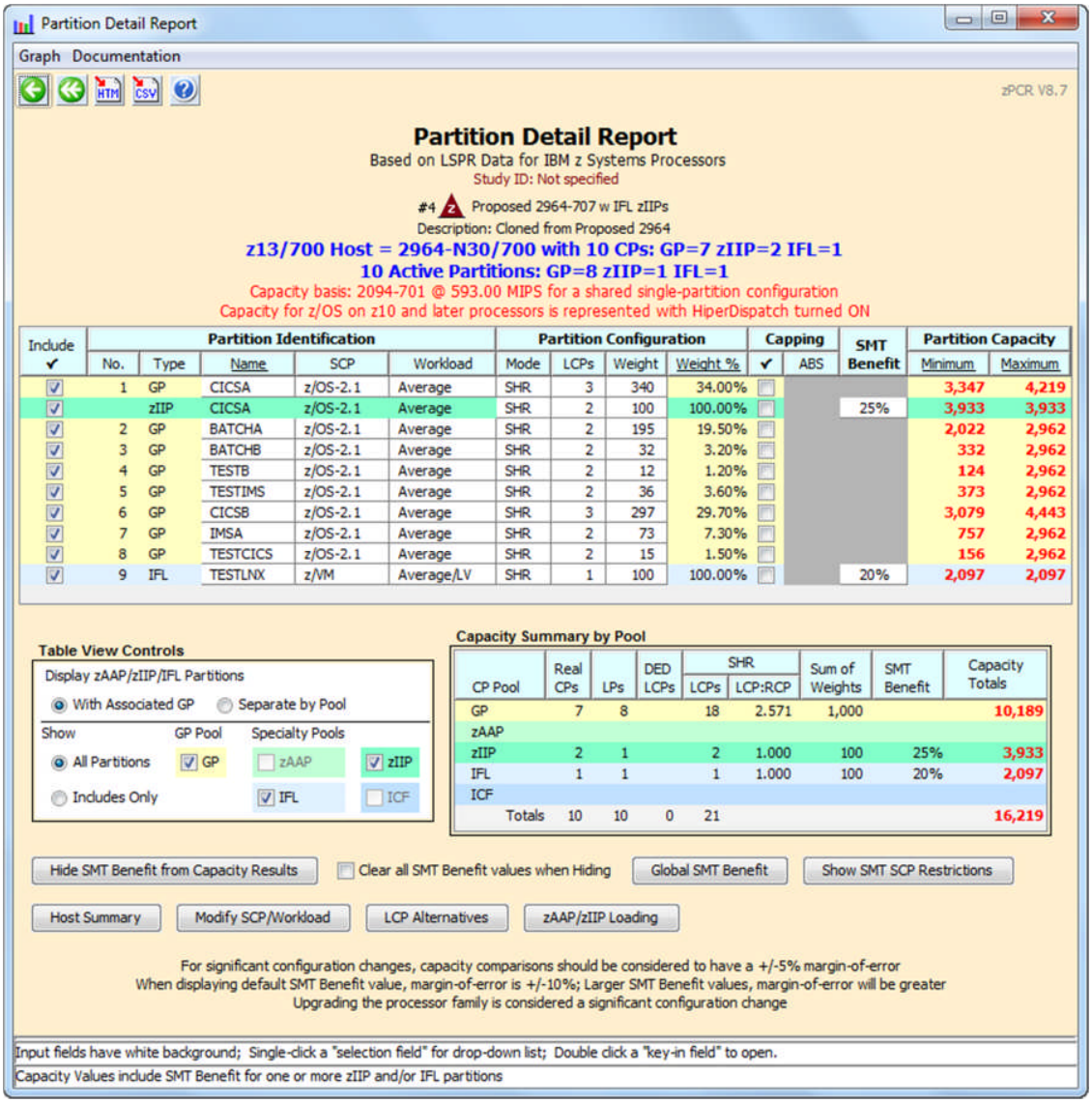
10. From the ***Partition Detail Report*** window, click the **Add SMT Benefit to Capacity Results** button to open the ***SMT Benefit*** dialog and the ***Global SMT*** window.



Click **OK**.



You'll note that the ***SMT Benefit*** is defaulted to **25% for zIIPs** and **20% for IFLs**. In this case since the customer has no experience with SMT we'll the defaults. They are also expecting to support Linux under z/VM in the near future. Click **OK** on the information dialog and click **Return** on the ***Global SMT*** window. This will apply an ***SMT Benefit*** to the ***Minimum*** and ***Maximum Capacity*** result for each zIIP and IFL partition.



Partition Detail Report

Graph Documentation

zPCR V8.7

Partition Detail Report

Based on LSPR Data for IBM z Systems Processors

Study ID: Not specified

#4 Proposed 2964-707 w IFL zIIPs

Description: Cloned from Proposed 2964

z13/700 Host = 2964-N30/700 with 10 CPs: GP=7 zIIP=2 IFL=1

10 Active Partitions: GP=8 zIIP=1 IFL=1

Capacity basis: 2094-701 @ 593.00 MIPS for a shared single-partition configuration

Capacity for z/OS on z10 and later processors is represented with HiperDispatch turned ON

Include	Partition Identification					Partition Configuration				Capping		SMT	Partition Capacity	
✔	No.	Type	Name	SCP	Workload	Mode	LCPs	Weight	Weight %	✔	ABS	Benefit	Minimum	Maximum
☑	1	GP	CICSA	z/OS-2.1	Average	SHR	3	340	34.00%	☐			3,347	4,219
☑		zIIP	CICSA	z/OS-2.1	Average	SHR	2	100	100.00%	☐		25%	3,933	3,933
☑	2	GP	BATCHA	z/OS-2.1	Average	SHR	2	195	19.50%	☐			2,022	2,962
☑	3	GP	BATCHB	z/OS-2.1	Average	SHR	2	32	3.20%	☐			332	2,962
☑	4	GP	TESTB	z/OS-2.1	Average	SHR	2	12	1.20%	☐			124	2,962
☑	5	GP	TESTIMS	z/OS-2.1	Average	SHR	2	36	3.60%	☐			373	2,962
☑	6	GP	CICSB	z/OS-2.1	Average	SHR	3	297	29.70%	☐			3,079	4,443
☑	7	GP	IMSA	z/OS-2.1	Average	SHR	2	73	7.30%	☐			757	2,962
☑	8	GP	TESTCICS	z/OS-2.1	Average	SHR	2	15	1.50%	☐			156	2,962
☑	9	IFL	TESTLNX	z/VM	Average/LV	SHR	1	100	100.00%	☐		20%	2,097	2,097

Table View Controls

Display zAAP/zIIP/IFL Partitions

With Associated GP | Separate by Pool

Show: All Partitions | Includes Only

GP Pool: ☑ GP

Specialty Pools: ☐ zAAP | ☑ zIIP | ☑ IFL | ☐ ICF

Capacity Summary by Pool

CP Pool	Real CPs	LPs	DED LCPs	SHR LCPs	SHR LCP:RCP	Sum of Weights	SMT Benefit	Capacity Totals
GP	7	8		18	2.571	1,000		10,189
zAAP								
zIIP	2	1		2	1.000	100	25%	3,933
IFL	1	1		1	1.000	100	20%	2,097
ICF								
Totals	10	10	0	21				16,219

Hide SMT Benefit from Capacity Results | ☐ Clear all SMT Benefit values when Hiding | Global SMT Benefit | Show SMT SCP Restrictions

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

When displaying default SMT Benefit value, margin-of-error is +/-10%; Larger SMT Benefit values, margin-of-error will be greater

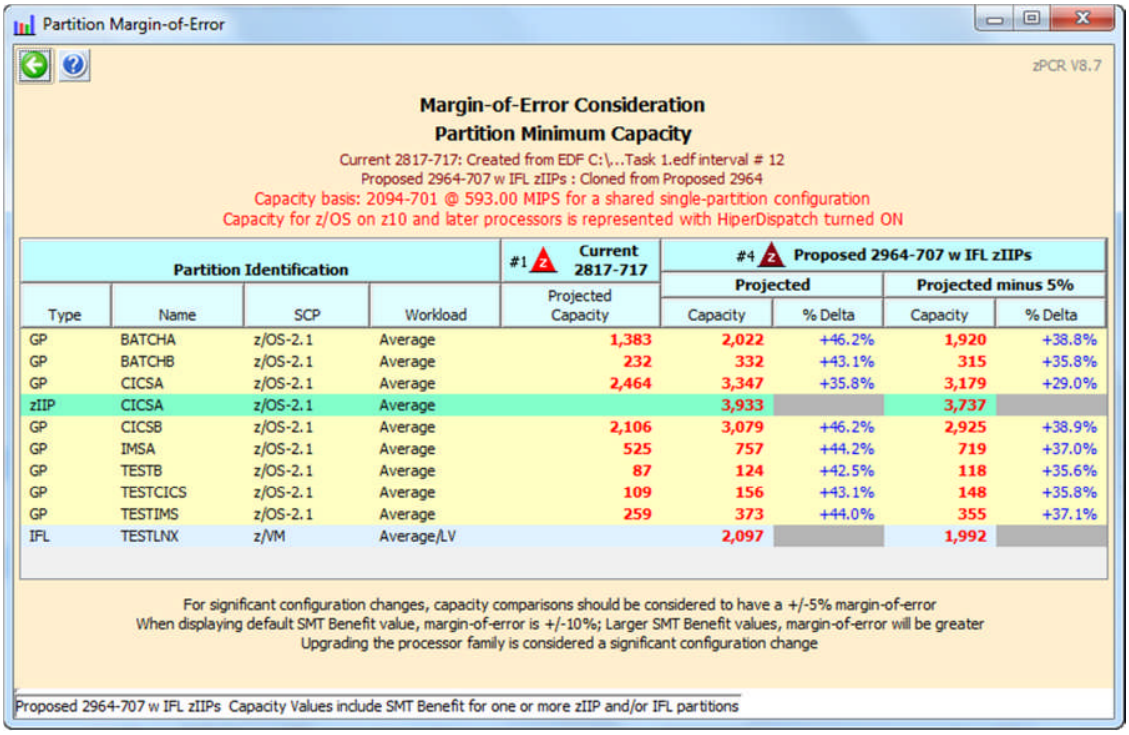
Upgrading the processor family is considered a significant configuration change

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

Capacity Values include SMT Benefit for one or more zIIP and/or IFL partitions

Note that with the ***SMT Benefit*** applied, the zIIP capacity has increase by 25%, from **3,147 MIPS** to **3,933 MIPS**. The IFL capacity has increased by 20% from **1,747 MIPS** to **2,097 MIPS**, and the total capacity has increased from **15,083 MIPS** to **16,219 MIPS**.

11. Close all windows. On the ***Advanced-Mode Control Panel*** window, select the two configurations #1 and #4 (hold the **Ctrl** key and click on both) and click the **Compare** tool bar icon. Click on **Minimum Capacity**, and then click **Consider Margin-of-Error** to see the ***Partition Margin-of-Error*** window.



Partition Margin-of-Error

zPCR V8.7

Margin-of-Error Consideration

Partition Minimum Capacity

Current 2817-717: Created from EDF C:\...Task 1.edf interval # 12
Proposed 2964-707 w IFL zIIPs : Cloned from Proposed 2964
Capacity basis: 2094-701 @ 593.00 MIPS for a shared single-partition configuration
Capacity for z/OS on z10 and later processors is represented with HiperDispatch turned ON

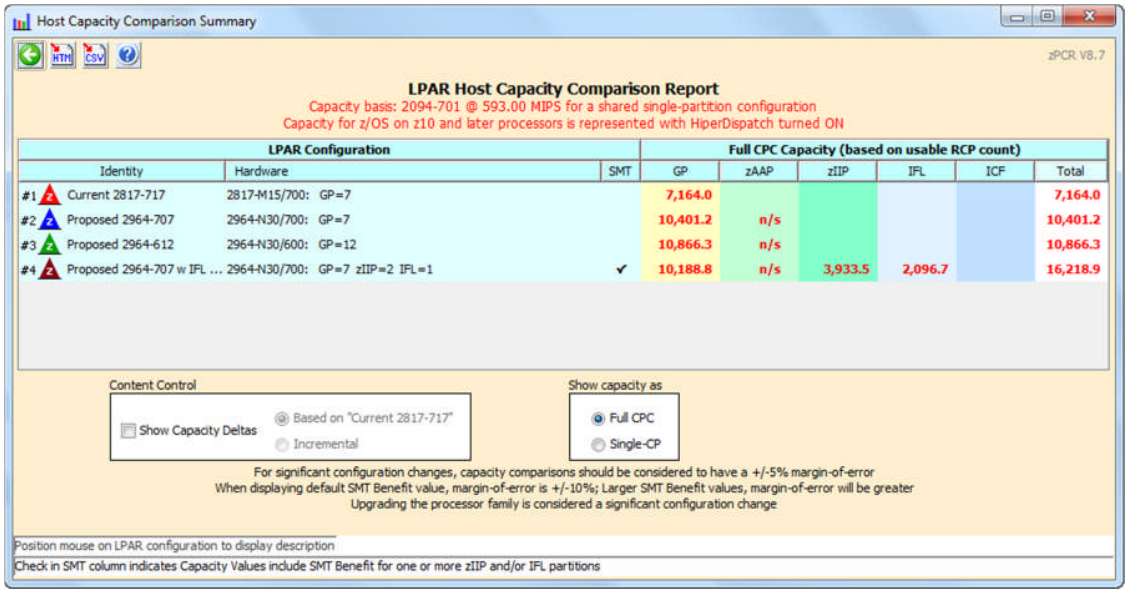
Partition Identification				#1 Current 2817-717	#4 Proposed 2964-707 w IFL zIIPs			
					Projected		Projected minus 5%	
Type	Name	SCP	Workload	Projected Capacity	Capacity	% Delta	Capacity	% Delta
GP	BATCHA	z/OS-2.1	Average	1,383	2,022	+46.2%	1,920	+38.8%
GP	BATCHB	z/OS-2.1	Average	232	332	+43.1%	315	+35.8%
GP	CICSA	z/OS-2.1	Average	2,464	3,347	+35.8%	3,179	+29.0%
zIIP	CICSA	z/OS-2.1	Average		3,933		3,737	
GP	CICSB	z/OS-2.1	Average	2,106	3,079	+46.2%	2,925	+38.9%
GP	IMSA	z/OS-2.1	Average	525	757	+44.2%	719	+37.0%
GP	TESTB	z/OS-2.1	Average	87	124	+42.5%	118	+35.6%
GP	TESTCICS	z/OS-2.1	Average	109	156	+43.1%	148	+35.8%
GP	TESTIMS	z/OS-2.1	Average	259	373	+44.0%	355	+37.1%
IFL	TESTLNX	z/VM	Average/LV		2,097		1,992	

For significant configuration changes, capacity comparisons should be considered to have a +/-5% margin-of-error
When displaying default SMT Benefit value, margin-of-error is +/-10%; Larger SMT Benefit values, margin-of-error will be greater
Upgrading the processor family is considered a significant configuration change

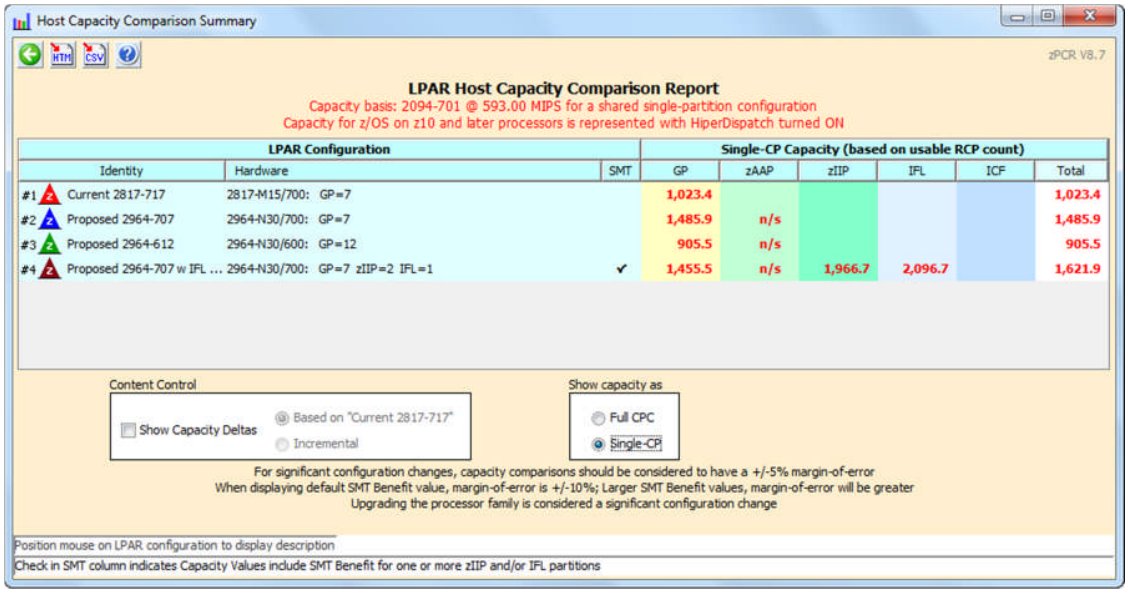
Proposed 2964-707 w IFL zIIPs Capacity Values include SMT Benefit for one or more zIIP and/or IFL partitions

Verify that all of our partitions will still meet our objective of > 36% with the addition of the zIIP and IFL partitions, (consider 35.6% and 36.8% as rounding up to 36%). The one exception is the **CICSA** partition, which is only reaching 29% capacity improvement. Since we expect this partition to start offloading work to the zIIP LCPs, 29% may be acceptable.

11. Close all windows. On the ***Advanced-Mode Control Panel*** window, select the two Close all windows. From the ***Advanced-Mode Control Panel*** window, click ***LPAR Host Capacity Summary Report*** tool bar icon. This window 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.



13. Change the view to the Single-CP. ***Single-CP*** capacity represents the average capacity of each CP (determined by dividing the full capacity by the number of CPs involved). ***Single-CP*** capacity can be useful for revealing relative engine speed when comparing LPAR configurations where the host processor family is changed.



One use of the ***Single-CP*** option is to compare the **z13 2964-612** alternative. In this case it has “more & slower” engines (12 engines with **905.5 MIPS** relative capacity per General Purpose CP) than the **z13 2964-707** option (**1,485.9 MIPS**) and the original **z196** (**1,023.4 MIPS**), but more total GCP capacity. This would be one consideration for a sub-capacity model, along with the type of work, number of partitions, dispatch points, CPU per Tran etc.

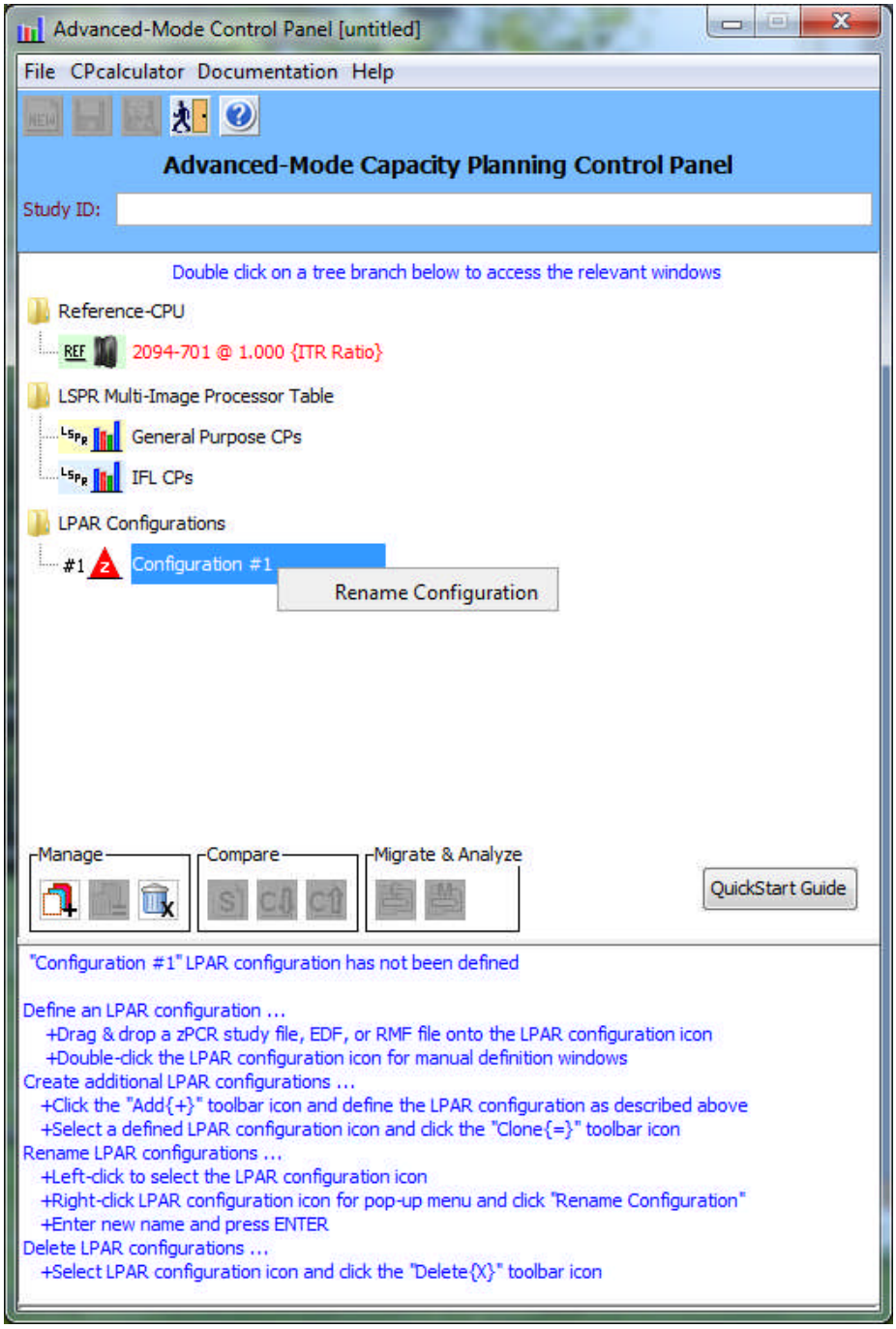
*** End of Additional Analysis B ***

*** End of zPCR Lab ***

Renaming an LPAR Configuration

Procedure

1. On the ***Advanced-Mode Control Panel*** window, sSingle-click the **LPAR Configuration** icon to select it.
2. Right click on **Rename Configuration** popup.



3. Key in the **LPAR Configuration** name that you wish to use and press **Enter**.