LPARDesign

USER'S GUIDE

Version V6-T01

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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.

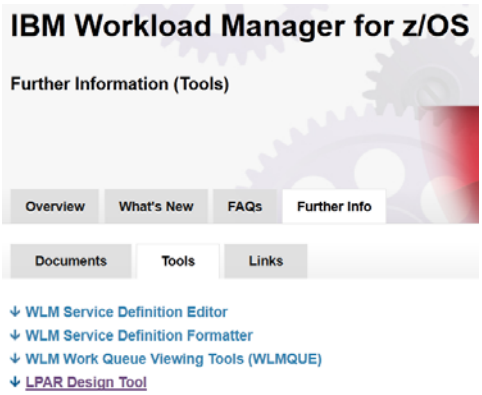
Robert VAUPEL - STSM, z/OS Workload and Performance Management.
He helped me understand the HiperDispatch Algorithms and LP spread in VH, VM and VL.

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

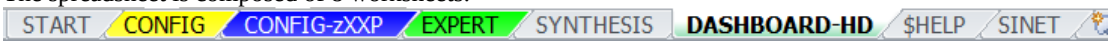
5. CHANGES IN THIS RELEASE.

5.1 What's new in V6T01?

New - Support of the new IBM System z machine: z13 – 2964 models (4xx to 7xx).
New - Support of 85 LPARs in this machine:
The number of supported LPAR is now in the CONFIG sheet.
No more zAAP support – the code has been modified to reflect this change with errors and information messages.
The number of zIIPs can be up to twice the number of GCP.
New - zPCR 8.7 is supported for Import and Export. The default z/OS version is now set to z/OS V2R1. The zAAP Loading % box has been removed when on a z13.
New - A new button has been added in the CONFIG sheet to properly delete LPAR(s) so that the spreadsheet is not damaged due to manual deletion.

6. A BRIEF VIEW OF THE SPREADSHEET.

The spreadsheet is composed of 8 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.

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-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.

6.4 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.

6.5 The SYNTHESIS worksheet:

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

Others functions provided are:

- Print the worksheet.

6.6 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.

6.7 The HELP worksheet:

This worksheet provides a basic help to use the tool.

Others functions provided are:

- Print the worksheet.

6.8 The SINET worksheet:

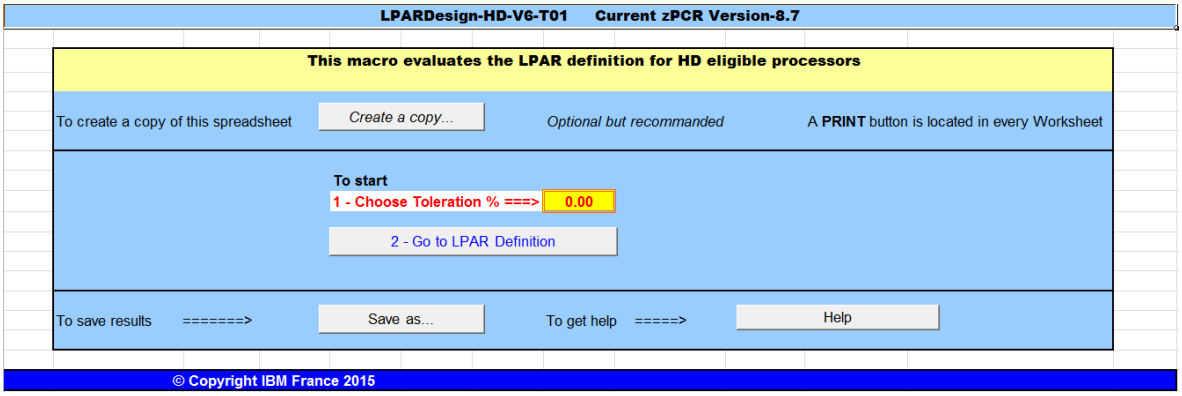
This worksheet is for internal use only.

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 just need to choose the Toleration percentage 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.

The LPARDesign version and the current zPCR version are displayed.

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.

CFG-LP-VALID?	NO
Machine-type	2964-718
MSU	2 584
Total Weight	1 600
Max LPAR	85

	ψMachine	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

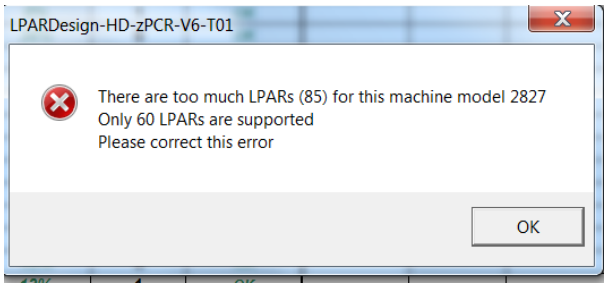
PRINT

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

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 at the HMC.

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:



7.2.2 Explanation of some columns.

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

"MIPS" - This is for information only (computed as %SHARE x MIPS of the Machine)

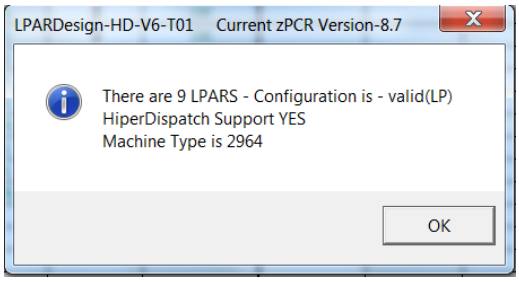
Guaranteed#PP - This is %SHARE x #of Physical processors (shared pool) – a fundamental metric for HiperDispatch calculation.

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.

Important Note: After any changes in the configuration, you must run the

1 - CONFIG. VALIDATION.

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



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.

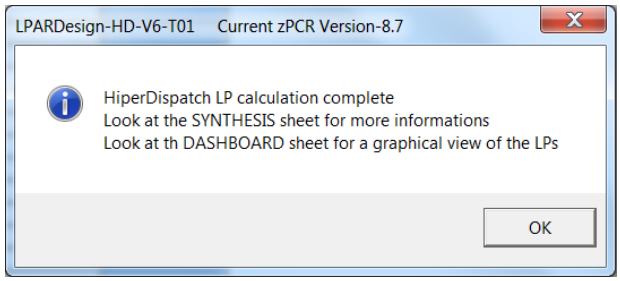
7.2.3 Computing the HiperDispatch number of LPs.

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.

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:

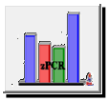
CFG-LP-VALID?	YES
Machine-type	2964-718
MSU	2 584
Total Weight	1 600
Max LPAR	85

LPARNAME	WEIGHT	#LP
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

HD supported on 2964					
HD-HIGH#	HD-MED#	HD-MED%	HD-LOW#	#Active LPs	#Report LPs
0	2	71.0%	0	2	2
1	2	71.0%	0	3	3
1	1	96.0%	1	2	2
2	2	51.0%	0	4	4
0	1	60.0%	1	2	1
3	0	N/A	0	3	3
2	1	100.0%	2	3	3
0	1	58.0%	1	2	1
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.

7.2.4 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.

7.2.5 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.

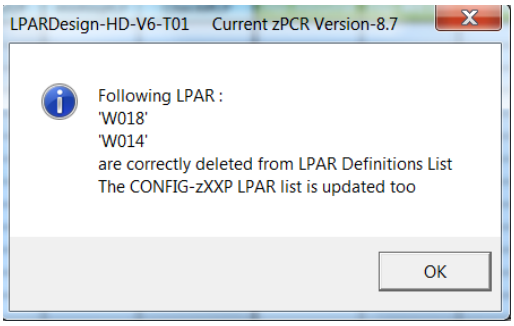
To delete LPAR(s):

- 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.

7.2.6 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-ZXXP SPREADSHEET Usage.

7.3.1 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

You just have to fill:

zAAP#Procs	2
zIIP#Procs	2

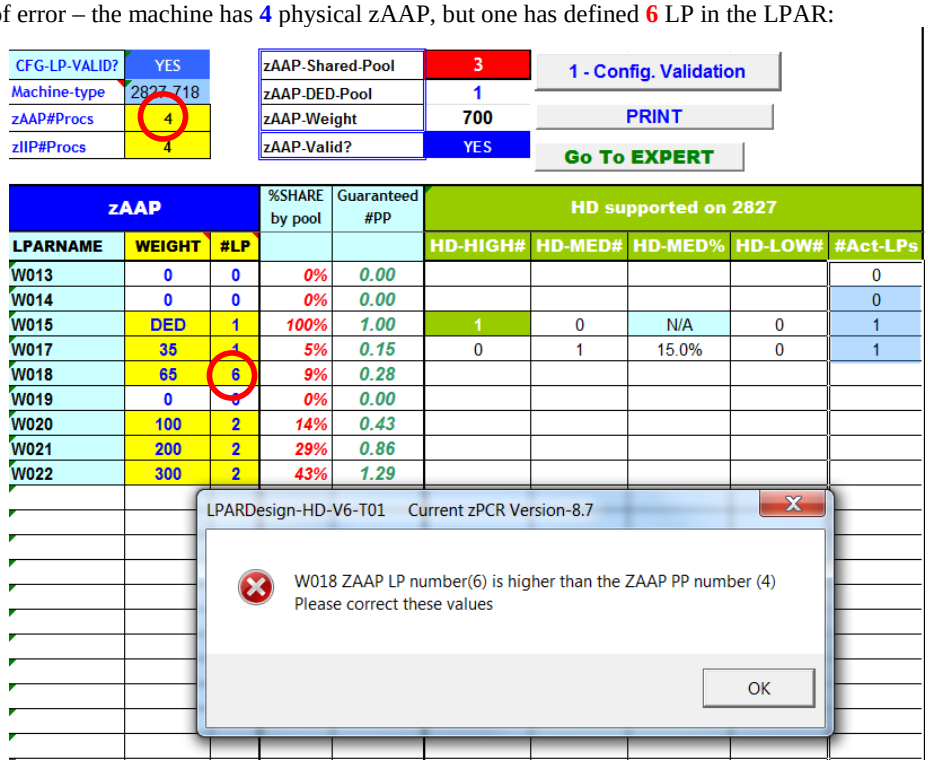
with the correct number of these specialty engines.
Note that the rule concerning the total number of zAAP/zIIP is enforced and checked.
It is not the standard rule which is based on the number of purchased CP, but we cannot know what this number is.

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.

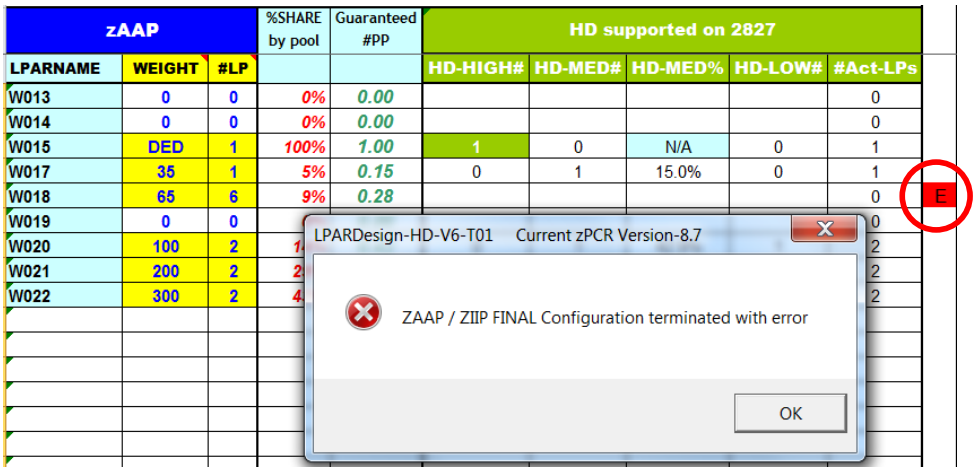
Do not clear the LPAR name.

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.

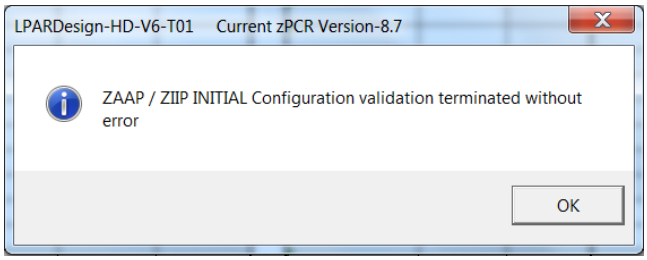


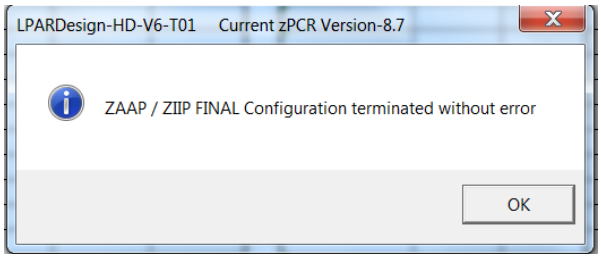
The column named #Act-LPs has been added in V04T00. See "What's new in V04T00" for an explanation of this column.

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:

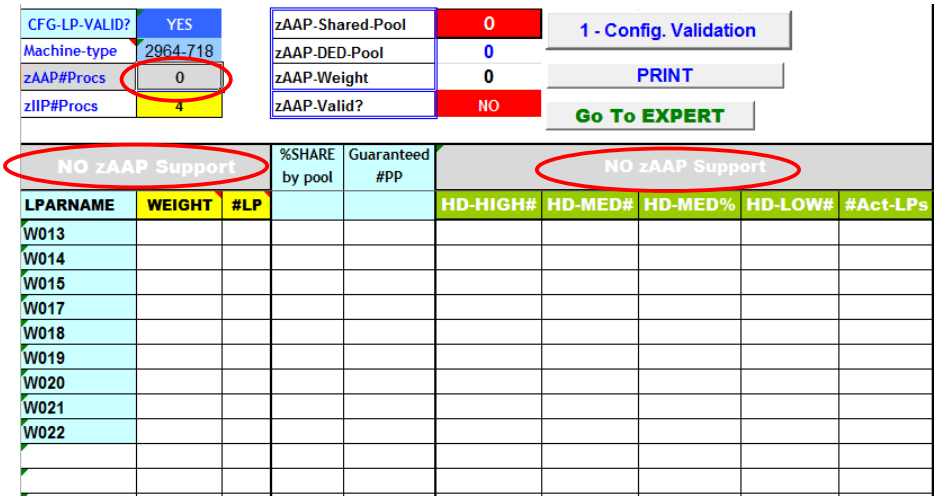




7.3.2 Support on the z13 machines.

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:



CFG-LP-VALID?	YES
Machine-type	2964-718
zAAP#Procs	0
zIIP#Procs	4

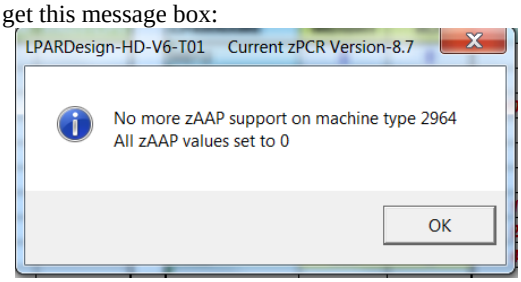
zAAP-Shared-Pool	0
zAAP-DED-Pool	0
zAAP-Weight	0
zAAP-Valid?	NO

1 - Config. Validation
PRINT
Go To EXPERT

NO zAAP Support			%SHARE by pool	Guaranteed #PP	NO zAAP Support				
LPARNAME	WEIGHT	#LP			HD-HIGH#	HD-MED#	HD-MED%	HD-LOW#	#Act-LPs
W013									
W014									
W015									
W017									
W018									
W019									
W020									
W021									
W022									

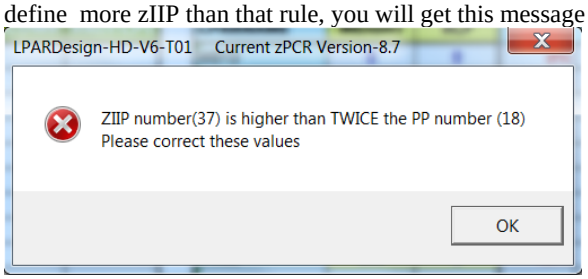
If you have (from a previous study) set values in the zAAP Weight / #LP they are all erased.

If you have to use zIIP, do the normal operations, when you press the 1 - Config. Validation 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.

7.4 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 LP (Total)	1
#LPAR w/DED LP	1
LP Statistics	
#HighShare LP (Total)	1
#HighShare LP (DED)	1
#MediumShare LP	6
#LowShare LP	3

7.5 EXPERT SPREADSHEET Usage.

When you push the Click for EXPERT NOTES button, you may (or not) have advices on how to optimize your current configuration.

Here are the current rules used to provide thes advices:

7.5.1 The rules used for advices:

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.

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%.

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

Here is an example of what is produced:

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

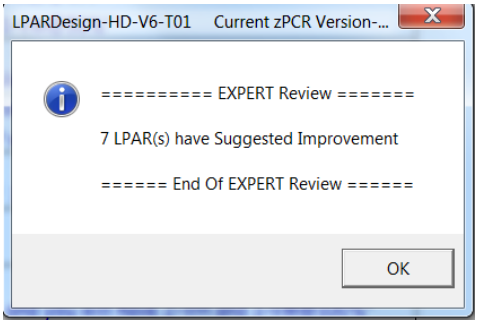
Click for EXPERT NOTES

LPAR	Suggested Improvement Notes - GCP
W013	(R1) - Due to the 0.5 rule, a small increase of the Weight could lead to have a Full VH Your current Guaranteed#PP is 1,42 - raising it to 1.5 would give you 1-VH and 1-VM@50%"
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 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 ".

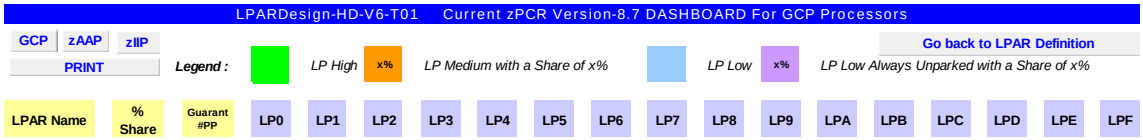
A pop up window will show you how many LPARs have advices:



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

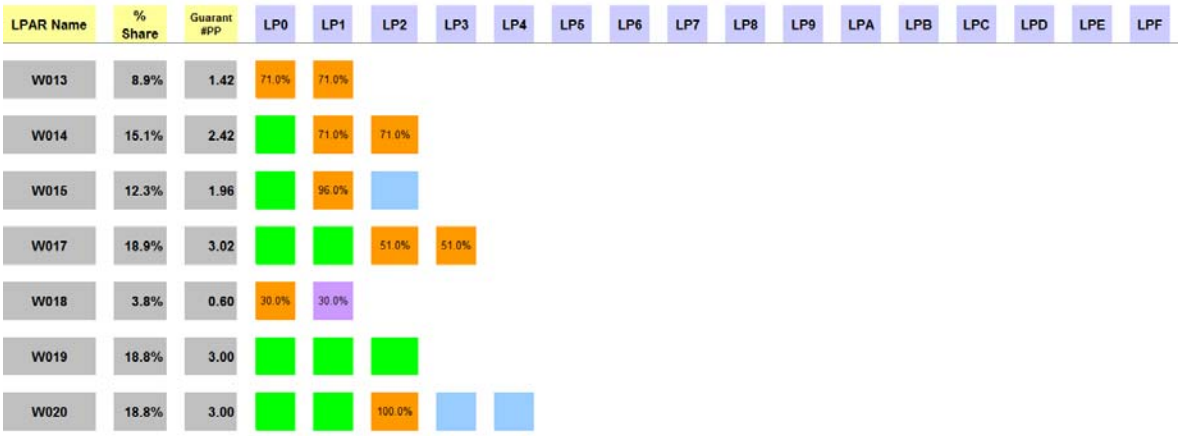
7.6 DASHBORD SPREADSHEET Usage.

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.

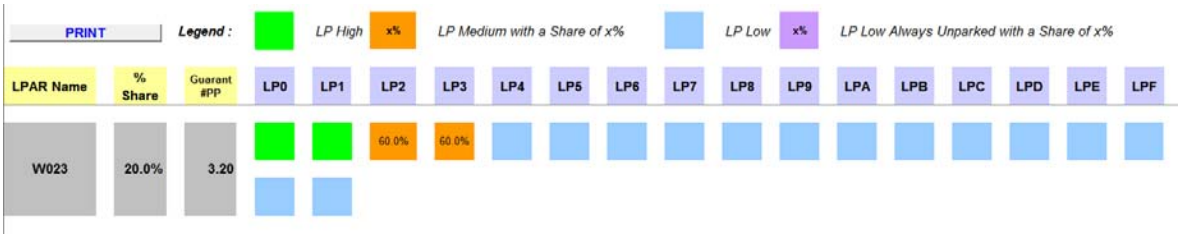
The following lines (by LPARs) gives the layout of each LPAR:



For example, we can see that:

LPAR W013 has 2 VM@71%
LPAR W014 has 1 VH and 2VM@71%
LPAR W015 has 1VH, 1VM@96% and 1VL
LPAR W018 has 1VM30% and a VL@30% always unparked
LPAR W020 has 2VH, 1VM@100% and 2VL

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:

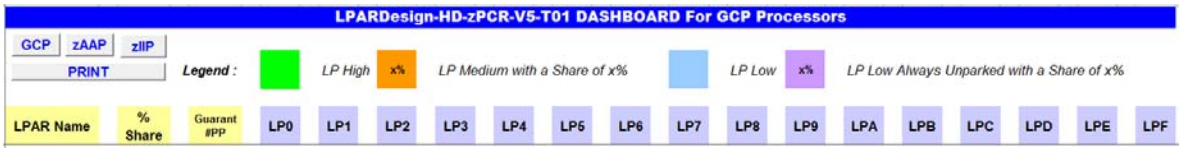


The W023 LPAR was defined with 18 LPs – so a second line is started for the 2 remaining LPs .

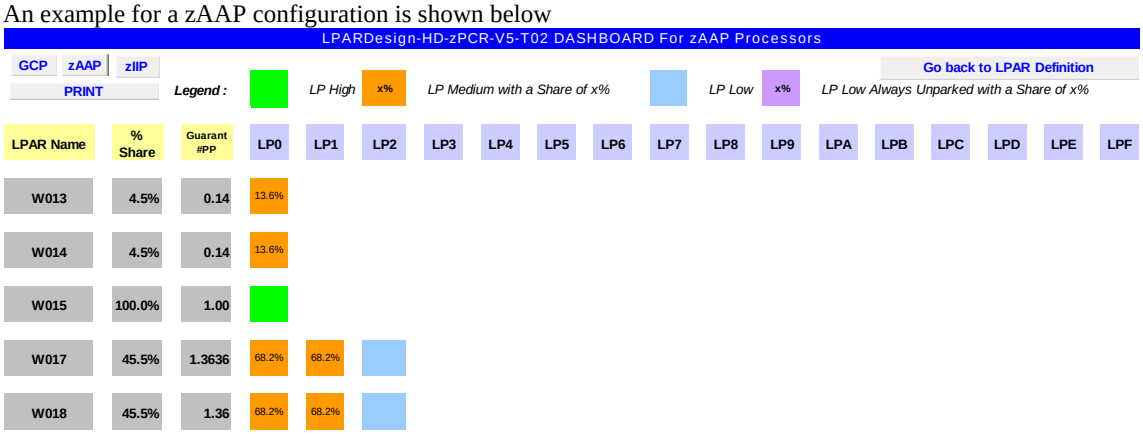
In V5, 3 new buttons are added to have the same functions for zIIP and zAAP processors as well as for GCP processors:

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

The worksheet looks like that now:

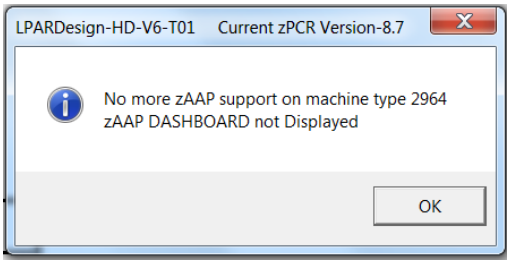


An example for a zAAP configuration is shown below



Starting with the z13 machine, if you press the

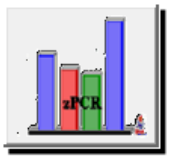
button, you will get the message box :



8. LINK with ZPCR.

8.1 General considerations on this feature.

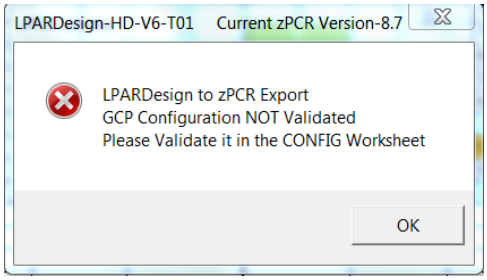
Code has been added to help creating a zPCR study file from LPARDesing or to upload LPARDesign with an existing zPCR study file.

To use this function click on the 

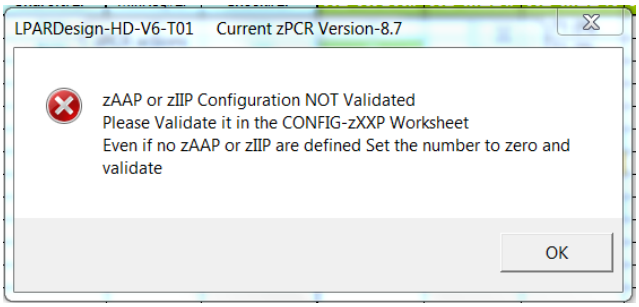
button located in the CONFIG worksheet.

To generate a reliable zPCR 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.

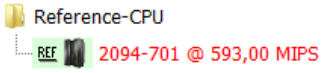
8.2 Current limitations of the link to zPCR feature.

8.2.1 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

8.2.2 Reference CPU.

We use 

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

8.2.3 zPCR Version.

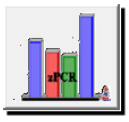
The LPARDEsign code is usualy in sync with the last zPCR version. The current supported version is displayed in the message boxes. zPCR usualy allows that a study with the n-1 version to be uploaded.

z/OS Version

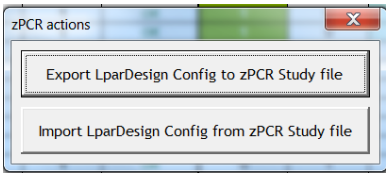
In this current release of LPARDesign we have set the z/OS Version to the LSPR Version so z/OS V2R1.

8.3 Using the zPCR EXPORT feature.

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

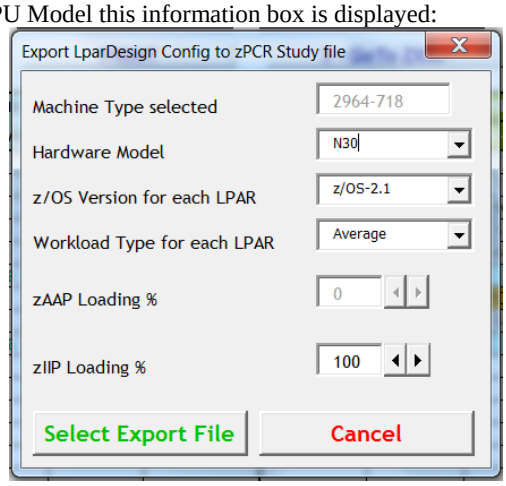
After all configurations have been checked, click on the 

button.

This box is displayed : 

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

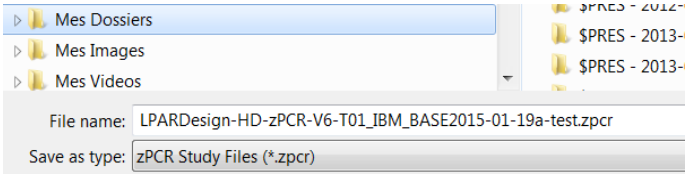
Then and according to your CPU Model this information box is displayed:



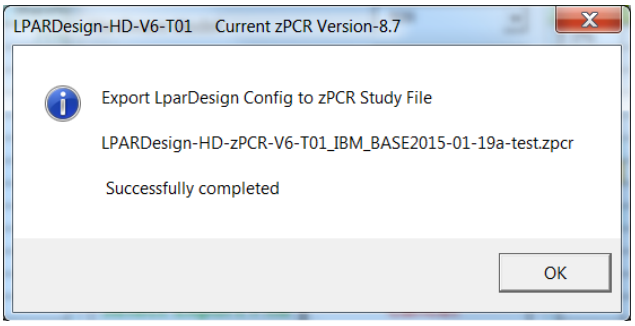
You have to select these useful informations to create a proper zPCR study File:

- 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:



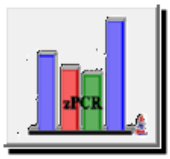
You can select the folder and the file name. Then select SAVE and you will receive this message box specifiying your choices:



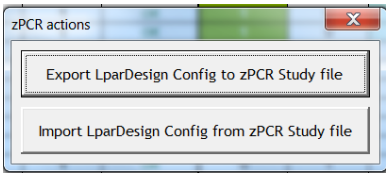
Note :

- 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.

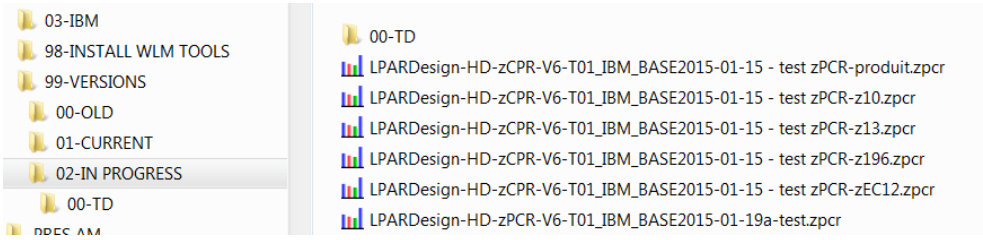
Click on the 

button.

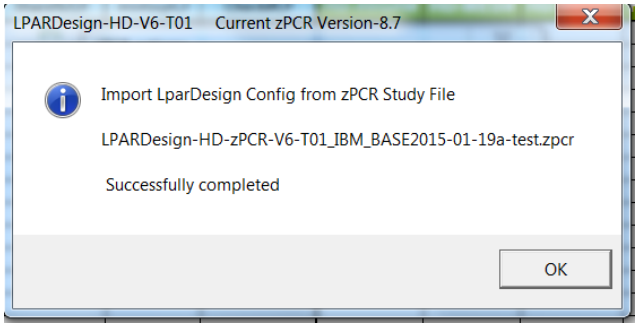
This box is displayed : 

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

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



Click Open and your zPCR 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 : 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_mneville@fr.ibm.com**

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**.

- Starting with this LPARDesign release you have the DELETE LPAR feature that will help you to properly delete unwanted LPARs.
-

M2 – Never delete column D, E, F as they contain formulas that I cannot protect individually.

M3 – 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.

M4 – Never delete a row in the spreadsheet.
They will be cleaned automatically and remember that you have now the DELETE LPAR feature.

M5 – Try to use a fresh copy of the spreadsheet – use the Create a Copy feature and/or the Save as feature.

M6 – 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.

10. SUMMARY OF CHANGES IN PREVIOUS RELEASES.

10.1 What's new in V5T04?

zPCR version 8.4a is supported for export

10.2 What's new in V5T03?

10.2.1 Fixes and miscelaneous enhancements.

#1 – When whether the number of zAAP or zIIP was 0, there were a bad cleaning of some column resulting in a VBA error.

10.3 What's new in V5T02?

10.3.1 New feature#1 - Support of zBC12 model 2828.

10.3.2 New feature#2 – Support of zIIP and zAAP in the DASHBOARD worksheet.

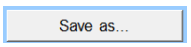
See the chapter DASHBOARD SPREADSHEET Usage for more informatins.

10.3.3 New feature#3 – link with zPCR.

One can create a .zPCR study file from LPARDesign or create a LPARDesign spreadsheet from a .zPCR study file.
See the chapter LINK with zPCR for more informations.
Note : This code has been developped by Mr Thierry Deleris a customer from Informatique Banques Populaires.

10.3.4 New feature#4 – File name setting while copying or saving.

In the START spreadsheet, when using the

or 

buttons, the file name is provided as the current workbook name suffixed by "**_Copy**" or "**_Final**".

Exemple for "Create a copy", the file name will be "**LPARDesign-HD-zCPR-V5-T02_Copy.xls**", assuming that "**LPARDesign-HD-zCPR-V5-T02**" is the current workbook name

10.3.5 Fixes and miscelaneous enhancements.

#1 - If there were "holes" in the zXXP definition, the process was stopped. This fix fills the WEIGHT and the #LP with "0" so that the process can continu.

#2 - The #ACT-LPs column was hidden in the zIIP configuration – it is now shown as well as the Error Column.

#3 - zAAP/zIIP – error checking if the WEIGHT was not numéric or not "DED" and/or the Number of LPs was not numeric. Associated error messages are provided.

#4 - A check on the correct number of LPAR defined according to the Model is now done. For exemple if you select a z114, you cannot define more then 30 LPARs. An associated error message is provided.

#5 - In the CONFIG spreadsheet, more validity checks are provided:

- The number of DEDicated LP must not be greater than the number of physical LP. For example if your machine is a 2827-728, the sum of DEDicated LP must not be greater than 28.

- The number of LPs (non-DEDicated) defined in an LPAR must not be greater than the one of the Shared Pool. For example, suppose you have a 2827-728 machine and you define some LPARs

with DEDicated LP. The sum of these LPs is 18. There are now 28-18=10 LPs remaining in the Shared Pool. So, an LPAR (having its LPs defined in the Shared Pool) should not be able t use more that thses 10 LPs.

#6 - In the case where you make a copy of an existing spreadseet to use for a new configuration and the number of LPAR in the new configuration is less than the original one, all the "not used" cells are cleaned.

#7 – In the CONFIG worksheet a check is performed to ensure that the LPAR Name is unique. This could lead to some problem when creating the zPCR study file.

10.4 What's new in V4T00?

10.4.1 Update for zXXP LPs.

The information about the number of active LPs was missing in the zXXP part of the spreadsheet.
It is the same rule as for CPs.

It has been added (example for zAAP) into the column named #Act-LPs:

CFG-LP-VALID?	YES		zAAP-Shared-Pool	11	1 - Config. Validation				
Machine-type	2827-712		zAAP-DED-Pool	1					
zAAP#Procs	12		zAAP-Weight	2400	PRINT				
zIIP#Procs	9								

zAAP			%SHARE by pool	Guarantee d#PP	HD supported on 2827				
LPARNAME	WEIGHT	#LP			HD-HIGH#	HD-MED#	HD-MED%	HD-LOW#	#Act-LPs
W013	300	3	13%	1.38	0	2	68.8%	1	2
W014	200	2	8%	0.92	0	1	91.7%	1	2
W015	100	1	4%	0.46	0	1	45.8%	0	1
W017	500	4	21%	2.29	1	2	64.6%	1	3
W018	600	6	25%	2.75	2	1	75.0%	3	3
W019	700	4	29%	3.21	2	2	60.4%	0	4
W020	DED	1	100%	1.00	1	0	N/A	0	1
W021									

As for the CP, this column shows the actual number of LPs that will be activated.
If you look at LPAR W014, the calculation of the number of LP gives:

- 0 VH
- 1 VM
- 1 VL.

The VL LP will be always UnParked, so the Active number of LP will be always 2.The two LPs will have an entitlement of 91.70% / 2 = 45.85%.

10.4.2 New EXPERT Worksheet.

This worksheet might help you optimize you current configuration.
In this version, it is related to CP configuration only.
To use it, go directly to the EXPERT worksheet, or use button located in the CONFIG worksheet.

When in the EXPERT worksheet press the Click for EXPERT NOTES button to get some advices on how to potentially optimize the parameters defined to get more of HiperDispatch.
The results of the EXPERT Worksheet are resets every time that you make a change in the configuration (so every time you push the 1 - CONFIG. VALIDATION button in the CONFIG Worksheet)
To propose these advices, I have used 6 rules that are described in the EXPERT spread sheet usage paragraph later in this documentation.

10.4.3 New DASHBORD Worksheet.

The new DASHBORD Worksheet is a graphical representation of the layout of the LP assignments.

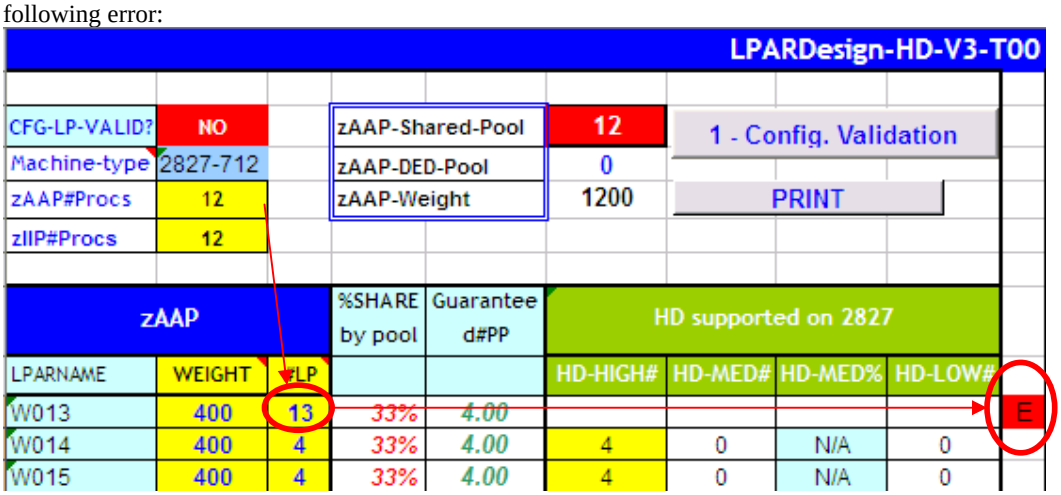
It is built automatically when pushing the 2 - HIPERDISPATCH button.
It can be seen as an information on how WLM builds affinity node (if applicable and accroding to your CPU model).

Note : This code has been developped by Mr Thierry Deleris a customer from Informatique Banques Populaires.

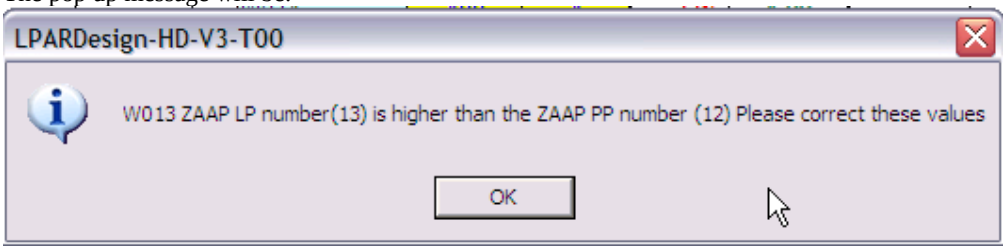
10.5 What's new in V3T00?

Added support of zEntreprise EC12 machine type "2827".
The MIPS used are those provided for z/OS V1R13 LSPR (this is for information only – use zPCR for the correct number of MIPS the LPAR will have)
.

A new check is made on the number of zAAP/zIIP according to the number of **Installed CP** (the machine model you chose in the Machine-type 2827-712 cell). It is not the standard rule which is based on the number of purchased CP, but I cannot know what this number is.
If you have set a number of zAAP/zIIP that is higher than the number of Installed CP, you will have the following error:



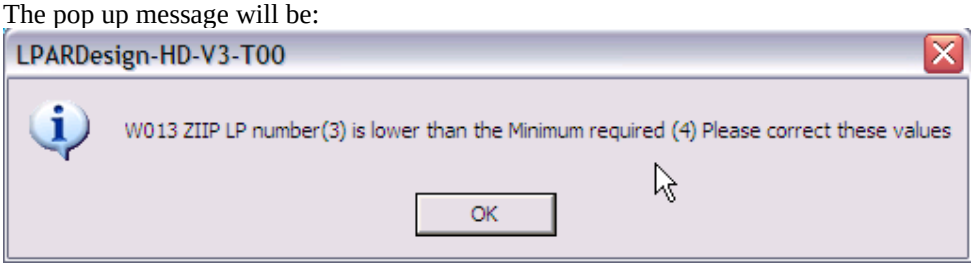
In this error case, you have set **13** LPs for the W013 LPAR which is higher than the number of Installed CP which is **12** (your machine is a 2827-712).
The pop up message will be:



Another new check is done (it was missing) to ensure that you have set the minimum number of LPs to sustain you %share.
In this error case you have set 3 LPs but this is not enough to sustain you %share which requires a minimum number of LPs that is 4:

CFG-LP-VALID?	NO		zIIP-Shared-Pool	12				
			zIIP-DED-Pool	0				
			zIIP-Weight	1200				
zIIP			%SHARE by pool	Guaranteed#PP	HD supported on 2827			
LPARNAME	WEIGHT	#LP			HD-HIGH#	HD-MED#	HD-MED%	HD-LOW#
W013	400	3	33%	4.00	3	1	100.0%	-1
W014	400	4	33%	4.00	4	0	N/A	0
W015	400	4	33%	4.00	4	0	N/A	0

The pop up message will be:



10.6 What's new in V2T10?

Added support of zEntreprise 114 machine type "2818". The MIPS used are those provided for z/OS V1R11 LSPR.

10.7 What's new in V2T09c?

Worksheet cells protections to avoid typing errors that could delete the formulas.
MIPS table updated with the latest values (September 22nd).

10.8 What's new in V2T09b?

Update of the Mips/MSU table with the last published official values. The MIPS used are for information only (use zPCR to evaluate the new machine). These MIPS are those from LSPR AVG V1R11 MI.

10.9 What's new in V2T09a?

Fix a problem related to the calculation on the number of Active LP.
Redesign of the HIPERDISPATCH button – it was grey out, that was confusing.

The new layout is now:

10.10 What's new in V2T09?

Added support of zEntreprise 196 machine type "2817". The MIPS used are those provided for z/OS V1R11 LSPR.

10.11 What's new in V2T08c?

Fix a problem related to the application of APAR OA24272 that states that we try to have at least 2 active LPs (meaning that we always try to un-park the first LowShare LP). That was ok with 2 LP defined in the LPAR but there was an error if more than 2 LPs were defined. This relate to the Number Of Active LPs column.

10.12 What's new in V2T08b?

Fix a problem related to the format of the field of the HD-HIGH#, HD-MED#, HD-MED% and HD-LOW# column for the zXXP configuration. For example, if the value of HD-MED# was 1, 100% was displayed starting with the 9th LPAR.

10.13 What's new in V2T08a?

10.13.1 Calculation of the number of Active LPs – column #Active LPs

This number was right according to the rule of spreading HighShare, LowShare and MediumShare LP.
However, in real life, when you have a 2 LP configuration where the number of guaranteed LP is less than 1, meaning that you have 1 MediumShare LP and 1 LowShare LP, the LowShare LP is always "unparked". So the actual (real life) number of active LPs in the previous case should be **2** and not **1**.
The HiperDispatch effect LP/PP ratio uses now this number.
The use of this number is recommended for a zPCR study.

10.13.2 Add of a new column named: #Report LPs

It will indicate the number of LPs that you will see "active" in the CPU ACTIVITY REPORT of the LPAR, meaning that it is the sum of HighShare LPs and MediumShare LPs. The LowShare are considered "unparked" at first.

10.13.3 Fixes

- The HiperDispatch button will not be printed.

- Correction of the zAAP/zIIP synthesis report – when there is no zXXP, "N/A" is written in the appropriate cells.

- Correction of the layout of the synthesis worksheet – some users were confused with the column

. They relate to the HiperDispatch effect only report.
For the Global Statistic report the single value is related to the name of the column in the left (No W/O or W HD meaning).

- The spreadsheet is delivered with a toleration% of 0% and 0 zAAP / 0 zIIP.

10.14 What's new in V2T08?

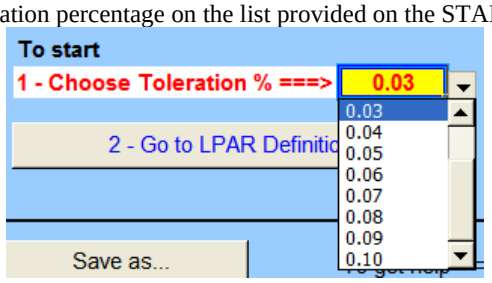
10.14.1 zAAP and zIIP Configuration.

This version includes the configuration and HiperDispatch calculation for zAAP and zIIP specialty engines.

10.14.2 Configuration toleration option.

Some customers have required that a "toleration percentage" 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 specification of this percentage is in the START worksheet. 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.
You choose a value for the toleration percentage on the list provided on the START as follow:



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