LPARDesign

USER'S GUIDE

Version V8-T02

Doc : LPARDesign-HD-zPCR-V8-T02_UserGuide.docx

Updated: July 19th 2016

Alain Maneville
Executive I/T Specialist, zChampion
Client Technical Specialist - IBM z Systems
IBM France

Table Of Content

1. PURPOSE OF THE DOCUMENT.

This document explains how to use the LPARDesign Tool.
This tool helps in configuring LPARs for all processor type (HiperDispatch eligible or not).
It provides the calculation of the number of HighShare, MediumShare and LowShare LPs when HiperDispatch is available on the studied machine.

2. DISCLAIMER OF WARRANTIES:

The following [enclosed] macro is sample code created by Alain Maneville - IBM France.
This sample macro is not part of any standard IBM product and is provided to you solely for the purpose of assisting you in the PR/SM LPAR Configuration
The code is provided "AS IS", without warranty of any kind. IBM shall not be liable for any damages arising out of your use of such sample code, even if you have been advised of the possibility of such damage
Support: Support will be provided on a "best effort" basis. Send the spreadsheet for an analysis to alain_maneville@fr.ibm.com

3. ACKNOWLEDGEMENTS:

I would like to thank the following people for their help and contribution to this worksheet

Thierry DELERIS – A customer from Informatique Banques Populaires:
He wrote the code of the DASHBOARD worksheet and did a great job for the zPCR link feature.

Robert VAUPEL - STSM, z/OS Workload and Performance Management.
He helped me understand the HiperDispatch Algorithms and LP spread in VH, VM and VL.
The new worksheet CONFIG-MSU comes from him.

Peter MAILAND - RMF Test and Development:
He gave useful EXCEL advices and help on maintaining compatibility between various EXCEL releases.

Horst SINRAM - z/OS Workload Management & System z Capacity Management:
He is a good "beta tester" and the guy that put the product on the WLM Web Site.

4. HOW TO GET THE PRODUCT:

The product is available on the WLM Web site at the URL:
http://www-03.ibm.com/systems/z/os/zos/features/wlm/WLM_Further_Info_Tools.html

Click on the LPAR Design Hyperlink

5. CHANGES IN THIS RELEASE.

5.1 What's new in V8T02?

5.1.1 Warning information on the configuration (GCP and zIIP) when the number of VL is >2.

The number of VL must be defined in an appropriate manner.
This TechDoc - TD106388 - from Kathy Walsh reviews the IBM Best Practice Recommendation for setting the number of Logical CPs in a z/OS LPAR.
To be compliant with this Best Practice the number of VLs should not excess 2 in most cases.
This information is provided in the Check#LP column for the GCPs and in the last column (error column) for the zIIPs.
A new "rule" has been implemented in the EXPERT spreadsheet (for GCPs and zIIPs) to warn you about an excessive number of VLs.
.

5.1.2 Support of zPCR V9.0

zPCR upload / download is available for the V9.0 version.

5.2 What's new in V8T01?

5.2.1 Support of machine type 2965 – "z13s".

You can now configure this machine.

5.2.2 Support of zPCR version 8.8a.

zPCR upload / download is available for GCP and zIIP, including the z13s.

5.2.3 Support of a Special Configuration in the zIIP definition.

This was only available for GCP definition.
There are cases with large zIIP configurations where this is useful.

5.2.4 EXPERT notes for zIIPs.

This was only available for GCP definition.
It is now available in for the zIIP definitions.

5.2.5 Information about the Special Configuration setting on the title of the spreadsheets

The title line of the spreadsheet has been enhanced with adding if Special Configuration was selected or not for the study. It is referenced as SpecCFG=

5.2.6 Removal of the "MIPS" column.

The MIPS calculation in the spreadsheet was misleading because it was just the product of the %SHARE x MIPS_of_the_machine.
This column is currently renamed as RESERVED.
In a future version, we plan to import this Mips values from a zPCR study.

5.2.7 Removal of the SUMMARY OF CHANGES paragraph.

Only the last 2 versions are kept. This will decrease the size of this guide.
So the V8 and V7 changes are included now.

5.3 What's new in V7T03?

5.3.1 Selecting workload type for zPCR.

The usage of a field in the CONFIG spreadsheet has been modified to be used as the place where you can select your workload type.
See the Link to zPCR part for more information.

5.3.2 Added information in the FAQs section related to security problems.

This explains how you can get rid of the security message when opening the spreadsheet for the first time.
See the FAQs for more information.

5.4 What's new in V7T02?

5.4.1 Specifying an LPAR that is only ACTIVATED and not IPLed.

If you are in a situation where you want to activate an LPAR without IPLing it you can do it by **specifying zero in the number of LP.**
This will influence the HiperDispatch spread of LP in VH, VM and VL, because the WEIGHT of this LPAR will be used in the PR/SM total weight calculation for the share of each LPAR.
This could be the case if you want to have what I would call a "white space LPAR".

So, a new rule (#7) has been set in the EXPERT spreadsheet to alert about this behaviour:

```
(R7) - The number of specified LP is zero
However, this LPAR will influence the total WEIGHT and thus the HiperDispatch spread in VH, VM and VL for the others
```

For the zPCR interface please read the important note specified in "Specifying an LPAR with unsufficient number of LPs to sustain the share" in the zPCR feature usage.

5.4.2 Calculation of the entitlement when all VL are UnParked – EXPERT Sheet

When an LPAR has VL, the EXPERT sheet displays the entitlement of the VM and all UnParked VL.
A Note will be added in the text of the LPAR recommandation if appropriate as shown below

```
(R6) - You have a potentiel entitlement of 3-VH
But as you have 3-VL, one VH is moved to the VM pool to fuel future Unparked VL, and you will have 2-VH and 1-VM@100%"
[+] NOTE - You have 1VM and 3VL
When ALL Vls will be UnParked, each VM and VL will have an entitlement of 25%
```

5.4.3 No more formulas in the %SHARE(by pool), and Share%/LP column.

To avoid erasures, these values are now calculated inside the code.

5.4.4 Removal of the "NON-HD Share%/LP" column.

This column is now useless as all current machines are HiperDispatch enabled.
It has been tomporary replaced by a column named "***reserved***".

5.4.5 Support of zPCR 8.7h

zPCR 8.7h is now supported. It enables the capability of setting z/OS V2R2.

5.5 What's new in V7T01?

5.5.1 Support of special configuration.

There are cases where the configuration validation process in the spreadsheet is too restrictive compared to what PR/SM allows:

- For example, some configurations have defined less LPs than the minimum required. This can be seen in the Ksys LPARs of some GPDS configurations or if the customer wants to define "White Space" LPARs.

The bottom line is that LPARDesign should accept these configurations as PR/SM does!

A new knob has been added to specify if you allow or not this special configuration:

A precise explanation on how to use this new feature is done in the "START" and "CONFIG" sheets specific usage.

5.5.2 Support of zPCR 8.7g.

z/OS V2R2 can be set in the zPCR Export procedure.

5.5.3 Import or Export of the study identification.

The Study ID (or customer name) is now exported into the target zPCR file or imported from the source zPCR file and set as appropriate.

6. A BRIEF VIEW OF THE SPREADSHEET.

The spreadsheet is composed of 9 worksheets:

6.1 The START worksheet:

This worksheet is opened automatically when you start the workbook.
You must use it to specify the toleration percentage.
Then you can specify a "Study ID" that will be used in the spreadsheet or in the zPCR deck.
Starting with V7-T01, you can now specific if you accept special configurations

Others functions provided are:

- Create a copy (so you can always have a basic version of the tool)
- Save as (to save you work)
- Go To LPAR definition – brings you to the CP LPAR definition.
- Print the worksheet.
- Help (display the HELP worksheet – basic information only).

6.2 The CONFIG worksheet:

This worksheet helps you defining:

- The CPC
- The LPARs characteristics (as you would do on the HMC)
- Validation of the LPAR configuration
- Calculation of the HiperDispatch processor in HighShare, MediumShare and LowShare LPs.

Others functions provided are:

- Print the worksheet.
- Go To ZXXP (zAAP and zIIP definition and calculation).
- Go To EXPERT – for advices on how to potentially optimize you current configuration
- Delete LPAR(s)
- Create a ***.zPCR*** study file or update an LPARDesign spreadsheet with an existing ***.zPCR*** study file.

6.3 The CONFIG-MSU worksheet:

This worksheet helps you defining:

- The DEFINED CAPACITY values for a single LPAR.
- A GROUP CAPACITY value for a set of LPARs.

The calculations and information provided are explained in the spreadsheet usage section specific to this spreadsheet.

6.4 The CONFIG-ZXXP worksheet:

This worksheet helps you defining:

- The LPARs characteristics of the zXXP (as you would do on the HMC).

Others functions provided are:

- Print the worksheet.
- Go To EXPERT – for advices on how to potentially optimize you current configuration.

6.5 The EXPERT worksheet:

This worksheet might help you optimizing you current configuration.

Others functions provided are:

- Print the worksheet.
- Go back to the CONFIG Worksheet to evaluate the advices.

6.6 The SYNTHESIS worksheet:

This worksheet shows the HiperDispatch effects for the GCP, zAAP and zIIP.

Others functions provided are:

- Print the worksheet.

6.7 The DASHBOARD worksheet

This worksheet provides a view of the processor layout.
Starting with the z13 machine, the zAAP configuration will not be displayed as there is no more zAAP support in this machine.

6.8 The HELP worksheet:

This worksheet provides a basic help to use the tool.

Others functions provided are:

- Print the worksheet.

6.9 The SINET worksheet:

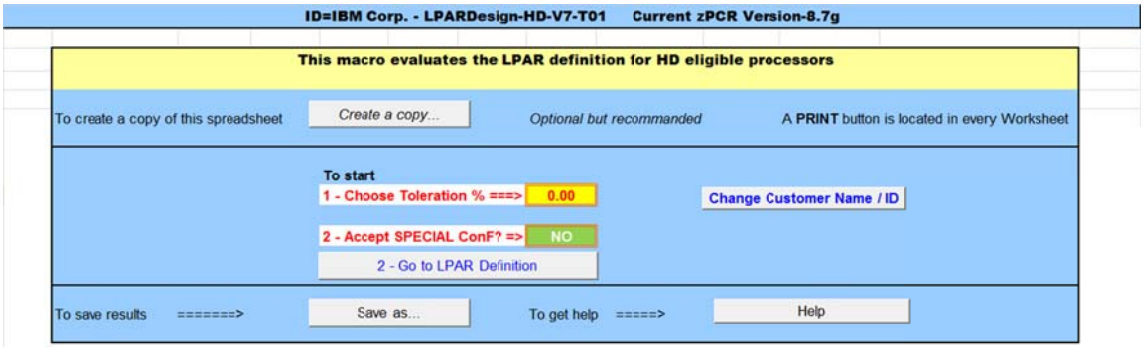
This worksheet is for internal use only.

7. SPREADSHEET USAGE.

ONLY THE CELLS IN YELLOW SHOULD BE FILLED.

When you open the workbook, you are automatically directed to the START spreadsheet.

7.1 START SPREADSHEET Usage.



You can now set an identification of you study that will be set in the ID= field of the various titles. You can change it using the Change Customer Name / ID button.
The LPARDesign version and the current zPCR version are displayed in the first row of the sheet.

7.1.1 Toleration %:

1 - Choose Toleration % ===> 0.00

You just need to choose the Toleration percentage (if needed) in the list.
This toleration% could be set to get rid of the following situation:

Suppose that the number of guaranteed physical processors is 9.03 and you have defined 9 LPs for the LPAR.
The strict application of the rule would lead to require 10 LPs in the LPAR. The "toleration percentage" allows now to specify until what percentage you consider that one should keep the number of LPs defined for the LPAR and NOT apply the strict rule.
The values are in the 0.00 to 0.10 range.
A value of 0.00 means that you want to apply the strict rule.

7.1.2 Accept SPECIAL ConF? YES or NO

2 - Accept SPECIAL ConF? => NO

This feature is new with V7-T01.
PR/SM accepts configurations where the number of HMC defined LPs is not consistent with the number of LPs needed to sustain the share of the LPAR.
This might happen in some Ksys GDPS LPAR configuration or if the customer defines "White Space" LPARs.

To inform the process that you will accept special configurations, just say YES in the proposed choices.
The effects of saying "YES" will be explained in the CONFIG sheet usage.
To run with the regular process, say "NO".

It is recommended to always have a fresh copy of the initial spreadsheet – so the Create a copy button is useful for that.

7.2 CONFIG SPREADSHEET Usage.

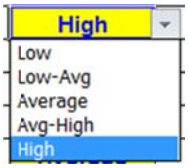
7.2.1 Define the CPC and the basic LPAR configuration.

As of V7-T02 and with V7-T03 the column "NON-HD Share/LP" has been changed by a new column named **Wkld LSPR** that will contain your zPCR workload characterization (Export) or will receive your zPCR study workload characterization (Import).
Here is the new layout of this part of the CONFIG spreadsheet.

				ψMachine	Shared-Pool	
CFG-LP-VALID?	YES		#PhyProc	37	37	1 - CONFIG. VALIDATION
Machine-type	2964-737		#LPs (non-ICF, non-DED)	69		
MSU	4 553		Ratio LP/PP (base)	1.86		PRINT
Total Weight	3 658		LSPR-AVG-V1R13-MI	38 840		
Max LPAR	85					

LPARNAME	WEIGHT	#LP	%SHARE(by pool)	"MIPS"	Guaranteed#PP	Wkld LSPR	MinReq#LP	Check#LP
IF02	23	2	0.6%	244	0.23	High	1	OK
LP01	265	3	7.2%	2 806	2.67	High	3	OK
LP02	322	4	8.8%	3 410	3.25	High	4	OK
TP01	507	6	13.8%	5 369	5.11	High	6	OK
ID01	33	2	0.9%	349	0.33	High	1	OK
ID02	34	2	0.9%	360	0.34	High	1	OK

Note : The **Wkld LSPR** column is filled with the "Validation" feature so you can onlu choose a valid workload type:



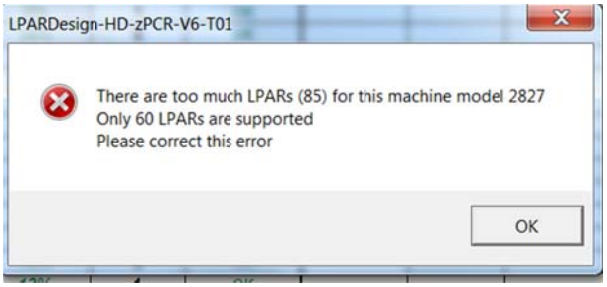
Choose the CPC in the Machine type list; configure the LPARs with their name, Weight (weight value or **DED** for dedicated LPs) and number of LPs as you would do in the HMC definition.

7.2.2 Validating the configuration – with 2 - Accept SPECIAL ConF? => NO :

This is the regular way of validating the configuration.

Then click on the 1 - CONFIG. VALIDATION button.
This will check that the parameters are correctly set.
If errors occur, an error box is displayed; the Check/LP column is filled with the specific error.
The CFG-LP-VALID? NO is set to NO
You then have to correct the errors; rerun the validation until you have CFG-LP-VALID? YES displayed.
Note: starting with the z13 machine, a new cell Max LPAR 85 is displayed. So now, we have 3 possible values: 30, 60 or 85 Lpars.

So a new check has been added to verify that the number of defined LPARs is in the rule of the machine. If not, the following error text box will be displayed:



7.2.3 Validating the configuration – with: 2 - Accept SPECIAL ConF? => YES

In this case, you will accept configurations where the number of HMC defined LPs is not consistent with the number of LPs needed to sustain the share of the LPAR.
The process of validating this king of configuration has been added and is as follow:

- If the number of defined LPs is less than the number of LPs required to sustain the share of the LPAR, a message will be displayed, BUT, the configuration will be accepted.
- Let's take this example with a focus on the S024 LPAR:

CFG-LP-VALID?	YES
Machine-type	2964-725
MSU	3 313
Total Weight	2 415
Max LPAR	85

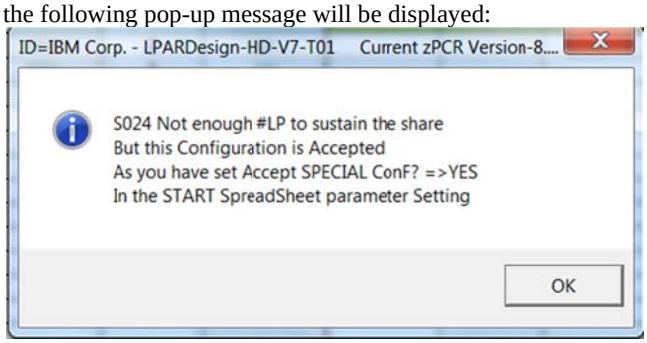
	ψMachine	Shared-Pool
#PhyProc	25	23
#LPs (non-ICF, non-DED)	29	
Ratio LP/PP (base)	1.26	
LSPR-AVG-V1R13-MI	28 130	

1 - CONFIG. VALIDATION

PRINT

LPARNAME	WEIGHT	#LP	%SHARE(by pool)	"MIPS"	Guaranteed#PP	NON-HD Share%/LP	MinReq#LP	Check#LP
W013	142	2	5.9%	1 522	1.35	68%	2	OK
W014	242	3	10.0%	2 593	2.30	77%	3	OK
Z015	196	3	8.1%	2 100	1.87	62%	2	OK
W017	302	4	12.5%	3 236	2.88	72%	3	OK
W018	60	2	2.5%	643	0.57	29%	1	OK
S019	300	3	12.4%	3 215	2.86	95%	3	OK
W020	300	5	12.4%	3 215	2.86	57%	3	OK
W021	58	2	2.4%	622	0.55	28%	1	OK
W022	DED	2	8.0%	2 250	2.00	100%	2	OK
S024	500	1	20.7%	5 358	1.00	100%	5	OK(a)
S025	315	4	13.0%	3 376	3.00	75%	3	OK

One can see that LPAR S024 has a Weight à 500 which gives a %Share of 20.7% of the Shared Pool and thus needs a Minimum Required #LP of 5.
But only 1 LP is defined and this is done on purpose.
During the process, the following pop-up message will be displayed:



The LPAR definition will be accepted and the Guaranteed#PP (a key value for HiperDispatch computing) will be replaced by the number of LPs from the #LP column.
To reflect this "acceptation" the font of the Guaranteed#PP column is set to bold and bleu and the Check#LP column will receive the value **OK(a).**

After the validation, the regular HiperDispatch process can carry on but it will use the "replaced" value in Guaranteed#PP.

7.2.4 Explanation of some columns.

%SHARE(by pool) - gives the %SHARE of the LPAR (by pool of LP, shared / DEDicated)

Guaranteed#PP - This is %SHARE x #of Physical processors (shared pool) – a fundamental metric for HiperDispatch calculation.

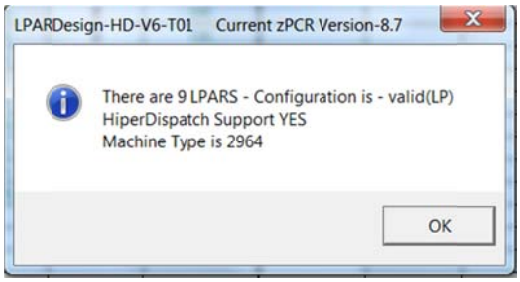
Note : with 2 - Accept SPECIAL ConF? => YES this value is not calculated but replaced by the number of defined LPs.

MinReq#LP - This gives the minimum number of LP to sustain the %SHARE. This value is calculated according to the ***toleration percentage*** you have set in the START worksheet.
If the toleration percentage is in effect for this LPAR (meaning that the number of requited LP is higher than the number of defined LPs but we "tolerate" this, the Check#LP column will show *OK*.
In the other cases, just OK is displayed.

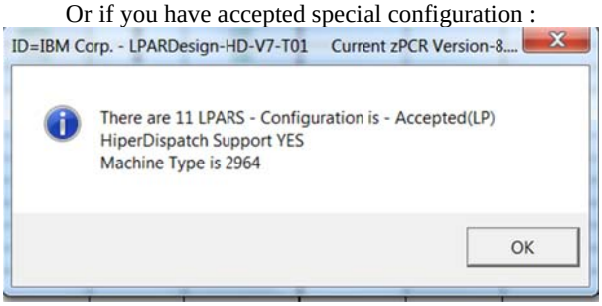
Note : with 2 - Accept SPECIAL ConF? => YES and if there are less defined LPs than required, this column will have the value : Check#LP / OK(a)

Important Note: After any changes in the configuration, you must run the 1 - CONFIG. VALIDATION again!

When you have hit the Config Validation button and the configuration is correct, you will receive this message box:



Or if you have accepted special configuration :



Starting with the z13 machine, all the message boxes have been enhanced to display the current supported zPCR Version.

The machine type is displayed too.

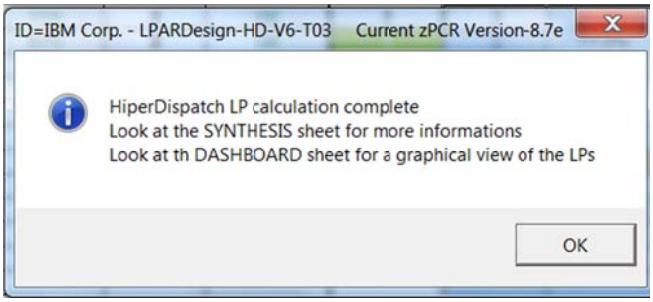
Computing the HiperDispatch number of LPs.

Just push the 2 - HIPERDISPATCH button and the following fields will be filled if the machine is HiperDispatch eligible.

HD-HIGH#	HD-MED#	HD-MED%	HD-LOW#	#Active LPs	#Report LPs

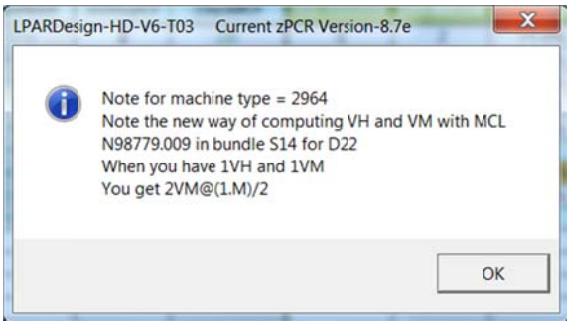
HD-HIGH#: #of HighShare LPs
HD-MED#: #of MediumShare LPs
HD-MED%: Entitlement of the MediumShare LPs
HD-LOW#: #of LowShare LPs
#Active LPs: This is the number of real life active LPs taking into account that WLM will always "unpark" a LowShare LP in a 2 LP configuration with a MediumShare LP and a LowShare LP. This number can be compared to the number of LP you initially set for the LPAR to evaluate the HiperDispatch effect.
#Report LP: The sum of HD-HIGH and HD-MED according to the basic HiperDispatch LP spread calculation. This number is the one reported by RMF, but remember that on a 2 LP configuration the second LP is always UnParked.

When the calculation is completed you will received this pop up box:

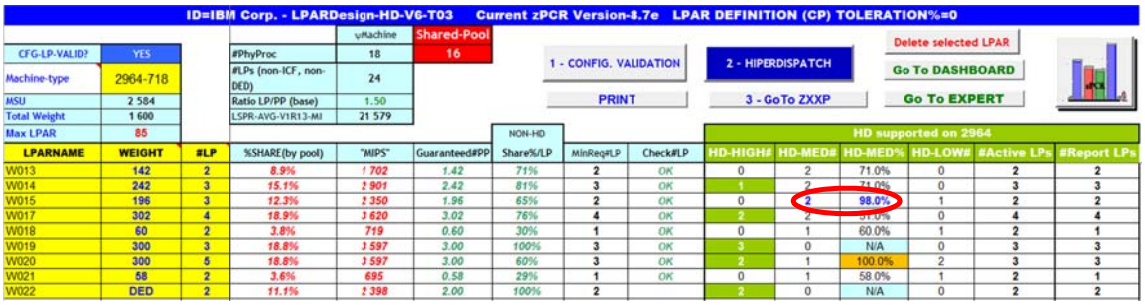


Otherwise, error messages will be sent.

Starting with machine type = 2964, a new way of calculating the spread of LPs has been provided for an LPAR which has 1VH and 1VM@x%.
Now whatever the x% is, you will get 2VH@[(1+x)/2]%.
There will be a temporary message box stating that inform you of this change:



The colors of the LP entitlement have been set to show LPARs that have been targets of this change too:



ID=IBM Corp. - LPARDesign-HD-V6-T03 Current zPCR Version-8.7e LPAR DEFINITION (CP) TOLERATION%=0

CFG-LP-VALID?	YES
Machine-type	2964-718
MSU	2 584
Total Weight	1 600
Max LPAR	85

	vMachine	Shared-Pool
#PhyProc	18	16
#LPs (non-ICF, non-DED)	24	
Ratio LP/PP (base)	1.50	
LSPR-AVG-V1R13-MI	21 579	

1 - CONFIG. VALIDATION | 2 - HIPERDISPATCH | Delete selected LPAR | Go To DASHBOARD | PRINT | 3 - GoTo ZXXP | Go To EXPERT

LPARNAME	WEIGHT	#LP	%SHARE(by pool)	"MIPS"	Guaranteed#PP	NON-HD Share%/LP	MinReq#LP	Check#LP	HD supported on 2964 HD-HIGH#	HD-MED#	HD-MED%	HD-LOW#	#Active LPs	#Report LPs
W013	142	2	8.9%	702	1.42	71%	2	OK	0	2	71.0%	0	2	2
W014	242	3	15.1%	901	2.42	81%	3	OK	1	2	71.0%	0	3	3
W015	196	3	12.3%	350	1.96	65%	2	OK	0	2	98.0%	1	2	2
W017	302	4	18.9%	620	3.02	76%	4	OK	2	2	51.0%	0	4	4
W018	60	2	3.8%	719	0.60	30%	1	OK	0	1	60.0%	1	2	1
W019	300	3	18.8%	597	3.00	100%	3	OK	3	0	N/A	0	3	3
W020	300	5	18.8%	597	3.00	60%	3	OK	2	1	100.0%	2	3	3
W021	58	2	3.6%	695	0.58	29%	1	OK	0	1	58.0%	1	2	1
W022	DED	2	11.1%	398	2.00	100%	2		2	0	N/A	0	2	2

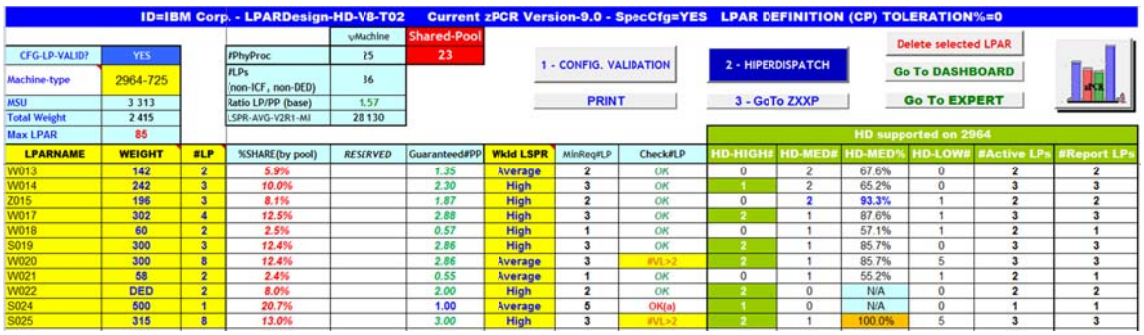
The colors of the LP entitlement have been set to highlight HighShare LPs or MediumShare LPs that have an entitlement of 100% as shown in the below picture:

CFG-LP-VALID?	YES
Machine-type	2964-718
MSU	2 584
Total Weight	1 600
Max LPAR	85

LPARNAME	WEIGHT	#LP	HD supported on 2964 HD-HIGH#	HD-MED#	HD-MED%	HD-LOW#	#Active LPs	#Report LPs
W013	142	2	0	2	71.0%	0	2	2
W014	242	3	1	2	71.0%	0	3	3
W015	196	3	1	1	96.0%	1	2	2
W017	302	4	2	2	51.0%	0	4	4
W018	60	2	0	1	60.0%	1	2	1
W019	300	3	3	0	N/A	0	3	3
W020	300	5	2	1	100.0%	2	3	3
W021	58	2	0	1	58.0%	1	2	1
W022	DED	2	2	0	N/A	0	2	2

LPAR W020 has 2 VH LPs and 1 VM@100% - so you can see the way the cells are colored.

Starting with V8-T02 a warning message will be displayed in the Check#LP column if the number of VL is > 2 as shown in this example:



ID=IBM Corp. - LPARDesign-HD-V8-T02 Current zPCR Version-9.0 - SpecCfg=YES LPAR DEFINITION (CP) TOLERATION%=0

CFG-LP-VALID?	YES
Machine-type	2964-725
MSU	3 313
Total Weight	2 415
Max LPAR	85

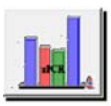
	vMachine	Shared-Pool
#PhyProc	25	23
#LPs (non-ICF, non-DED)	36	
Ratio LP/PP (base)	1.57	
LSPR-AVG-V2R1-MI	28 130	

1 - CONFIG. VALIDATION | 2 - HIPERDISPATCH | Delete selected LPAR | Go To DASHBOARD | PRINT | 3 - GoTo ZXXP | Go To EXPERT

LPARNAME	WEIGHT	#LP	%SHARE(by pool)	RESERVED	Guaranteed#PP	Wkld LSPR	MinReq#LP	Check#LP	HD supported on 2964 HD-HIGH#	HD-MED#	HD-MED%	HD-LOW#	#Active LPs	#Report LPs
W013	142	2	5.9%		1.35	Average	2	OK	0	2	67.6%	0	2	2
W014	242	3	10.0%		2.30	High	3	OK	1	2	65.2%	0	3	3
Z015	196	3	8.1%		1.87	High	2	OK	0	2	93.3%	1	2	2
W017	302	4	12.5%		2.88	High	3	OK	2	1	87.6%	1	3	3
W018	60	2	2.5%		0.57	High	1	OK	0	1	57.1%	1	2	1
S019	300	3	12.4%		2.86	High	3	OK	2	1	85.7%	0	3	3
W020	300	8	12.4%		2.86	Average	3	#VL>2	2	1	85.7%	5	3	3
W021	58	2	2.4%		0.55	Average	1	OK	0	1	55.2%	1	2	1
W022	DED	2	8.0%		2.00	High	2	OK	2	0	N/A	0	2	2
S024	500	1	20.7%		1.00	Average	5	OK(a)	1	0	N/A	0	1	1
S025	315	8	13.0%		3.00	High	3	#VL>2	2	1	100.0%	5	3	3

LPARs W020 and S025 have this warning

7.2.5 Linking to zPCR.

When the button  is pressed, this will create a .zpcr study file from the LPARDesign spreadsheet or to update the current LPARDesign spreadsheet with an existing .zpcr study file. **See the chapter LINK with zPCR** for more informations.

7.2.6 Deleting LPARs.

A button Delete selected LPAR is provided to properly delete selected LPAR. This was a long term requirement and it was not allowed to delete an LPAR with juts deleting the EXCEL row containing this LPAR : after manual deletion, the number of row was less than expected and this was producing errors in the spreadsheet. You were able to erase the cell containg the LPAR name, but if it was not the last one, you had to do some cut/paste operation for your LPAR to stay without "holes" between them.

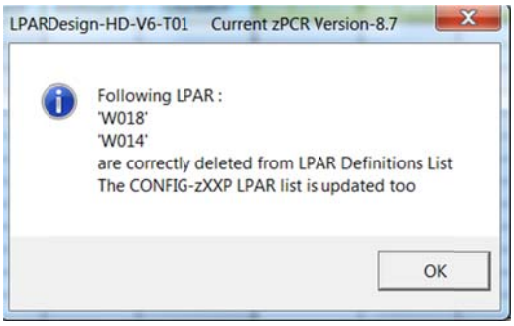
To delete LPAR(s):

- Select the LPAR(s) you want to delete
- If you want to delete more than one LPAR , select the first one, keep the CTRL key pressed, then select the other LPARs.

In this scenario, LPARs W014 and W018 are selected:

LPARNAME	WEIGHT	#LP
W013	142	2
W014	242	3
W015	196	3
W017	302	4
W018	60	2
W019	300	3
W020	300	5
W021	58	2
W022	DED	2

Then press the Delete selected LPAR button and you will get the following message box:



Note that the deletion has been done in the CONFIG-zXXP too.

7.2.7 Other button.

Go To DASHBOARD

Go To EXPERT brings you to the selected sheets. The usage of these sheets needs a validated configuration and HiperDispatch calculation.

7.3 CONFIG-MSU SPREADSHEET Usage.

7.3.1 General usage notice:

As usual the LPAR's Name, #LCP and Weight are taken from the CONFIG spreadsheet, so only the yellow columns named:

Defined Capacity Limit
Capacity Group Name
Capacity Group Limit [MSU]

have to be filled to use this part of the tool.

Definitions					
Lpars	LCPs	Weight	Defined Capacity Limit	Capacity Group Name	Capacity Group Limit [MSU]

One possibility on modern z Systems with z/OS is to control the MSU consumption with the help of group capping. Group capping provides the fact that partitions can consume more MSU during a capping phase when other partitions of the same capacity group do not require their capacity share. On the other hand it is often difficult to understand how the partitions are being capped especially when group capping and individual defined capacity limits are combined. The Config-MSU tab provides some assistance in identifying the capping mechanism for the partitions under the assumption that all partitions request their capacity share during the capping phase. Figure 1 shows an example for an environment with 6 partitions from which 5 belong to a capacity group GRP1, and two of these partitions have individual defined capacity limits.

Definitions						Share [%]	CEC/LCP based		Group Calculations							Result	
Lpars	LCPs	Weight	Defined Capacity Limit	Capacity Group Name	Capacity Group Limit [MSU]		MSU at Weight	Theoretical Usable MSU	Total Group Weight	Group Share [%]	Group Share [MSU]	Possibly Donated MSU	Total Donated MSU	Possible Group Receiver	Group Receiver Share [%]	Received Donated MSU	Maximum Consumable MSU	Comment
SYS1	10	500		GRP1	1,000	40.0%	476.4	1,191.0	1,059	47.6%	476.2		81.0	YES	76.9%	62.3	538.5	*cap pattern or negative phantom weight*
SYS2	5	250	200	GRP1	1,000	20.0%	238.2	595.5	1,059	23.8%	238.1	38.1					200.0	*positive phantom weight*
SYS3	2	150	100	GRP1	1,000	12.0%	142.9	238.2	1,059	14.3%	142.9	42.9					100.0	*positive phantom weight*
SYS4	2	100		GRP1	1,000	8.0%	95.3	238.2	1,059	9.5%	95.2		81.0	YES	15.4%	12.5	107.7	*cap pattern or negative phantom weight*
SYS5	1	50		GRP1	1,000	4.0%	47.6	119.1	1,059	4.8%	47.6		81.0	YES	7.7%	6.2	53.8	*cap pattern or negative phantom weight*
SYS6	4	200	100			16.0%	190.6	476.4									100.0	*positive phantom weight*

Figure 1 CONFIG-MSU Example

7.3.2 LPAR and Capacity Definitions

Definitions						Share [%]
Lpars	LCPs	Weight	Defined Capacity Limit	Capacity Group Name	Capacity Group Limit [MSU]	
SYS1	10	500		GRP1	1,000	40.0%
SYS2	5	250	200	GRP1	1,000	20.0%
SYS3	2	150	100	GRP1	1,000	12.0%
SYS4	2	100		GRP1	1,000	8.0%
SYS5	1	50		GRP1	1,000	4.0%
SYS6	4	200	100			16.0%

The definitions part shows the defined LPARs, the number of logical processors (LCPs) per partition, and the weight of each partition. The weight determines the "Share [%]" each partition has from the CEC. The Capacity definitions encompass a possible Defined Capacity Limit for each partition, the Group name if the partition belongs to a capacity group and the Capacity Limit of the Group.

Figure 2 CONFIG-MSU Definitions

	CEC/LCP based	
Share [%]	MSU at Weight	Theoretical Usable MSU
40.0%	476.4	1,191.0
20.0%	238.2	595.5
12.0%	142.9	238.2
8.0%	95.3	238.2
4.0%	47.6	119.1
16.0%	190.6	476.4

The next part of the spreadsheet converts the weight definition into an MSU value. MSU at Weight tells how much MSU are guaranteed to the partition by its weight definition. The theoretical usable MSU value describes how many MSU can be consumed when all LCPs of the partition are used to 100%.

Figure 2 Usable MSU for each partition

7.3.3 Group Calculation

Group Calculations							
Total Group Weight	Group Share [%]	Group Share [MSU]	Possibly Donated MSU	Total Donated MSU	Possible Group Receiver	Group Receiver Share [%]	Received Donated MSU
1,050	47.6%	476.2		81.0	YES	76.9%	62.3
1,050	23.8%	238.1	38.1				
1,050	14.3%	142.9	42.9				
1,050	9.5%	95.2		81.0	YES	15.4%	12.5
1,050	4.8%	47.6		81.0	YES	7.7%	6.2

Figure 3 Group Calculations

Figure 4 depicts group related metrics. For distributing the MSU within a group it is necessary to understand the total weight of all partitions within the group as well as the share of each partition within the group. The group share is expressed as a percentage value and a MSU value.
If a partition has a defined capacity limit which is smaller than its Group share, the partition is not able to consume all of the MSU which it is entitled to by the group definition. The MSU which it is not able to use can potentially by donated to other partitions when group capping and individual capping is in effect for the partition. The "Total Donated MSU" can now be distributed between the receiver partitions. Each receiver has a share based on its weight and receives the corresponding portion of the total donated MSU.

Result	
Maximum Consumable MSU	Comment
538.5	*cap pattern or negative phantom weight*
200.0	*positive phantom weight*
100.0	*positive phantom weight*
107.7	*cap pattern or negative phantom weight*
53.8	*cap pattern or negative phantom weight*
100.0	*positive phantom weight*

The result section now tells how much MSU each partition can consume under the assumptions that all partitions use their share and that all capping limits are being reached. The Comment column then displays which capping technology is being used.

Figure 4 Group Capping Results

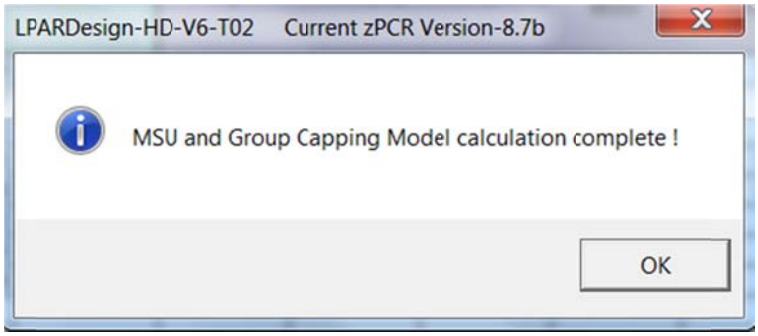
Notice: Starting with zEC12 GA2 and z/OS 2.1 the **cap pattern technology has been replaced by a negative phantom weight technology**, therefore which technology is being used depends on the hardware and software level.

7.3.4 Other buttons functions:

Clear Definitions This will clear de MSU definitions (Yellow columns)

Clear Calculations This will clear the calculation part after a partial modification of the definitions

Calculate When the definitions are ok, press this button to calculate them. The following information box will appear:



7.3.5 Explanation of this tab header:

The LPAR configuration is taken from the CONFIG tab.
DEDicated processors may exist in the definition – if it is the case this particularity is shown in the Shared Pool cell when the number of physical processor in the Shared Pool is different from the number of physical processors of the actual physical machine.

This is shown in the following example:

CEC	2964-712	PCPs	12	MSU	1 891	Total Weight	1 000	Shared Pool	10

The definitions of this example are:

Definitions					
Lpars	LCPs	Weight	Defined Capacity Limit	Capacity Group Name	Capacity Group Limit [MSU]
W013	3	300		GRP1	1 000
W014	3	200	200	GRP1	1 000
W015	2	200	100	GRP1	1 000
W017	2	140		GRP1	1 000
W018	2	10		GRP1	1 000
W019	2	DED			
W020	2	100	100		
W021	2	50	100		

The physical machine has 12 PCP
But we have an LPAR (W019) with 2 DEDicated PCP
So the Shared Pool is 10 PCP
Note: the Weight cell format of the DEDicated LPAR is in red.

7.4 CONFIG-ZXXP SPREADSHEET Usage.

7.4.1 Support on machines before z13.

Once you are done with the CP configuration you can use the 3 - GoTo ZXXP button to be directed to the zAAP/zIIP configuration spreadsheet if appropriate.

The LPAR names are automatically filled.
Never delete an LPAR in this sheet – do it from the CONFIG sheet and the appropriate button

You just have to fill:

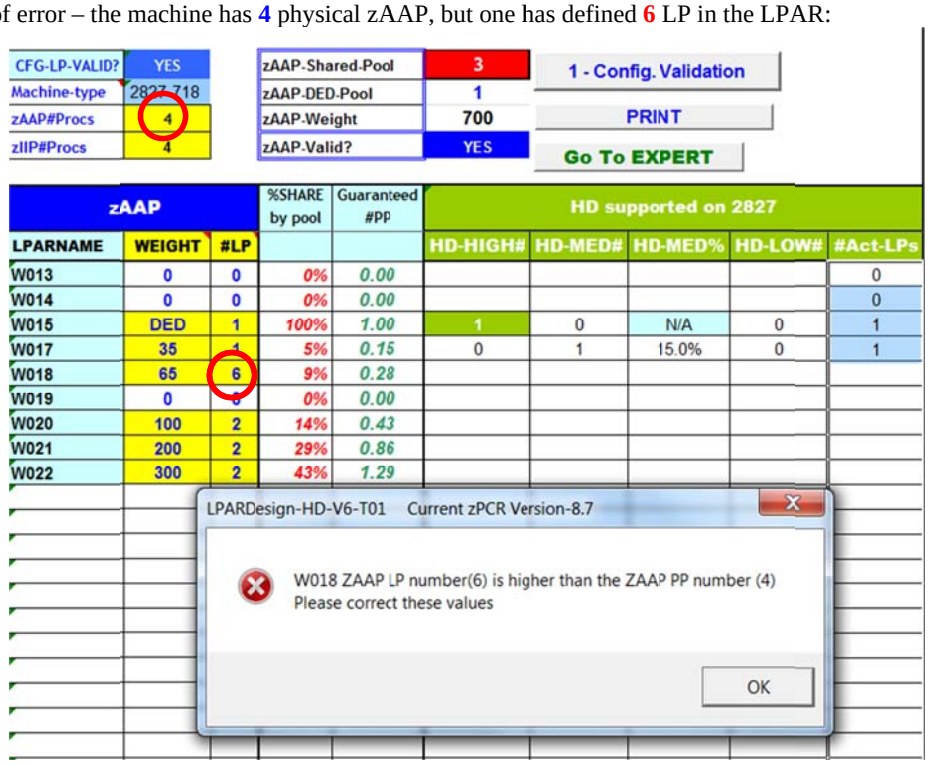
zAAP#Procs	2
zIIP#Procs	2

with the correct number of these specialty engines.
Note that the rule concerning the total number of zAAP/zIIP is enforced and checked.
It is not the standard rule which is based on the number of purchased CP, but we cannot know what this number is.

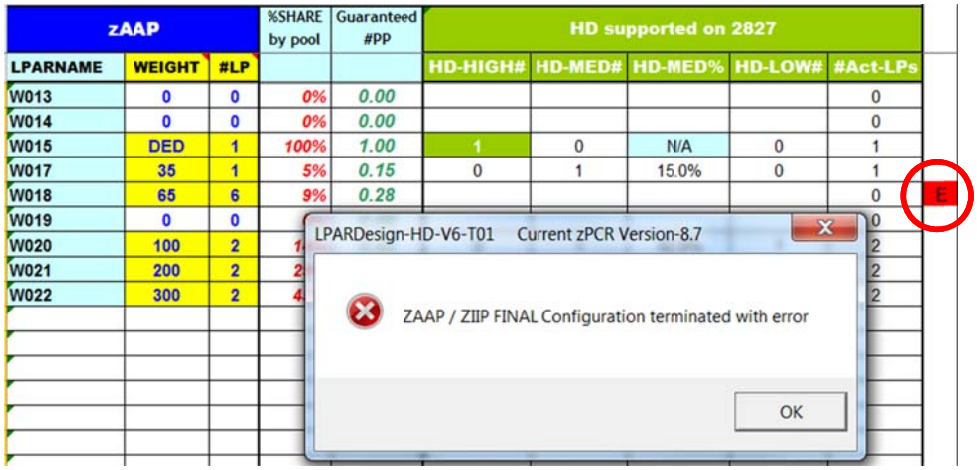
Then fill the weight (weight value or DED for dedicated zAAP/zIIP) and number of LPs for each LPAR for each type of specialty engines.
Clear the cells (weight and number of LP) for the LPARs that are not concerned by the specialty engines.
Do not clear the LPAR name.

Then, click on the 1 - Config. Validation button.
This will check the configuration and calculate the HiperDispatch number of LPs (if HiperDispatch is supported on the machine).

If errors occur, an error box is displayed and character "E" is set on the last column of the current LPAR:
Example of error – the machine has **4** physical zAAP, but one has defined **6** LP in the LPAR:



A popup message and the letter "E" will be issued to show where the error is found.

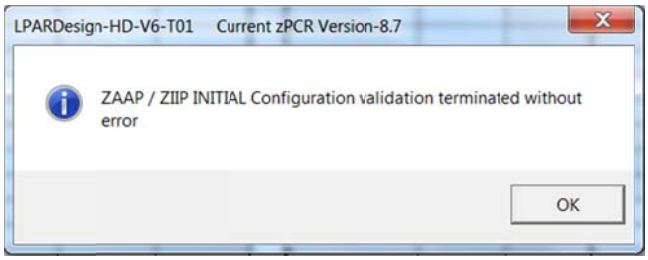


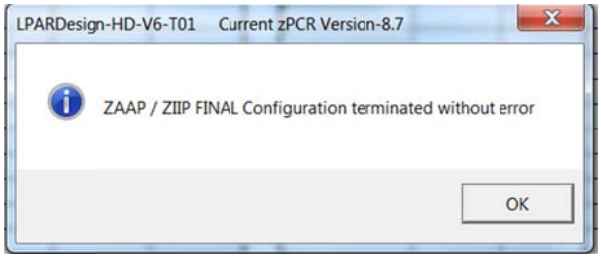
The column named #Act-LPs has been added in V04T00. See "What's new in V04T00" for an explanation of this column.

Starting with V5, the zXXP configuration is checked in two phases:

- One for the Configuration Validation (e.g.: LP numeric and so on). Its name is "Initial Configuration".
- One for the HiperDispatch Configuration calculation. Its name is "Final Configuration"

That is why you will receive two completion messages, one for each phase:

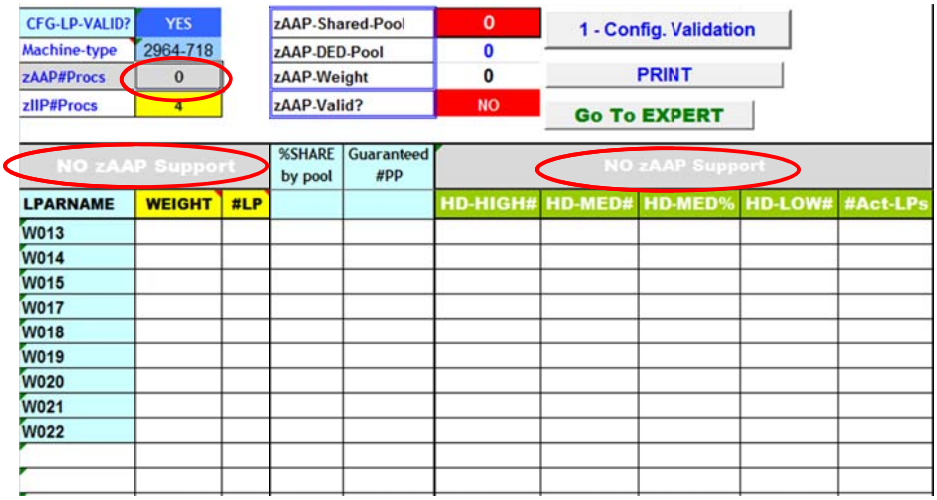




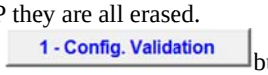
7.4.2 Support on the z13 machines.

There is no more zAAP support on machines starting with the z13.
As the spreadsheet must be usable on previous machines, some modifications have been provided be flexible in the zAAP management.

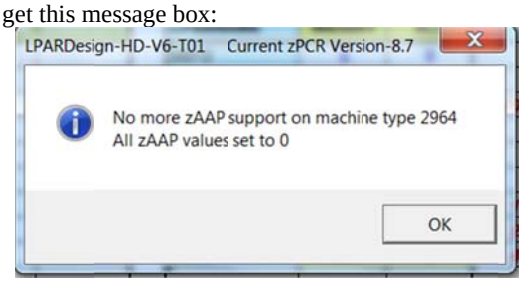
When a z13 machines (machine type 2964) is selected on the CONFIG sheet, the cell containing the number of zAAP, the cell above the LPARNAME and the cell above the HiperDispatch LP spread are greyed in the CONFIG-zXXP sheet as shown below:



If you have (from a previous study) set values in the zAAP Weight / #LP they are all erased.

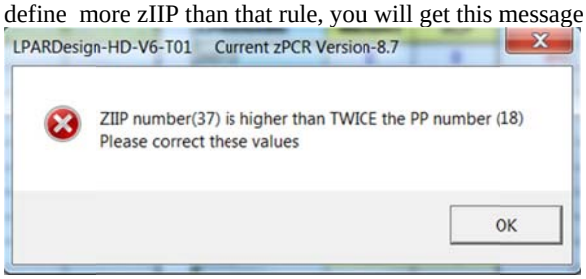
If you have to use zIIP, do the normal operations, when you press the 

button you will get this message box:



followed by the regular messages for the zIIP Management.

Another feature has been provided too as the number of zIIP can be up to twice the number of GCP. If you define more zIIP than that rule, you will get this message box:



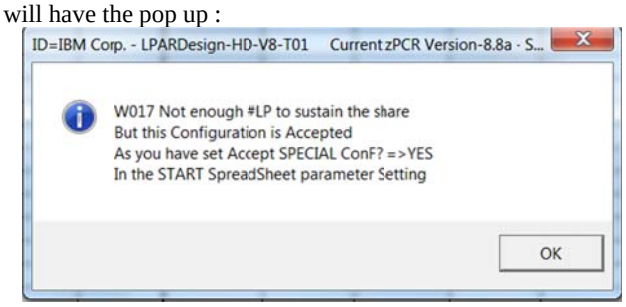
in this scenario the machine was a 2964-718.

As for GCP, the new way of computing the LP spread on z13 is set with the same message box that GCP.

7.4.3 Support for Special Configuration for zIIPs only:

Before V8-T01, This was available for GCP configuration only.
Now if you want to set a number of zIIP LPs that is below the number of required zIIP LPs, you can do it by selecting 2 - Accept SPECIAL ConF? => YES in the START spreadsheet (this information will be the same for both GCP and zIIP).

When you are in the situation whre the number of zIIP Lps is below the number of required LPs and you have selected this option, you will have the pop up :



And the target LPAR will have its number of guaranted LP in bold/blue as shown below for LPAR W017:

zIIP			%SHARE by pool	Guaranteed #PP	HD supported on 2964					
LPARNAME	WEIGHT	#LP			HD-HIGH#	HD-MED#	HD-MED%	HD-LOW#	#Act-LPs	
W013	0	0	0%	0.00					0	
W014	35	2	25%	1.00	0	1	100.0%	1	2	
Z015	35	2	25%	1.00	0	1	100.0%	1	2	
W017	65	1	46%	1.00	1	0	N/A	0	1	OK(a)
W018	DED	1	50%	1.00	1	0	N/A	0	1	
S019	DED	1	50%	1.00	1	0	N/A	0	1	
W020	2	1	1%	0.06	0	1	5.7%	0	1	
W021	1	1	1%	0.03	0	1	2.9%	0	1	
W022	1	2	1%	0.03	0	1	2.9%	1	2	
S024	0	0	0%	0.00					0	
S025	1	1	1%	0.03	0	1	2.9%	0	1	

In the error colum, the characters **OK(a)** will be displayed too.

Another information has been added (to be consistent with the GCP definition) to highlight the case of a LPAR having N.M=1.x on machine type of z13 and above.
As for GCP, in this case, you will not have 1VH and 1VM (if x=>0.5), but you will have 2VM@(1.x/2).

This is highlighted in setting the font of the #VH and VH% to bold/bleu as shown below for LPAR W017:

zIIP			%SHARE by pool	Guaranteed #PP	HD supported on 2964				
LPARNAME	WEIGHT	#LP			HD-HIGH#	HD-MED#	HD-MED%	HD-LOW#	#Act-LPs
W013	0	0	0%	0.00					0
W014	35	2	25%	1.00	0	1	100.0%	1	2
Z015	35	2	25%	1.00	0	1	100.0%	1	2
W017	65	2	46%	1.86	0	2	92.9%	0	2
W018	DED	1	50%	1.00	1	0	N/A	0	1
S019	DED	1	50%	1.00	1	0	N/A	0	1
W020	2	1	1%	0.06	0	1	5.7%	0	1
W021	1	1	1%	0.03	0	1	2.9%	0	1
W022	1	2	1%	0.03	0	1	2.9%	1	2
S024	0	0	0%	0.00					0
S025	1	1	1%	0.03	0	1	2.9%	0	1

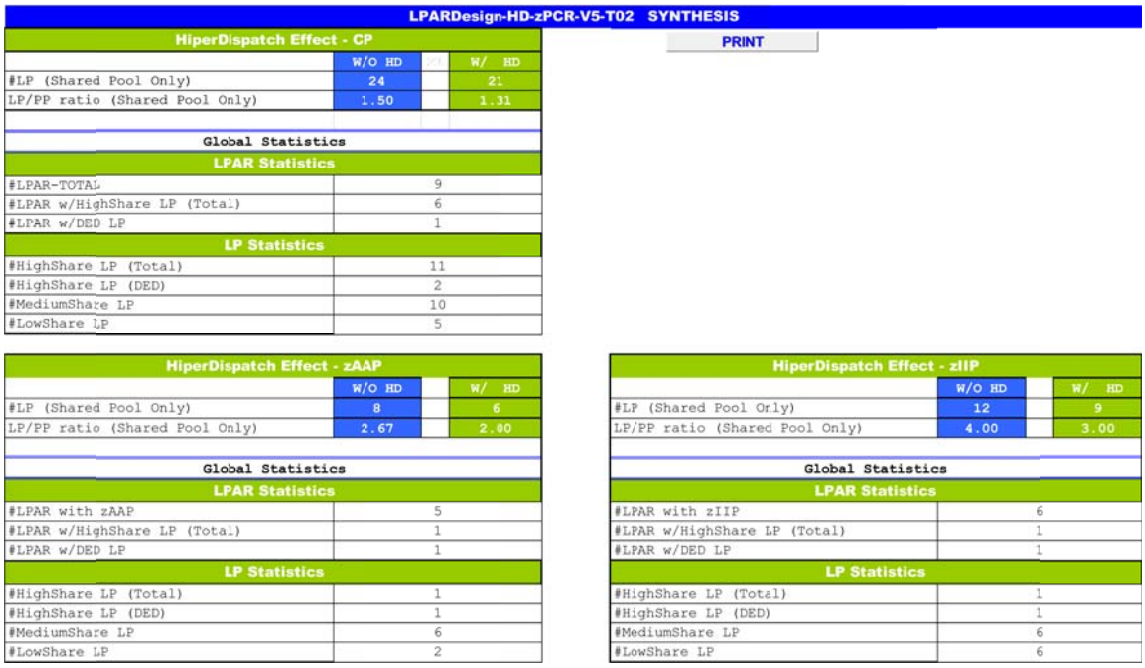
Starting with V8-T02 a waring message is display in the error column (for zIIPs only) if the number of VL is >2 as shown in this screenshot:

zIIP			%SHARE by pool	Guaranteed #PP	HD supported on 2964					
LPARNAME	WEIGHT	#LP			HD-HIGH#	HD-MED#	HD-MED%	HD-LOW#	#Act-LPs	
W013	0	0	0.00%	0.00					0	
W014	35	2	25.00%	1.00	0	1	100.0%	1	2	
Z015	35	2	25.00%	1.00	0	1	100.0%	1	2	
W017	65	1	46.43%	1.00	1	0	N/A	0	1	OK(a)
W018	DED	1	50.00%	1.00	1	0	N/A	0	1	
S019	DED	1	50.00%	1.00	1	0	N/A	0	1	
W020	2	1	1.43%	0.06	0	1	5.7%	0	1	
W021	1	1	0.71%	0.03	0	1	2.9%	0	1	
W022	1	5	0.71%	0.03	0	1	2.9%	4	2	#VL>2
S024	0	0	0.00%	0.00					0	
S025	1	1	0.71%	0.03	0	1	2.9%	0	1	

LPAR W022 has this warning.

7.5 SYNTHESIS SPREADSHEET Usage.

The result of the HiperDispatch activation can be viewed in the SYNTHESIS spreadsheet as shown below:



LPARDesign-HD-zPCR-V5-T02 SYNTHESIS

PRINT

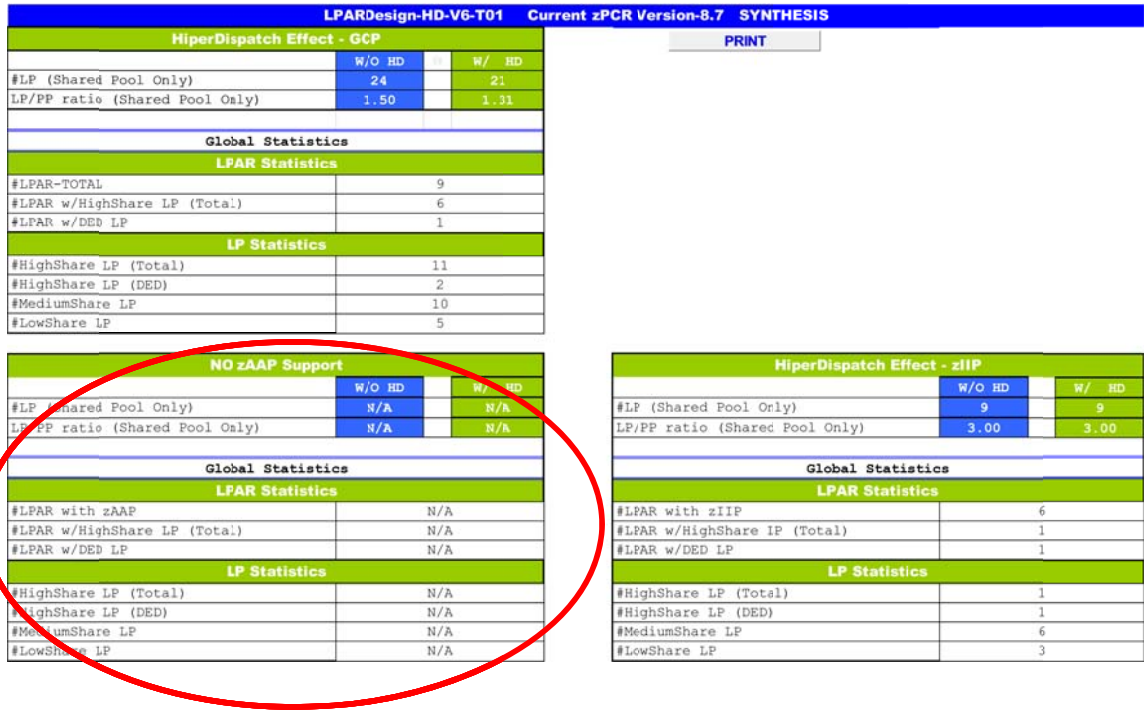
HiperDispatch Effect - CP	W/O HD	W/ HD
#LP (Shared Pool Only)	24	21
LP/PP ratio (Shared Pool Only)	1.50	1.31
Global Statistics		
LPAR Statistics		
#LPAR-TOTAL	9	
#LPAR w/HighShare LP (Total)	6	
#LPAR w/DED LP	1	
LP Statistics		
#HighShare LP (Total)	11	
#HighShare LP (DED)	2	
#MediumShare LP	10	
#LowShare LP	5	

HiperDispatch Effect - zAAP	W/O HD	W/ HD
#LP (Shared Pool Only)	8	6
LP/PP ratio (Shared Pool Only)	2.67	2.00
Global Statistics		
LPAR Statistics		
#LPAR with zAAP	5	
#LPAR w/HighShare LP (Total)	1	
#LPAR w/DED LP	1	
LP Statistics		
#HighShare LP (Total)	1	
#HighShare LP (DED)	1	
#MediumShare LP	6	
#LowShare LP	2	

HiperDispatch Effect - zIIP	W/O HD	W/ HD
#LP (Shared Pool Only)	12	9
LP/PP ratio (Shared Pool Only)	4.00	3.00
Global Statistics		
LPAR Statistics		
#LPAR with zIIP	6	
#LPAR w/HighShare LP (Total)	1	
#LPAR w/DED LP	1	
LP Statistics		
#HighShare LP (Total)	1	
#HighShare LP (DED)	1	
#MediumShare LP	6	
#LowShare LP	6	

Note: Do not forget to clean/update the value in the CONFIG-zXXP spreadsheet before using the results of this spreadsheet otherwise the results may be wrongs; they are related to the sample given.

When on a z13 machine, the layout is different because there is no more zAAP support. The sheet looks like that:



LPARDesign-HD-V6-T01 Current zPCR Version-8.7 SYNTHESIS

PRINT

HiperDispatch Effect - GCP	W/O HD	W/ HD
#LP (Shared Pool Only)	24	21
LP/PP ratio (Shared Pool Only)	1.50	1.31
Global Statistics		
LPAR Statistics		
#LPAR-TOTAL	9	
#LPAR w/HighShare LP (Total)	6	
#LPAR w/DED LP	1	
LP Statistics		
#HighShare LP (Total)	11	
#HighShare LP (DED)	2	
#MediumShare LP	10	
#LowShare LP	5	

NO zAAP Support	W/O HD	W/ HD
#LP (Shared Pool Only)	N/A	N/A
LP/PP ratio (Shared Pool Only)	N/A	N/A
Global Statistics		
LPAR Statistics		
#LPAR with zAAP	N/A	
#LPAR w/HighShare LP (Total)	N/A	
#LPAR w/DED LP	N/A	
LP Statistics		
#HighShare LP (Total)	N/A	
#HighShare LP (DED)	N/A	
#MediumShare LP	N/A	
#LowShare LP	N/A	

HiperDispatch Effect - zIIP	W/O HD	W/ HD
#LP (Shared Pool Only)	9	9
LP/PP ratio (Shared Pool Only)	3.00	3.00
Global Statistics		
LPAR Statistics		
#LPAR with zIIP	6	
#LPAR w/HighShare IP (Total)	1	
#LPAR w/DED LP	1	
LP Statistics		
#HighShare LP (Total)	1	
#HighShare LP (DED)	1	
#MediumShare LP	6	
#LowShare LP	3	

7.6 EXPERT SPREADSHEET Usage.

7.6.1 EXPERT Notes for GCP.

When you push the 

button, you may (or not) have advices on how to optimize your current configuration.

Here are the current rules used to provide thes advices:

7.6.1.1 The rules used for advices in GCP:

Rule#1:
If you have 1 VH and the decimal part is between 0.4 and less than 0.5, you can have 1VH and 1 VM@50% if you raise you Weight to have the decimal part to at least 0.5.
Otherwise, you will have two VM.
On z13, this rule is no longer valid: a new way of calculating the spread of LPs has been provided for an LPAR which has 1VH and 1VM@x%.
Now whatever the x% is, you will get 2VH@[(1+x)/2]%.

Rule#2:
Same than Rule#1, with more than 1 VH.
Otherwise, one VH will be moved to the VM pool.

Rule#3:
If the decimal part is higher than 0.89 (meaning that you are not far from having a new VH), a small increase in the Weight could lead to have a new VH.

Rule#4:
It is the opposite on Rule#3.
If the decimal part if lower than 0.05 (meaning that you potentially burn an existing VH), decreasing the Weight could lead to have a VH.

Rule#5:
This is just a warning to remember you that if you have defined 2 LPs and you do not have a VH, the second LP (which is a VL) will always be Unparked.

Rule#6:
This is just a warning to remember you that if you have an integer number of VH and you have defined more LPs that VHs (so having VL), one VH will be in fact a VM@100%.

Rule#7:
This is to alert that you have specified zero as the number of LP, however this will influence the HiperDispatch calculation of VH, VM and VL for the other LPARs.

Rule#8:
The number of LP must be set properly. A best Practice document is available as a TechDoc TD106388. This Rule warns you if you are above the recommendation of this Best practice.

Note: this sheet has been enhanced to support up to 85 LPARs.

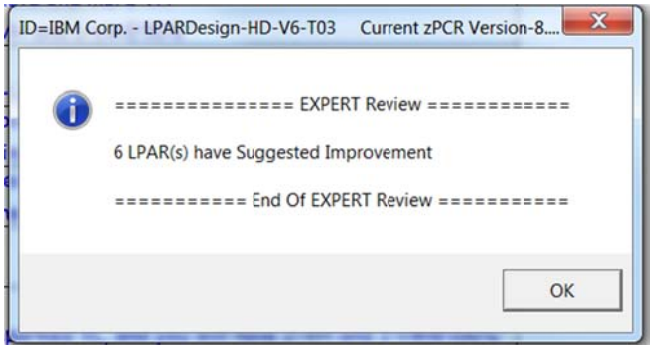
Here is an example of what is produced:

ID=IBM Corp. - LPARDesign-HD-V6-T03 Current zPCR Version-8.7e EXPERT	
Click for EXPERT NOTES	
LPAR	**Suggested Improvement Notes - GCP - Machine Type = 2964**
W013	No special Comment or Advice for this LPAR
W014	(R2) - Due to the 0.5 rule, a small increase of the Weight could lead to have one more VH Your current Guaranteed#PP is 2,42 - raising it to 2.5 would give you 2-VH and 1-VM@50%"
W015	(R3) - You have 1-VM with an entitlement of 96%" Your current Guaranteed#PP is 1,96 - raising the Weight and removing 1-LP would give you 2-VH but with less fexibility"
W017	(R4) - Due to the 0.5 rule, One potential VH has been moved to the VM pool - You have 2-VM with an entitlement of 52% Your current Guaranteed#PP is 3,02 - decreasing the Weight and removing 1-LP would give you 3-VH but with less
W018	(R5) - Due to the "at least 2 LP rule", the first VL will be always Unparked Your current Guaranteed#PP is 0,6 - you will have 2-VM with an entitlement of 30% and so 2 Active LP
W019	No special Comment or Advice for this LPAR
W020	(R6) - You have a potentiel entitlement of 3-VH But as you have 2-VL, one VH is moved to the VM pool to fuel future Unparked VL, and you will have 2-VH and 1-VM@100%"
W021	(R5) - Due to the "at least 2 LP rule", the first VL will be always Unparked Your current Guaranteed#PP is 0,58 - you will have 2-VM with an entitlement of 29% and so 2 Active LP
W022	No special Comment or Advice for this LPAR

The Rule number of the advices is shown in the ligne.

If no advice is found you wil have the text "No special Comment or Advice for this LPAR ".

A pop up window will show you how many LPARs have advices:



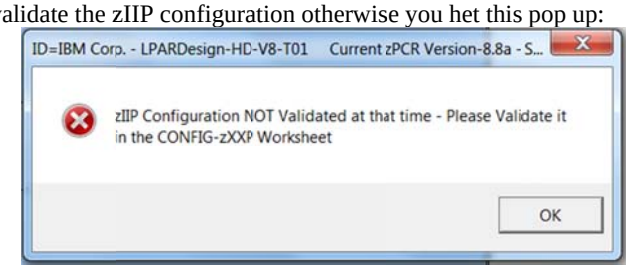
Note : This facility is only available if you machine supports HiperDispatch and if you have a valid configuration.

7.7 EXPERT Notes for zIIPs.

Starting with V8-T01, EXPERT notes are provided for the zIIPs configuration.

A new button has been added to use this facility : 

First of all you have to validate the zIIP configuration otherwise you het this pop up:



When all is ok and you have press the button you will get various informations on you current zIIP configuration:

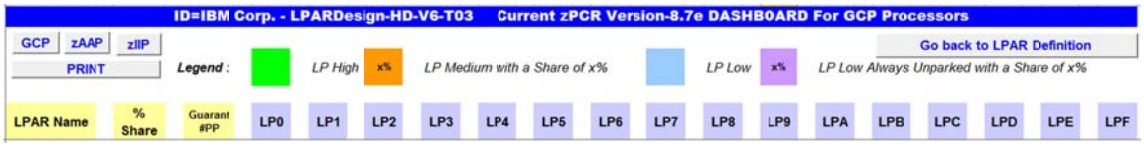
LPAR	Suggested Improvement Notes - zIIP - Machine Type = 2964
W013	(R8-zIIP) - The number of specified LP is zero and the Weight is zero - No zIIP for this LPAR
W014	(R6-zIIP) - You have a potentiel entitlement of 1-VH But as you have 1-VL, one VH is moved to the VM pool to fuel future Unparked VL, and you will have 0-VH and 1-VM@100%" [+] NOTE - You have 1VM and 1VL When ALL Vls will be UnParked, each VM and VL will have an entitlement of 50%
Z015	(R6-zIIP) - You have a potentiel entitlement of 1-VH But as you have 1-VL, one VH is moved to the VM pool to fuel future Unparked VL, and you will have 0-VH and 1-VM@100%" [+] NOTE - You have 1VM and 1VL When ALL Vls will be UnParked, each VM and VL will have an entitlement of 50%
W017	No special Comment or Advice for this LPAR
W018	No special Comment or Advice for this LPAR
S019	No special Comment or Advice for this LPAR
W020	(R9-zIIP) - the %SHARE is very low 1,4% This might lead to an ineffective use of the zIIP

The rules are quite the same as for the GCPs.
A new rule has been added to inform that the %Share of the zIIP for this LPAR is low (as shown for LPAR W020).
The message is currently triggered if the %Share is less than 5%.

With V8-T02, a new rule (R10-zIIP) has been added:
The number of LP must be set properly. A best Practice document is available as a TechDoc TD106388. This Rule warns you if you are above the recommendation of this Best practice.

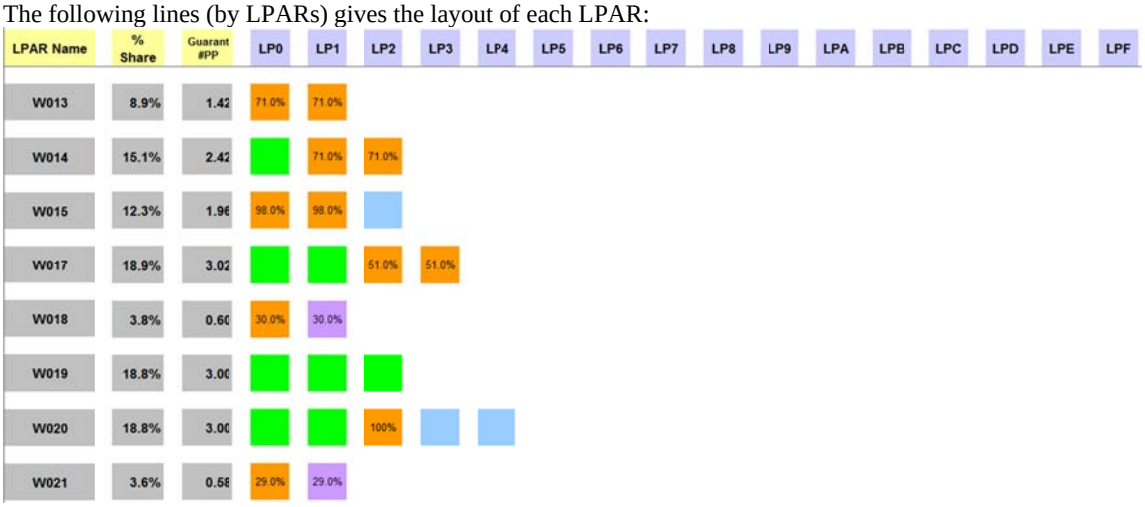
7.8 DASHBOARD SPREADSHEET Usage.

This graphic is automatically generated when you push the 2 - HIPERDISPATCH button.



The first lines show a legend explaining the colors of the different LPs assignements.

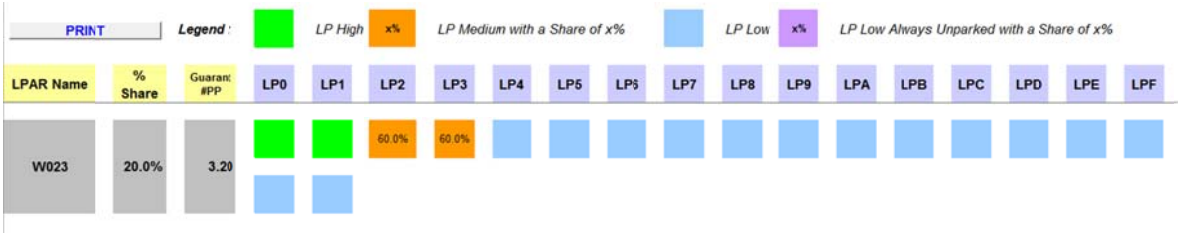
The following lines (by LPARs) gives the layout of each LPAR:



For example, we can see that:

LPAR W013 has 2 VM@71%
LPAR W014 has 1 VH and 2VM@71%
LPAR W015 has 2VM@98% and 1VL
LPAR W018 has 1VM30% and a VL@30% always unparked
LPAR W020 has 2VH, 1VM@100% and 2VL and so on.

The graphic is not limited to 16 LPs (LP0 to LPF as shown in the above picture), if you have more that 16 defined LPs you will get this layout:

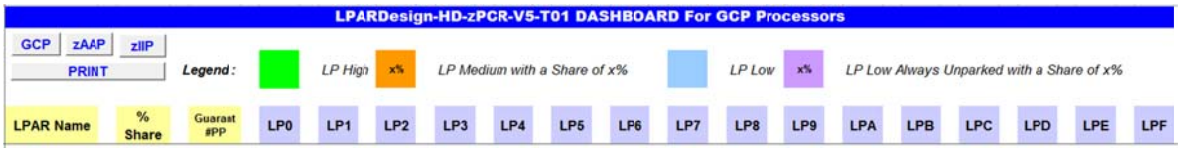


The W023 LPAR was defined with 18 LPs – so a second line is started for the 2 remaining LPs .

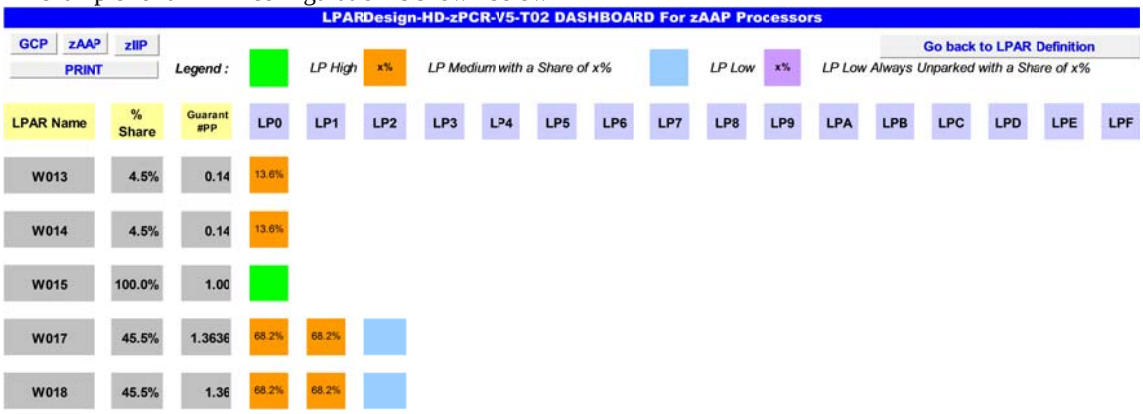
There are 3 buttons to have the same functions for zIIP and zAAP processors as well as for GCP processors:

Clicking on one of them gives the appropriate LP layout accoing to its type.

The worksheet looks like that now:

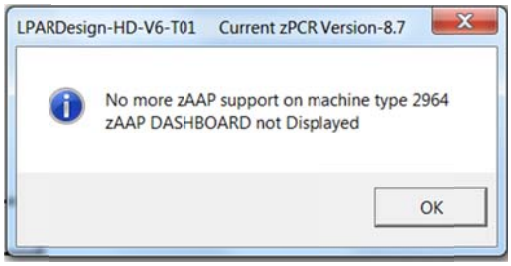


An example for a zAAP configuration is shown below



Starting with the z13 machine, if you press the 

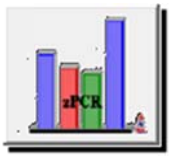
button, you will get the message box :



8. LINK with zPCR.

8.1 General considerations on this feature.

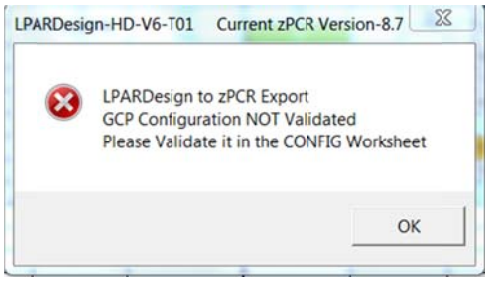
Code has been added to help creating a zPCR Basic study file from LPARDesing or to upload LPARDesign with an existing zPCR Basic study file.

To use this function click on the 

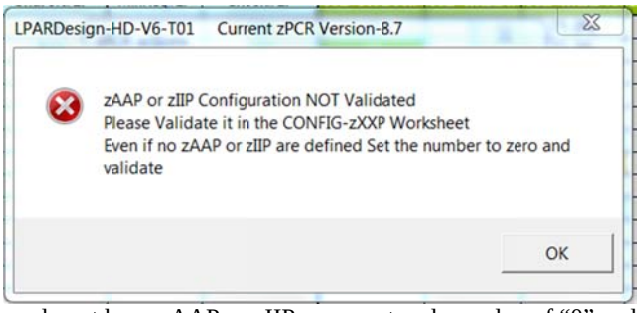
button located in the CONFIG worksheet.

To generate a reliable zPCR Basic study file, you need to have your GCP, zAAP and zIIP configurations validated. As you know, every time the spreadsheet is loaded, the cells containing the configurations validations status are set to NO, so, **all the configurations validations MUST BE DONE**.
If you do not perform this process, you will have the following error messages:

For GCP:



For zAAP and/or zIIP:



This means that even if you do not have zAAP or zIIP you must code a value of "0" and run the validation.

8.2 Current limitations of the link to zPCR feature.

8.2.1 Specifying an LPAR with unsufficient number of LPs to sustain the share

This could lead to have a problem when this LPARDesign study is exported to zPCR.
zPCR requires that you set at least one LP, but you will face the problem that you do not have sufficient LPs to sustain the share.
In this case you will have this zPCR message:

Note: A partition's weight indicates more capacity than its LCPs can provide; Unusable capacity is redistributed to other partitions within the CP pool

8.2.2 Processors type.

HiperDispatch is available on the z /OS operating system on GCP, zIIP and zAPP processors types.
So, we cannot currently generate configurations with ICFs and IFLs.
You have to add them manually.

For z/VM using IFL, plans are in place to add this feature in the next version

8.2.3 Reference CPU.

We use 

as a reference CPU.
Again, you might be led to change this default.

8.2.4 zPCR Version.

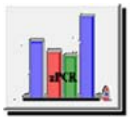
The LPARDesign code is usualy in sync with the last zPCR version. The current supported version is displayed in the message boxes. zPCR usualy allows that a study with the n-1 version to be uploaded.

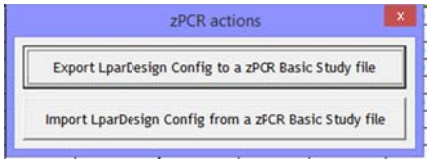
8.2.5 z/OS Version.

In this current release of LPARDesign we have set the z/OS Version to the LSPR Version so z/OS V2R1.

8.3 Using the zPCR EXPORT feature.

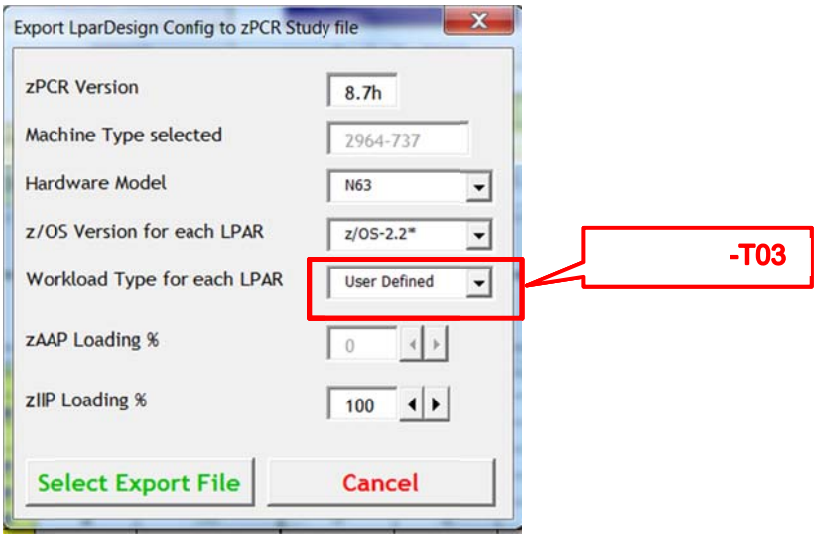
This feature export the current LPARDesign definition to a zPCR Basic study file.

After all configurations have been checked, click on the  button.

This box is displayed : 

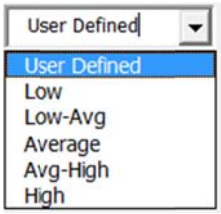
Click on the **Export LparDesign Config to zPCR Basic study file** button.

Then and according to your CPU Model this information box is displayed:



As of V7-T03 a new field is displayed where you can select how you will process the setting of your worload characterisation:
If you select "User Defined" the export will take what you have set in the CONFIG spreadsheet.

Otherwise, you can choose a worload characterisation in the list:

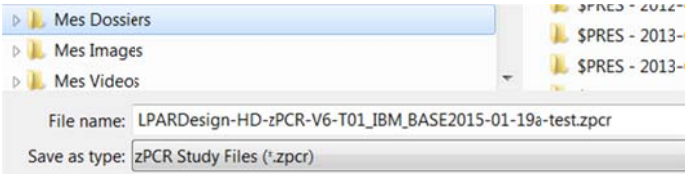


In this case, all the workload will have this characterisation in the zPCR study file.

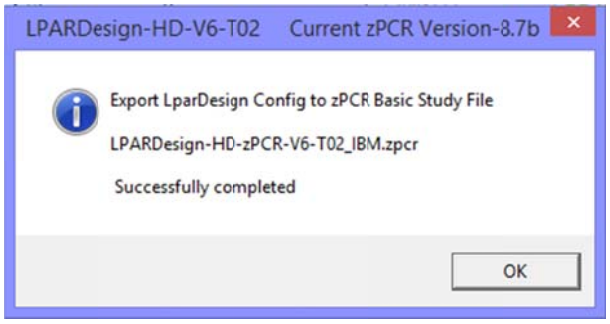
You have to select these useful informations to create a proper zPCR Basic study File:

- The Hardware Model
- The z/OS version
- The workload type
- The zAAP Loading % has been disabled in this case because the machine is a z13 (2964)
- The zIIPP Loading %

Then you have to select the name of the zPCR study file.
By default, we propose the current LPARDesign file name with a suffix of **.zpcr** as shown below:



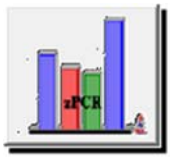
You can select the folder and the file name. Then select SAVE and you will receive this message box specifiying your choices:



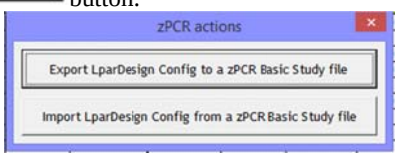
Note :

- When in zPCR, do not forget to reconfigure the ICF or IFL is appropriate.
- Only zPCR 8.7 and higher supports the z13 (2964) machine with 85 LPARs.

8.4 Using the zPCR IMPORT feature.

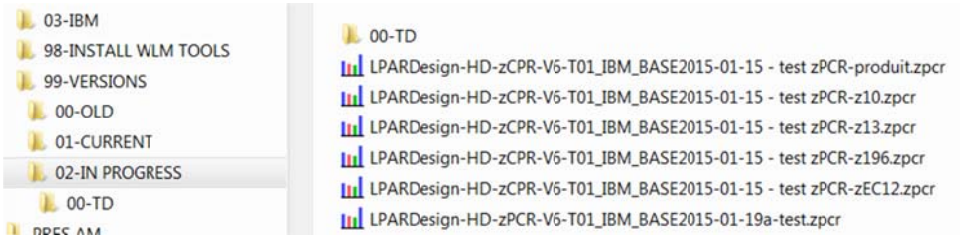
Click on the 

button.

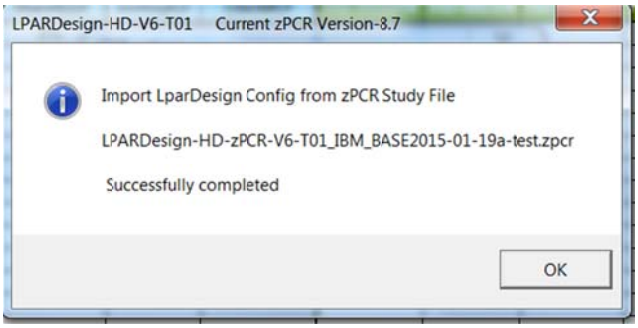
This box is displayed : 

Click on the **Import LparDesign Config from zPCR Basic study file** button.

The Windows file selection appears an select your zPCR Basic study file:



Click Open and your zPCR Basic Study File will be uploaded in the LPARDesign spreadsheet.
A message box will appear to show you file selection:



You are now in LPARDesign again and have to run all the appropriate function to validate your configuration.

Note : As zPCR only take into acount active LP, if you Export to zPCR a configuration and then Import from zPCR the preceding exported zPCR file you could see some differences in the number of LP per Lpar

Note : No ICF nore IFL will be imported.

9. FAQ and Common Mistakes.

9.1 FAQ

Q1 - When I open the workbook, the CFG-LP VALID is set to NO.
R1 – This is normal behavior. The Config Validation must be done after an open (re-open) of the workbook, which is why the field is forced to NO.

Q2 – I want to calculate the HiperDispatch LP configuration for zAAP/zIIP, but the tool says that the configuration does not support HiperDispatch or the GCP configuration has not been verified.
R2 – You must go back to the CONFIG spreadsheet, run the Config Validation and HiperDispatch for GCP, and then go to the CONFIG-zXXP spreadsheet to be able to run the calculation.

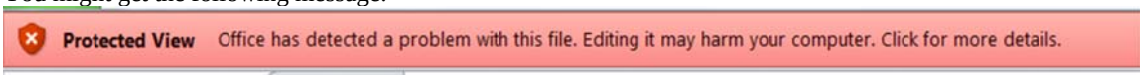
Q3 – I do not want to use the toleration capability – how can I disable it?
R3 – If you want to apply the strict rule (disable the toleration), you just have to set it to 0.00.

Q4 – zPCR IFL or ICF not in the configuration.
This is normal because these processors are not managed by HiperDispatch.

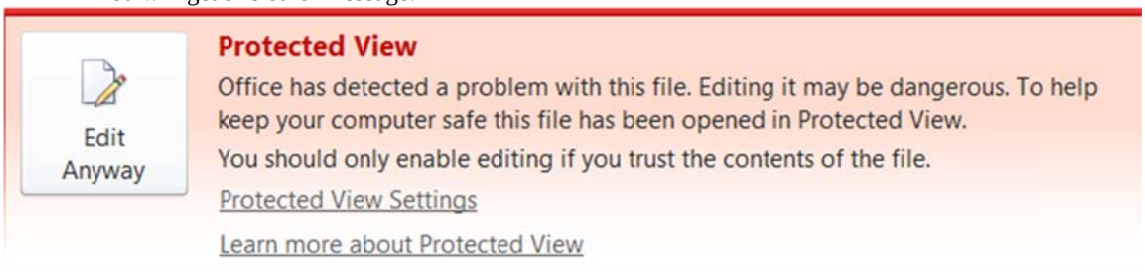
Q5 – zPCR Version.
In the spreadsheet, the zPCR version is "hard coded". But as soon as a new zPCR version is available, the spreadsheet is updated and uploaded on the WLM Web Site.

Q6 – I am not an IBM employee, so how am I informed that a new version of zPCR is available?
To have the latest version go to the following URL:
http://www-03.ibm.com/systems/z/os/zos/features/wlm/WLM_Further_Info_Tools.html
and click on the LPAR Design HyperLink.
Or send a mail to **alain_maneville@fr.ibm.com**

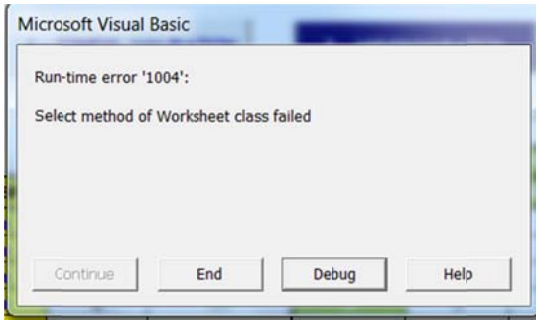
Q7 – When I open the spreadsheet I have security messages – how can I get rid of them?
This almost happens when you open a new version for the first time.
You might get the following message:



What you have to do now is simple:
Click on the "click for more details" area.
You will get this other message:



Then click on "Edit Anyway"
You will have this VB error message:



Then click on "End"
Save the spreadsheet
Re open it and all should be fine now.

9.2 COMMON MISTAKES.

M1 – **Do not delete the remaining rows in the CONFIG or CONFIG-ZXXP worksheets even if you have less than 30, 60 or 85 LPARs (which is mostly the case). If you do so, it can generate error if a new calculation is required**.

- You have the **DELETE LPAR** feature that will help you to properly delete unwanted LPARs.
-

M2 – Even if you do not have zIIP or zAAP, set the number of LP to zero and validate the configuration if you want to use the zPCR link. Otherwise you will get an error message.

M3 – Never delete a row in the spreadsheet.
They will be cleaned automatically and remember that you have now the **DELETE LPAR** feature.

M4 – Try to use a fresh copy of the spreadsheet – use the Create a Copy feature and/or the Save as feature.

M5 – If no zAAP/zIIP are to be use, make sure that your current copy of the spreadsheet has a 0 value in the zAAP#Proc or zIIP#Proc in the CONFIG-zXXP sheet.

END OF DOCUMENT - Lpardesign-HD-Zpcr-V8-T02_Userguide.Docx