LPARDesign

USER'S GUIDE

Version V9-T01
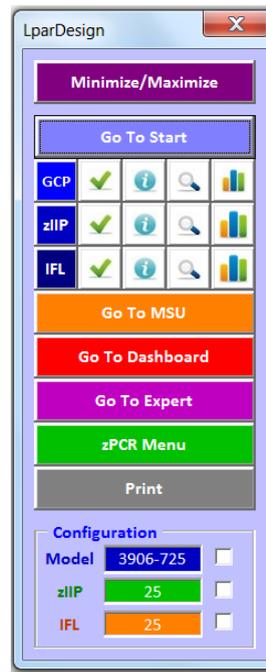
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Table Of Content

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.
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 BPCE-IT (France).
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 advice 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 V9T01?

This version is a major release of the LPARDesign spreadsheet.

5.1.1 Support of the z14 machine (3906).

The z14 machine is supported with the appropriate changes in the calculation of the spread of VH, VM and VL.

The N.M => 1.5 rule has been reactivated for z14.

A new rule has been defined for LPARs that have less than one guaranteed Physical Processor.

If you have N.M = 0.M, you will get 2 VM@(M/2)%. In all the previous machines, you had 1VM@M% and 1VL (which was always UnParked).

Examples are provided further is this manual.

5.1.2 A new way of "travelling" within the sheets of LPARDesign.

When you open the product, you will see a new persistent action bar that will help you performing specific actions and travelling easier within the sheets.

The idea there was to have all the possible capabilities available concentrated on a single bar.

For example, with this bar, you can validate the configuration, see the messages (if any), go to the EXPERT sheet, go to the DASHBOARD sheet with a single click.

A detailed explanation is given in this manual.

5.1.3 Information messages during the configuration validation.

While validating the configuration, the messages were displayed one by one when needed. It was noisy and quite a burden if you had a lot of errors to correct.

Now the messages will all be sent at the end of the validation and, with the new bar, you will be able to review them as needed.

5.1.4 Configuration validation and HiperDispatch calculation in a single pass.

This was done for the zXXP and IFL process. It has been set to the GCP process too.

5.1.5 More Configuration information depending on the machine type and rules.

Depending on the machine type and their specific rules, you will get information about them.

For example, when you will hit the new z14 rule, you will be informed.

There is a small difference for the cell location of this information depending of the PU type (GCP, IFL, zIIP).

Each PU type has now a cell for information and a cell for errors (added for zXXP and IFL).

5.1.6 Delete LPAR button in the IFL spreadsheet.

This was missing and has been added in this release.

5.1.7 More information in the EXPERT sheet.

For rules where you are advised to change the LPAR's weight, the calculation is now done and you have now the value of the "new" weight.

Note : the calculation are done at constant total weight. So if you increase a weight by xx for an LPAR, you have to decrease it by xx for another LPAR.

5.1.8 Support for zPCR xx.

The zPCR xx is now supported. This zPCR version is for z14.

6. THE NEW NAVIGATION AND ACTION BAR.

To make things simpler and easier, a new navigation and action BAR is provided.
It is available when you open the spreadsheet and stays until you close it.
You can move it anywhere in the worksheets (you will do that when first opening the product).

6.1 BAR Functions.
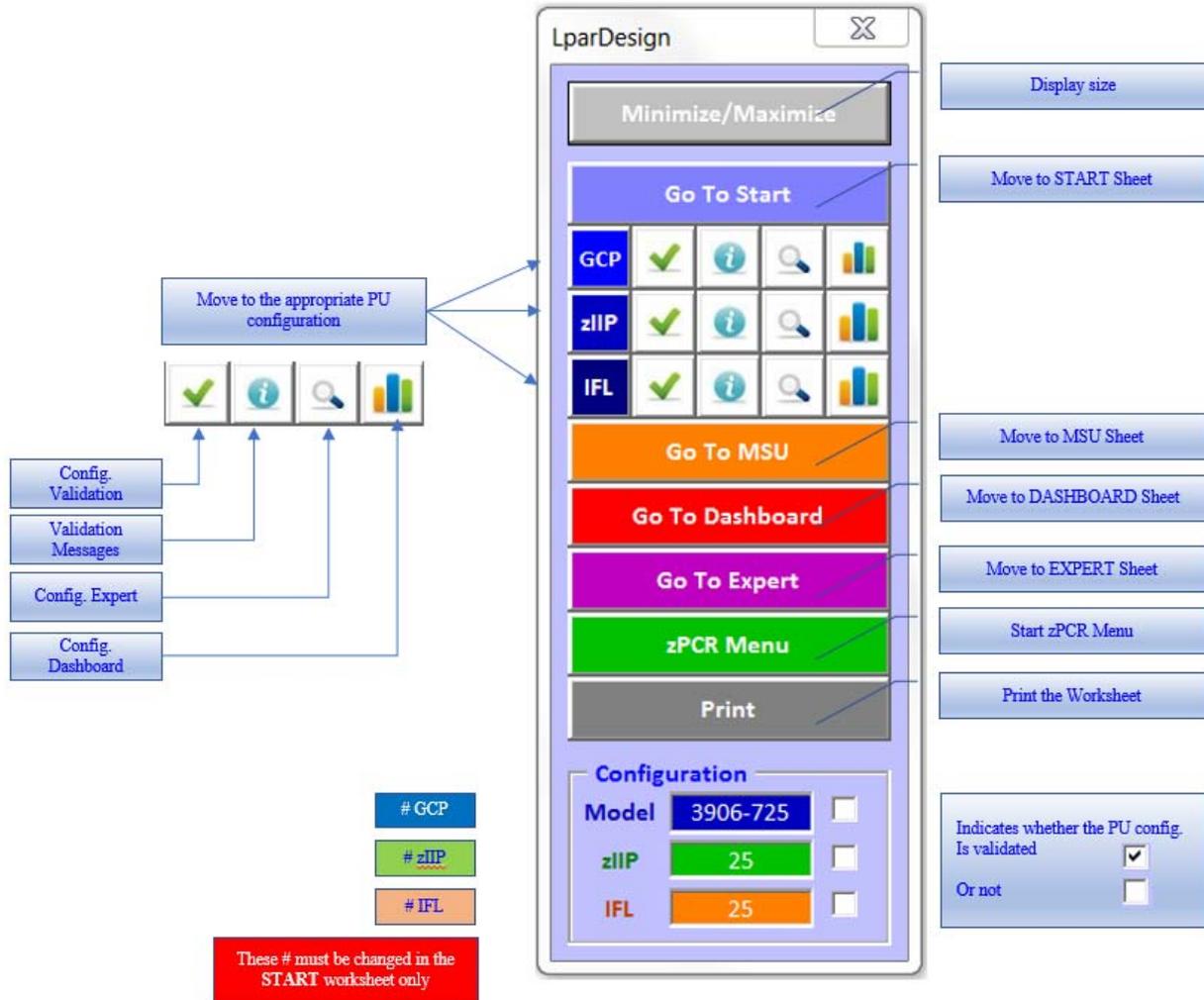
It is now easier when you are in a particular PU configuration to view the EXPERT or the DASHBOARD.
At any time, you can see your general configuration, validate it and check it.
Again, any change in the number of PU must be done in the START worksheet!

Sliding the mouse pointer to one of the icons shows its function:

7. NEW MANAGEMENT OF MESSAGES.

All the messages (validation, error and so on) will be now displayed in a single box.
This prevent to have to click "OK" after each message.
An example in given in this picture:
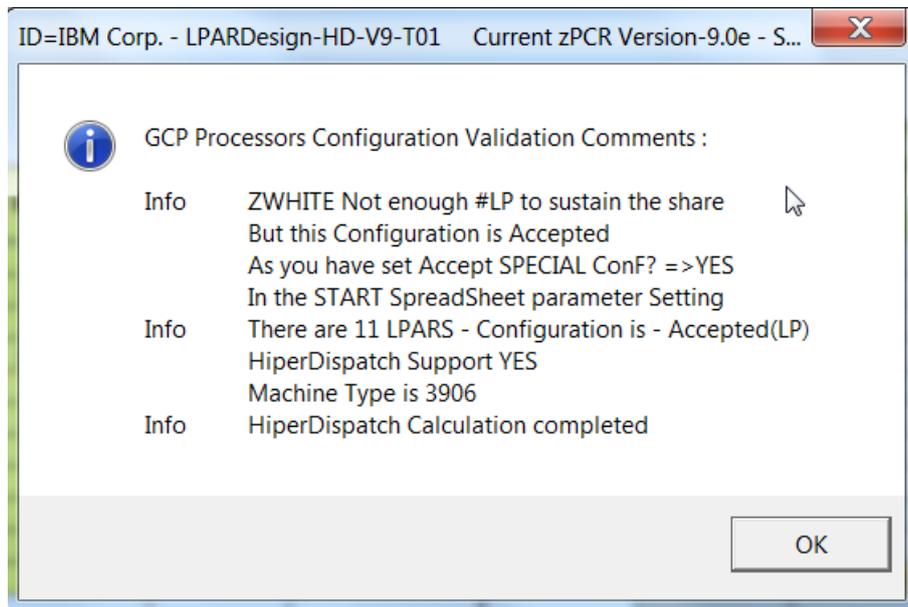
At any time, you can review these messages for this particular PU type by clicking on the Icon.

8. A BRIEF VIEW OF THE SPREADSHEET.

The spreadsheet is composed of 8 worksheets:

| START | CONFIG | CONFIG-MSU | CONFIG-zXXP | CONFIG-IFL | EXPERT | SYNTHESIS | DASHBOARD-HD |

8.1 The START worksheet:

This worksheet is opened automatically when you start the workbook.
You must use it to set the number of GCP, zIIP nd IFL and to set your "special configurations" parameter.
Then you can specify a "Study ID" that will be used in the spreadsheet or in the zPCR study.
The only way to change the value of GCP, zIIP and IFL is to go back to the START worksheet.

You can go to this START worksheet by clicking on the [Go To Start] button on the navigation Bar.
A check of a mix of these processors will be done before you can go to the various LPAR Definition.

Other functions provided are:
- Create a copy (so you can always have a basic version of the tool)
- Save as (to save you work)
- The navigation Bar will let you go to others functions for this particular PU or to other functions..

8.2 The CONFIG worksheet:

This worksheet helps you define:

- The LPARs characteristics for the GCP (as you would do on the HMC)
- Validation of the LPAR configuration and Calculation of the HiperDispatch® processor in HighShare,

    MediumShare and LowShare LPs using the navigation Bar [✔] icon.
-
Note : The Machine type and model are now changed only in the START worksheet.

Other functions provided are:
- Delete LPAR(s)
- Create a *zPCR* study file or update an LPARDesign spreadsheet with an existing *zPCR* study file.
- The navigation Bar will let you go to other functions for this particular PU or to other functions.

8.3 The CONFIG-MSU worksheet:

This worksheet helps you define:
- 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.

8.4 The CONFIG-ZXXP worksheet:

This worksheet helps you define:
- The LPARs characteristics for the zIIP (as you would do on the HMC).

Other functions provided are in the navigation BAR:

8.5 The CONFIG-IFL worksheet:

This worksheet helps you define:
- The LPARs characteristics for the IFL (as you would do on the HMC).

Other functions provided are in the navigation BAR:

8.6 The EXPERT worksheet:

This worksheet might help you optimizing your current configuration for:
- GCP, zIIP and IFL.

You choose the EXPERT recommendations you want by clicking on the appropriate button on the top of the worksheet or directly   in the navigation BAR.

Click for EXPERT NOTES - GCP   Click for EXPERT NOTES - zIIP   Click for EXPERT NOTES - IFL

8.7 The SYNTHESIS worksheet:

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

8.8 The DASHBOARD worksheet

This worksheet provides a view of the processor layout for:
- GCP, zIIP, and IFL.

You choose the DASHBOARD you want by clicking on the appropriate button on the top of the worksheet or directly   in the navigation BAR.

GCP   zIIP   IFL

9. SPREADSHEET USAGE.

> **ONLY CELLS IN YELLOW SHOULD BE FILLED.**
> **USE THE navigation BAR TO NAVIGATE WITHIN WORKSHEETS.**

When you open the workbook, you are automatically directed to the START worksheet.
Important changes have been done in this release, the START worksheet is now the only place to change the configuration of the PU.
The navigation BAR is displayed too. You can move it anywhere if needed.

9.1 START SPREADSHEET Usage.

There is a main redesign in this version of the layout and functions of this spreadsheet.

You can specify 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.

9.1.1 Specifying the Machine type (GCP) and/or #zIIP and/or #IFL.

This is now the place you do these specifications. If you want to change them, you have to go back to this spreadsheet by clicking on the [Go To Start] button on the navigation BAR.

9.1.2 Accept SPECIAL ConF? YES or NO.

PR/SM accepts configurations where the number of the 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".

9.1.3 Set / Change the Configuration for GCP, zIIP and IFL

You can now specify all the full configuration in terms of Machine-Type (GCPs) , zIIPs and IFLs.
Some validations are done to check the health of these settings (for example, do not specify zIIPs for an IFL only machine).
The following cells should be filled:

All the fields are lists so you can use the button on the right of the fill area to scroll within them.

Note: for IFL only machines (Like EMPEROR), you will find machines where the type ends by **00**. For example, 2964-7**00** or 3906-4**00** – this means that NO GCP are available for this machine as it is an IFL only machine.
Example of an IFL only machine selection:

Here you have chosen a 3906-7**00** which contains NO GCP.

With this very configuration, suppose now that you press the [icon] Icon for the IFL configuration validation.
As you have left 25 zIIPs, you will get an error message:
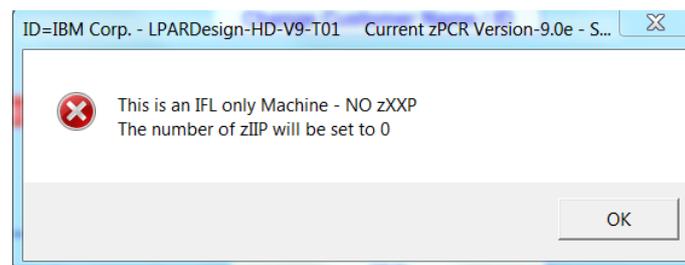
After pressing OK, the number of zIIP will be set to 0 and the Change Configuration will look like:

Of course, you can mix [GCP / zIIP] and IFLs.

When you are done with all these settings **it is mandatory to click the** [icon] Icon. This will check your settings and will bring you to the CONFIG (GCP) worksheet or, if you have an IFL only machine to the CONFIG-IFL worksheet.

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

9.2 CONFIG SPREADSHEET Usage.

9.2.1 Define the CPC and the basic LPAR configuration.

There is a cell [#LPARs   11] containing the number of currently defined LPARs. We did that because we added the IFL configuration, so we needed to check that the number of LPARs (GCP+IFL) didi not exceed the total number of LPAR supported by the machine.

Just fill the cells in yellow as you would fill the definition at the HMC.

Here is the new layout of the CONFIG spreadsheet before the validation.

				vMachine	Shared-Pool										
CFG-LP-VALID?	NO		#PhyProc	25	23				**Configuration Validation**						
Machine-type	3906-725		#LPs (non-ICF, non-DED)	36	Ded-Pool				**Delete selected LPAR**						
MSU	3 644		Ratio LP/PP (base)	1.57	2										
Total Weight	2 415		LSPR-AVG-V2R2-MI	31 084											
Max LPAR	85		#LPARs	11											
LPARNAME	**WEIGHT**	**#LP**	%SHARE (By Pool)	RESERVED	Guaranteed #PP	**Wkld LSPR**	MinReq#LP	Check#LP	HD-HIGH#	HD-MED#	HD-MED%	HD-LOW#	#Active LPs	#Report LPs
W3906	142	2				Low								
W014	242	3				Low-Avg								
Z015	196	3				Average								
W017	302	4				Avg-High								
ZWHITE	500	2				High								
S019	300	3				Average								
W020	300	8				Average								
W021	58	2				Average								
W022	DED	2				Average								
W013	60	1				Average								
LPAR8CHR	315	8				Average								

Note : The [**Wkld LSPR**] column is filled manually or automatically when you import a zPCR study. You can choose (manually) your setting in the following list:

High ▼
Low
Low-Avg
Average
Avg-High
High
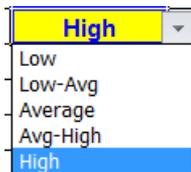
The the CPC has already been chosen in the START worksheet. You just have to configure the LPARs with their name, Weight (weight value or **DED** for dedicated LPs) and number of LPs as you would do in the HMC definition.

9.2.2 Validating the configuration – with [Accept SPECIAL ConF ?   NO]

This is the regular way of validating the configuration.

Then click on the [**Configuration Validation**] button (old way) or in the [✔] Icon for GCP.
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 cell is displayed. So now, we have 4 possible values: 30, 40, 60 or 85 LPARs.

The cell [Max LPAR   85] gives the maximum number of LPAR tha can be defined in the machine., So we have 4 possible values: 30, 40, 60 or 85.

9.2.3 Validating the configuration – with: **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 **ZWHITE** LPAR:

									HD supported on 3906					
LPARNAME	**WEIGHT**	**#LP**	**%SHARE (By Pool)**	**RESERVED**	**Guaranteed #PP**	**Wkld LSPR**	**MinReq#LP**	**Check#LP**	**HD-HIGH#**	**HD-MED#**	**HD-MED%**	**HD-LOW#**	**#Active LPs**	**#Report LPs**
W3906	142	2	5.9%		1.35	Low	2	OK	0	2	67.6%	0	2	2
W014	242	3	10.0%		2.30	Low-Avg	3	OK	1	2	65.2%	0	3	3
Z015	196	2	8.1%		1.87	Average	2	OK	1	1	86.7%	1	2	2
W017	302	4	12.5%		2.88	Avg-High	3	OK	2	1	87.6%	1	3	3
ZWHITE	500	2	20.7%		2.00	High	5	OK(a)	2	0	N/A	0	2	2
S019	300	3	12.4%		2.86	Average	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%	New 3906 Rule	0.55	Average	1	OK	0	2	27.6%	0	2	2
W022	DED	2	100.0%		2.00	Average	2	OK	2	0	N/A	0	2	2
W013	60	1	2.5%		0.57	Average	1	OK	0	1	57.1%	0	1	1
LPAR8CHR	315	8	13.0%		3.00	Average	3	#VL>2	2	1	100.0%	5	3	3

Left panel:
CFG-LP-VALID? YES | Machine-type 3906-725 | MSU 3 644 | Total Weight 2 415 | Max LPAR 85
#PhyProc: vMachine 25, Shared-Pool 23 | #LPs (non-ICF, non-DED) 36, Ded-Pool 2 | Ratio LP/PP (base) 1.57 | LSPR-AVG-V2R2-MI 31 084 | #LPARs 11

Buttons: Configuration Validation / Delete selected LPAR

WE can see that ZWHITE LPAR has a Weight of 500 which gives a %Share of 20.7% of the Shared Pool and thus needs a Minimum Required #LP of 5.
But only 2 LP are defined and this is done on purpose.
During the process, the following pop-up message will be displayed:

ID=IBM Corp. - LPARDesign-HD-V9-T01   Current zPCR Version-9.0e - S...

GCP Processors Configuration Validation Comments :

Info   ZWHITE Not enough #LP to sustain the share
        But this Configuration is Accepted
        As you have set Accept SPECIAL ConF? =>YES
        In the START SpreadSheet parameter Setting

The LPAR definition will be accepted and the Guaranteed#PP (a key value for HiperDispatch® computing) will be replaced by the number of LPs set in the #LP column.
To reflect this "acceptation" Guaranteed#PP column is set to bold and blue 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.

9.2.4 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 the HiperDispatch calculation.

Note: with **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 needed to sustain the %SHARE.

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

Note that now all the messages are in a single Box:

ID=IBM Corp. - LPARDesign-HD-V9-T01   Current zPCR Version-9.0e - S...

GCP Processors Configuration Validation Comments :

Info   ZWHITE Not enough #LP to sustain the share
            But this Configuration is Accepted
            As you have set Accept SPECIAL ConF? =>YES
            In the START SpreadSheet parameter Setting
Info   There are 11 LPARS - Configuration is - Accepted(LP)
            HiperDispatch Support YES
            Machine Type is 3906
Info   HiperDispatch Calculation completed

OK

All the message boxes display the current supported zPCR Version.

The **RESERVED** column is currently used to display information messages like "rules" for a specific machine (for the GCP processing at that time).

9.2.5 Computing the HiperDispatch® number of LPs.

Just push the appropriate button or Icon and the following columns will be filled with the calculated values.

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

HD-HIGH#:   #of HighShare LPs or **VH**
HD-MED#:   #of MediumShare LPs or **VM**
HD-MED%:   Entitlement of the MediumShare LPs
HD-LOW#:   #of LowShare LPs or **VL.**

#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 VH and VM 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:
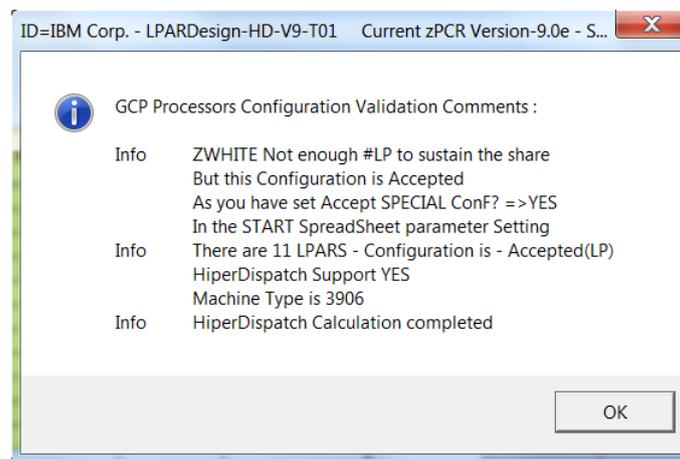
Otherwise, error messages will be sent.

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

HD supported on 2964

| LPARNAME	WEIGHT	#LP	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, 1 VM@100% and 2 VL - so you can see the way the cells are colored.
In this case, a VM is needed to be the anchor point of future UnParked VLs.

A warning message will be displayed in the Check#LP column if the number of VL is > 2 as shown in this example:

LPARNAME	WEIGHT	#LP	%SHARE (By Pool)	RESERVED	Guaranteed #PP	Wkld LSPR	MinReq#LP	Check#LP
W3906	142	2	5.9%		1.35	Low	2	OK
W014	242	3	10.0%		2.30	Low-Avg	3	OK
Z015	196	3	8.1%		1.87	Average	2	OK
W017	302	4	12.5%		2.88	Avg-High	3	OK
ZWHITE	500	2	20.7%		2.00	High	5	OK(a)
S019	300	3	12.4%		2.86	Average	3	OK
W020	300	8	12.4%		2.86	Average	3	#VL>2
W021	58	2	2.4%	New 3906 Rule	0.55	Average	1	OK
W022	DED	2	100.0%		2.00	Average	2	OK
W013	60	1	2.5%		0.57	Average	1	OK
LPAR8CHR	315	8	13.0%		3.00	Average	3	#VL>2

LPARs W020 and LPAR8CHR have this warning.

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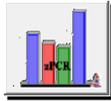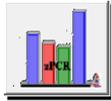
When the button is pressed, this will create a *.zpcr* study file from the LPARDesign spreadsheet or will update the current LPARDesign spreadsheet with an existing *.zpcr* study file. **See the chapter LINK with zPCR** for more information.

9.2.7 Deleting LPARs.

A button <u>Delete selected LPAR</u> is provided to properly delete selected LPAR. This was a long term requirement as it is not allowed to delete an LPAR with just 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.

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 <u>Delete selected LPAR</u> button and you will get the following message box:

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

Following LPAR :
'W018'
'W014'
are correctly deleted from LPAR Definitions List
The CONFIG-zXXP LPAR list is updated too

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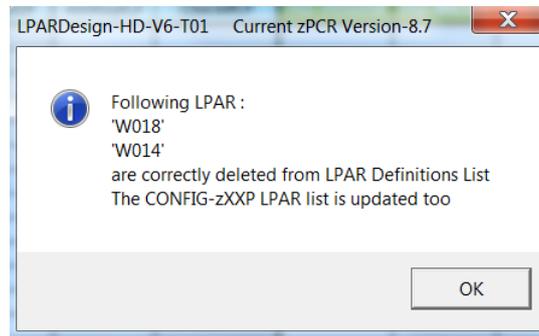
Note that the deletion has been done in the CONFIG-zXXP too.

9.3 CONFIG-MSU SPREADSHEET Usage.

9.3.1 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						CEC/LCP based			Group Calculations								Result	
Lpars	LCPs	Weight	Defined Capacity Limit	Capacity Group Name	Capacity Group Limit [MSU]	Share [%]	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	1,050	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	1,050	23.8%	238.1	38.1						200.0	positive phantom weight
SYS3	2	150	100	GRP1	1,000	12.0%	142.9	238.2	1,050	14.3%	142.9	42.9						100.0	positive phantom weight
SYS4	2	100		GRP1	1,000	8.0%	95.3	238.2	1,050	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	1,050	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

9.3.2 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

9.3.3 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.

### 9.3.4 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:

LPARDesign-HD-V6-T02   Current zPCR Version-8.7b

ⓘ MSU and Group Capping Model calculation complete !

OK
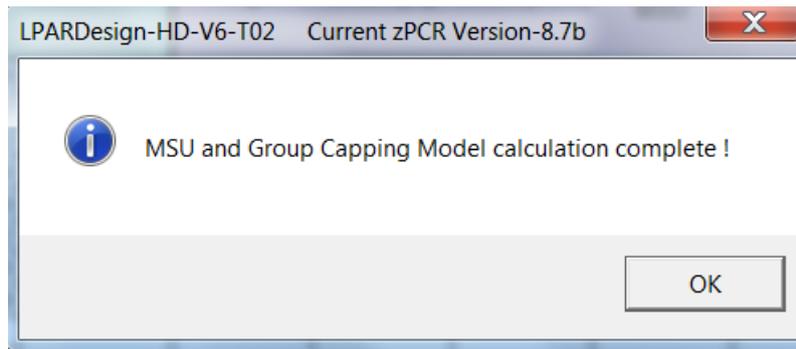
9.3.5 Explanation of this tab header:

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.

9.4 CONFIG-ZXXP SPREADSHEET Usage.

9.4.1 Only zIIP are supported in this release.

Once you are done with the CP configuration you can use the [zIIP ✓ ⓘ 🔍 📊] set of Icons to be directed to the zIIP configuration spreadsheet if needed.

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

Remember: The number of zIIP has been filled in the START spreadsheet and can be seen in

zIIP#Procs	25

If you want to change it, go back to the START spreadsheet.

Note that the rule concerning the total number of zIIP is enforced and checked (2 zIIP / 1 GCP).
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 zIIP) and number of LPs for each LPAR.
Clear the cells (Weight and number of LP) for the LPARs that are not concerned by the zIIP configuration.

NEVER clear the LPAR name.

Then, click on the [Configuration Validation] button (old way) or the [✓] Icon for zIIP.
This will check the configuration and calculate the HiperDispatch® number of LPs.

If errors occur, an error box is displayed and character "E" is set on the Error column of the current LPAR:
Example of error – the machine has **25** physical zIIP, but one has defined **26** LP in the W020 LPAR:

zIIP			%SHARE by pool	Guaranteed# PP	HD supported on 3906						
LPARNAME	WEIGHT	#LP			HD-HIGH#	HD-MED#	HD-MED%	HD-LOW#	#Act-LPs	Error	Information
W3906	142	2	6%	1.35	0	2	67.6%	0	2		
W014	242	3									
Z015	196	3									
W017	302	4									
ZWHITE	500	2								OK(a)	
S019	300										
W020	300	26								E	
W021	58										New 3906 Rule
W022	DED	2									
W013	60	1									
LPAR8CHR	315	8								#VL>2	

ID=IBM Corp. - LPARDesign-HD-V9-T01   Current zPCR Version-9.0e - S...

ⓘ IIP Processors Configuration Validation Comments :

Info   ZIIP INITIAL Configuration Routine Ended : Successfuly
Info   ZWHITE Not enough #LP to sustain the share
            But this Configuration is Accepted
            As you have set Accept SPECIAL ConF? =>YES
            In the START SpreadSheet parameter Setting
Info   W020 ZIIP LP number(26) is higher than the ZIIP PP
number (25) Please correct these values
Info   ZIIP FINAL Configuration Routine Ended : with error

[OK]

The column named [#Act-LPs] has the same meaning that the one in the CONFIG spreadsheet.

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".

A new [Information] column has been added to provide specific information for a specific machine rule.
For example, the W021 LPAR is target of the new 3906 rule about VM calculation when the LPAR has less than one guaranteed #PP.

zIIP			%SHARE by pool	Guaranteed# PP	HD supported on 3906						
LPARNAME	WEIGHT	#LP			HD-HIGH#	HD-MED#	HD-MED%	HD-LOW#	#Act-LPs	Error	Information
W3906	142	2	6%	1.35	0	2	67.6%	0	2		
W014	242	3	10%	2.30	1	2	65.2%	0	3		
Z015	196	3	8%	1.87	1	1	86.7%	1	2		
W017	302	4	13%	2.88	2	1	87.6%	1	3		
ZWHITE	500	2	21%	2.00	2	0	N/A	0	2	OK(a)	
S019	300	3	12%	2.86	2	1	85.7%	0	3		
W020	300	8	12%	2.86	2	1	85.7%	5	3	#VL>2	
W021	58	2	2%	0.55	0	2	27.6%	0	2		New 3906 Rule
W022	DED	2	100%	2.00	2	0	N/A	0	2		
W013	60	1	2%	0.57	0	1	57.1%	0	1		
LPAR8CHR	315	8	13%	3.00	2	1	100.0%	5	3	#VL>2	

9.4.2 Support for Special Configuration for zIIPs:

This is the same rule than for GCP configuration.
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

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 where the number of zIIP LPs is below the number of required LPs and you have selected this option, you will have this message box(read the information for the ZWHITE LPAR) :

ID=IBM Corp. - LPARDesign-HD-V9-T01   Current zPCR Version-9.0e - S...

IIP Processors Configuration Validation Comments :

Info	ZIIP INITIAL Configuration Routine Ended : Successfuly
Info	ZWHITE Not enough #LP to sustain the share
	But this Configuration is Accepted
	As you have set Accept SPECIAL ConF? =>YES
	In the START SpreadSheet parameter Setting
Info	ZIIP FINAL Configuration Routine Ended : Successfuly

OK

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

zIIP			%SHARE by pool	Guaranteed# PP	HD supported on 3906						
LPARNAME	**WEIGHT**	**#LP**			**HD-HIGH#**	**HD-MED#**	**HD-MED%**	**HD-LOW#**	**#Act-LPs**	**Error**	**Information**
W3906	142	2	6%	1.35	0	2	67.6%	0	2		
W014	242	3	10%	2.30	1	2	65.2%	0	3		
Z015	196	3	8%	1.87	1	1	86.7%	1	2		
W017	302	4	13%	2.88	2	1	87.6%	1	3		
ZWHITE	500	2	21%	2.00	2	0	N/A	0	2	OK(a)	
S019	300	3	12%	2.86	2	1	85.7%	0	3		
W020	300	8	12%	2.86	2	1	85.7%	5	3	#VL>2	
W021	58	2	2%	0.55	0	2	27.6%	0	2		New 3906 Rule
W022	DED	2	100%	2.00	2	0	N/A	0	2		
W013	60	1	2%	0.57	0	1	57.1%	0	1		
LPAR8CHR	315	8	13%	3.00	2	1	100.0%	5	3	#VL>2	

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

The recommendation on the number of VL is displayed too (as for W020 and LPAR8CHR LPARs).

9.5 THE CONFIG-IFL SPREADSHEET USAGE.

As for GCPs, just fill the cells in yellow.
Remember that the number of IFLs has been set in the START spreadsheet. This is the only place to change it.
Here is the layout of the spreadsheet:

ID=IBM Corp. - LPARDesign-HD-V9-T01 Current zPCR Version-9.0e - SpecCfg=YES LPAR DEFINITION (IFL)											
CFG-LP-VALID?	NO		IFL-Shared-Pool		23		Delete selected LPAR			Configuration Validation	
Machine-type	3906-625		IFL-DED-Pool		2						
IFL#Procs	25		IFL-Weight		2415						
Max LPAR	85		IFL-Valid?		NO		Go back to START to modifiy the IFL#Procs				
			IFL-#LPARs		11						
IFL			%SHARE by pool	Guaranteed# PP							
LPARNAME	WEIGHT	#LP			HD-HIGH#	HD-MED#	HD-MED%	HD-LOW#	#Act-LPs	Error	Information
ZVM1	142	2									
ZVM2	242	3									
ZVM3	196	3									
ZVM4	302	4									
ZVM5	500	2									
ZVM6	300	3									
ZVM7	300	8									
ZVM8	58	2									
ZVM9	DED	2									
ZVM10	60	1									
ZVM11	315	8									

You have to specify the **LPAR Name** as it cannot be copied from somewhere else (as for zIIP).
The configuration validation is done in two steps as for zIIP (INITIAL and FINAL).
As for GCPs you can properly delete an LPAR.

If you have GCPs too, **you must validate the GCP configuration before validating the IFL configuration** otherwise you will get this error message:

ID=IBM Corp. - LPARDesign-HD-V9-T01   Current zPCR Version-9.0e - S...

IFL Processors Configuration Validation Comments :

Info   HD not supported or GCP Configuration not verified
            Must be done first even for IFL Config when GCP exists
            Please go back to the CONFIG worksheet to check
            End of INITIAL Verification Routine

OK
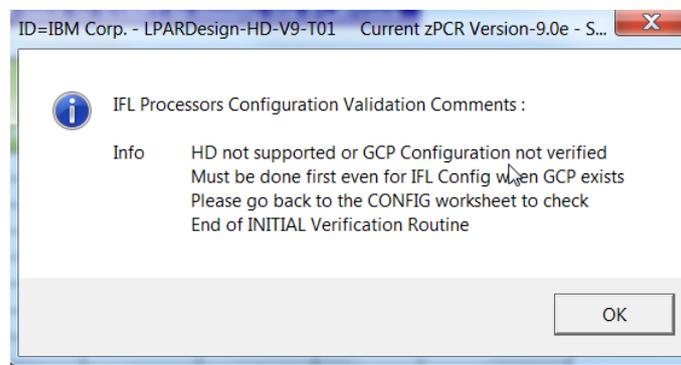
Note : depending on the way you have entered the number of IFL, you will be automatically directed to this IFL configuration spreadsheet – this is the case for an IFL only configuration.

Here is the spreadsheet after having click on the **Configuration Validation** button (old way) or in the **IFL** ✔ Icon.

CFG-LP-VALID?	YES
Machine-type	3906-725
IFL#Procs	25
Max LPAR	85

IFL-Shared-Pool	23
IFL-DED-Pool	2
IFL-Weight	2415
IFL-Valid?	YES
IFL-#LPARs	11

Delete selected LPAR   **Configuration Validation**

Go back to START to modifiy the IFL#Procs

IFL			%SHARE by pool	Guaranteed# PP	HD supported on 3906						
LPARNAME	WEIGHT	#LP			HD-HIGH#	HD-MED#	HD-MED%	HD-LOW#	#Act-LPs	Error	Information
ZVM1	142	2	5.9%	1.35	0	2	67.6%	0	2		
ZVM2	242	3	10.0%	2.30	1	2	65.2%	0	3		
ZVM3	196	3	8.1%	1.87	1	1	86.7%	1	2		
ZVM4	302	4	12.5%	2.88	2	1	87.6%	1	3		
ZVM5	500	2	20.7%	2.00	2	0	N/A	0	2	OK(a)	
ZVM6	300	3	12.4%	2.86	2	1	85.7%	0	3		
ZVM7	300	8	12.4%	2.86	2	1	85.7%	5	3	#VL>2	
ZVM8	58	2	2.4%	0.55	0	2	27.6%	0	2		New 3906 Rule
ZVM9	DED	2	100.0%	2.00	2	0	N/A	0	2		
ZVM10	60	1	2.5%	0.57	0	1	57.1%	0	1		
ZVM11	315	8	13.0%	3.00	2	1	100.0%	5	3	#VL>2	

All the rules and error messages are the same as for GCP.

9.6 SYNTHESIS SPREADSHEET Usage.

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

ID=IBM Corp. - LPARDesign-HD-V9-T01   Current zPCR Version-9.0e - SpecCfg=YES   SYNTHESIS

HiperDispatch Effect - GCP	W/O HD	W/ HD
#LP (Shared Pool Only)	36	24
LP/PP ratio (Shared Pool Only)	1.57	1.04

Global Statistics	
LPAR Statistics	
#LPAR-TOTAL	11
#LPAR w/HighShare LP (Total)	8
#LPAR w/DED LP	1
LP Statistics	
#HighShare LP (Total)	14
#HighShare LP (DED)	2
#MediumShare LP	12
#LowShare LP	12

HiperDispatch Effect - IFL	W/O HD	W/ HD
#LP (Shared Pool Only)	36	24
LP/PP ratio (Shared Pool Only)	1.57	1.04

Global Statistics	
LPAR Statistics	
#LPAR IFL TOTAL	11
#LPAR w/HighShare LP (Total)	8
#LPAR w/DED LP	1
LP Statistics	
#HighShare LP (Total)	14
#HighShare LP (DED)	2
#MediumShare LP	12
#LowShare LP	12

HiperDispatch Effect - zIIP	W/O HD	W/ HD
#LP (Shared Pool Only)	38	26
LP/PP ratio (Shared Pool Only)	1.65	1.13

Global Statistics	
LPAR Statistics	
#LPAR with zIIP	11
#LPAR w/HighShare LP (Total)	8
#LPAR w/DED LP	1
LP Statistics	
#HighShare LP (Total)	14
#HighShare LP (DED)	2
#MediumShare LP	12
#LowShare LP	26

With these numbers, you can figure out how many VH, VM and VL you have.
You can see the HiperDispatch® effect on the number of actual active LPs.

9.7 EXPERT SPREADSHEET Usage.

EXPERT is available for CGP, zIIP and IFL. The layout is as follow:

ID=IBM Corp. - LPARDesign-HD-V9-T01   Current zPCR Version-9.0e - SpecCfg=YES   EXPERT
Click for EXPERT NOTES - GCP   Click for EXPERT NOTES - zIIP   Click for EXPERT NOTES - IFL

You can have a direct access to a particular EXPERT Note in using the [icon] Icon on the navigation BAR.

When the note advices you to increase a Weight, you will now have the amount of this increase.
Obviously, the calculation can only be done at constant Total Weight – so if you increase the Weight to xx for an LPAR, you have to decrease the Weight from xx for another LPAR.

Here is an example of what is provided in this specific case:

LPAR	Suggested Improvement Notes - GCP - Machine Type = 3906
W3906	(R1-*GCP*) - Due to the 0.5 rule, a small increase of the Weight could lead to have a Full VH Your current Guaranteed#PP is 1,35 - raising it to 1.5 would give you 1-VH and 1-VM@50%" The New Weight should be : 158 - The current Weight is : 142 - So you must decrease another Lpar Weight by : 16 to keep Total Weight(2415) constant

9.7.1 EXPERT Notes for GCP.

When you push the [Click for EXPERT NOTES - GCP] button (old way), or the [icon] Icon, you may (or not) have advices on how to optimize your current configuration.

Here are the current rules used to provide these advices:

9.7.1.1 The rules used for advices in GCP:

Rule#1:
If you have 1 VH and the decimal part is between 0.35 and less than 0.5, you can have 1VH and 1 VM@50% if you raise your 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%.
- On z13, whatever the x% is, you will get 2VH@[(1+x)/2]%.
On z14, the 1.5 rule is back.

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 0.80 (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.
This rule applies to all machines but the z14.

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 less LPs than needed but you have set ACCEPT SPECIAL CONFIG to YES.
This will influence the HiperDispatch® calculation of VH, VM and VL for the other LPARs.
This is the case for what we call WHITE SPACE LPARs.

Rule#8:
The number of LP must be set properly for not having so much VL. A best Practice document is available as a TechDoc TD106388. This Rule warns you if you are above the recommendation of this Best practice.

Here is a partial example of what is produced:

LPAR	Suggested Improvement Notes - GCP - Machine Type = 3906
W3906	(R1-*GCP*) - Due to the 0.5 rule, a small increase of the Weight could lead to have a Full VH Your current Guaranteed#PP is 1,35 - raising it to 1.5 would give you 1-VH and 1-VM@50%" The New Weight should be : 158 - The current Weight is : 142 - So you must decrease another Lpar Weight by : 16 to keep Total Weight(2415) constant
W014	No special Comment or Advice for this LPAR
Z015	(R3-*GCP*) - You have 1-VM with an entitlement of 87%" Your current Guaranteed#PP is 1,87 - raising the Weight and removing 1-LP would give you 2-VH but with less fexibility" The New Weight should be : 210 - The current Weight is : 196 - So you must decrease another Lpar Weight by : 14 to keep Total Weight(2415) constant [+] NOTE - You have 1VM and 1VL When ALL Vls will be UnParked, each VM and VL will have an entitlement of 43,33%
W017	(R3-*GCP*) - You have 1-VM with an entitlement of 88%" Your current Guaranteed#PP is 2,88 - raising the Weight and removing 1-LP would give you 3-VH but with less fexibility" The New Weight should be : 315 - The current Weight is : 302 - So you must decrease another Lpar Weight by : 13 to keep Total Weight(2415) constant [+] NOTE - You have 1VM and 1VL When ALL Vls will be UnParked, each VM and VL will have an entitlement of 43,81%
ZWHITE	(R7-*GCP*) - The number of specified LP is not sufficient but accepted However, this LPAR will influence the total WEIGHT and thus the HiperDispatch spread in VH, VM and VL for the others LPARs

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:

```
ID=IBM Corp. - LPARDesign-HD-V9-T01    Current zPCR Version-9.0e - S...

   (i)    =========== EXPERT Review GCP =============

          7 LPAR(s) have Suggested Improvement

          =========== End Of EXPERT Review ===========

                                              [   OK   ]
```
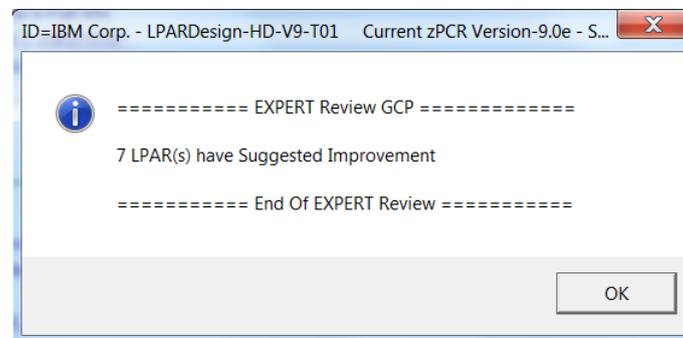
Note : This facility is only available if you have a valid configuration.

9.8 EXPERT Notes for zIIPs.

EXPERT notes are provided for the zIIPs configuration in clicking on the button (old way) or clicking on the Icon on the navigation BAR

Mots of the rules are quite the same as for the GCPs.

Here are some specific rules for zIIP:
Rule#9-zIIP:
Informs 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%.

Rule#10-zIIP:
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.

Here is a partial example of what is provided:

LPAR	Suggested Improvement Notes - zIIP - Machine Type = 3906
W020	(R3-zIIP) - You have 1-VM with an entitlement of 85,7%" Your current Guaranteed#PP is 2,86 - raising the Weight and removing 5-LP would give you 3-VH but with less fexibility" The New Weight should be : 315 - The current Weight is : 300 - So you must decrease another Lpar Weight by : 15 to keep Total Weight(2415) constant (R10-zIIP) - *WARNING* - The number of VL (5) is above the IBM Best Practice See: http://www-03.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/TD106388 - for this Best Practice [+] NOTE - You have 1VM and 5VL When ALL Vls will be UnParked, each VM and VL will have an entitlement of 14,29%
W021	(R9-zIIP) - the %SHARE is very low 2,4% This might lead to an ineffective use of the zIIP
W022	No special Comment or Advice for this LPAR
W013	(R9-zIIP) - the %SHARE is very low 2,5% This might lead to an ineffective use of the zIIP

9.9 EXPERT Notes for IFL.

EXPERT notes are provided for IFL when you press the button (old way) or clicking on the Icon on the navigation BAR.
.
The rules **are the same as** for GCPs.

9.10 DASHBOARD SPREADSHEET Usage.

This graphic is generated when you push the button related (if appropriate) to the PU type you select.
We have 3 types : GCP, zIIP and IFLs as shown below.

You can go directely to the appropriate DASHBOARD using the ▮▮ Icon on the navigation BAR.
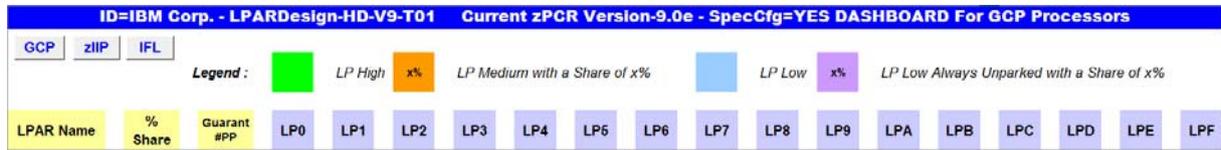
The first lines show a legend explaining the colors of the different LPs assignements.

The following lines (by LPARs) gives the layout of each LPAR:
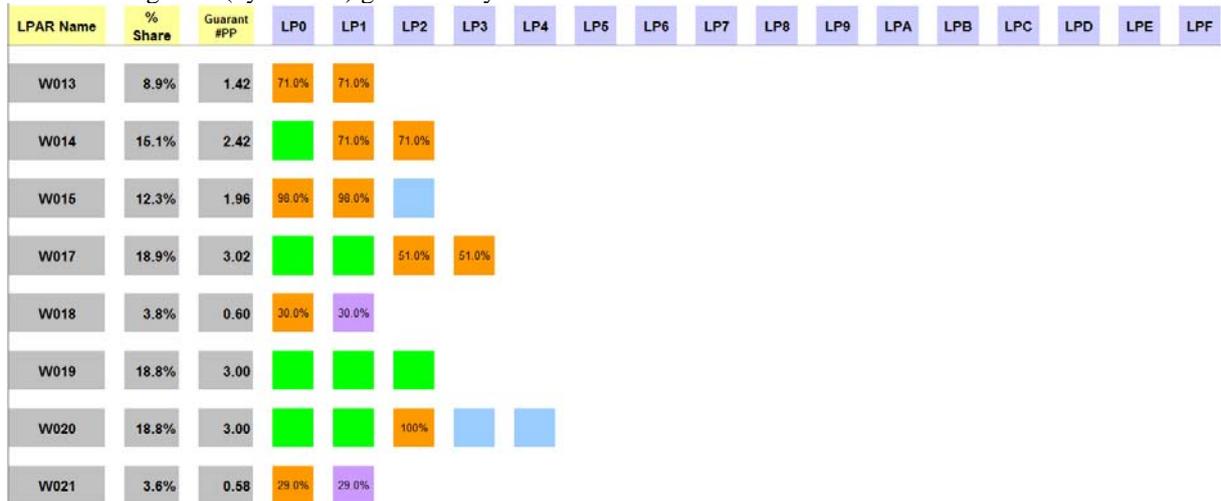
For example, we can see that:
    LPAR W013 has 2 VM@71%
    LPAR W014 has 1 VH and 2VM@71%
    LPAR W015 has 2VM@98% and 1VL
    LPAR W018 has 1VM30% and a VL@30% always unparked
    LPAR W020 has 2VH, 1VM@100% and 2VL and so on.

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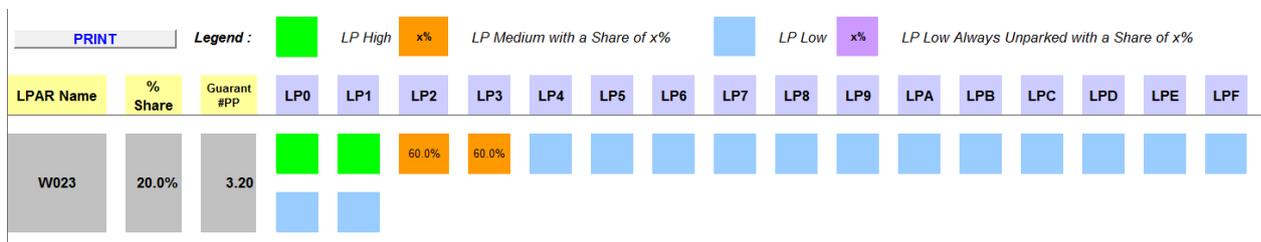
The W023 LPAR was defined with 18 LPs – so a second line is started for the 2 remaining LPs .

10. LINK with zPCR.

10.1 General considerations on this feature.

This feature helps creating a zPCR Basic study file from LPARDesing or to upload in LPARDesign an existing zPCR Basic study file.
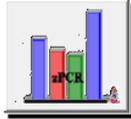
To use this function click on the [button image] button located in the CONFIG worksheet.
Or use the [zPCR Menu] Icon on the navigation BAR.
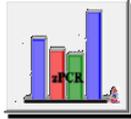
To generate a reliable zPCR Basic study file, you need to have your GCP, IFL and zIIP configurations validated. As you know, every time the spreadsheet is loaded, the cells containing the configurations validations status are set to NO, so, **all the configurations validations MUST BE DONE**.
If you do not perform this process, you will have the following error messages:

Example for GCP:

ID=IBM Corp. - LPARDesign-HD-V9-T01   Current zPCR Version-9.0e - S...

LPARDesign to zPCR Export
GCP Configuration NOT Validated
Please Validate it in the CONFIG Worksheet

OK
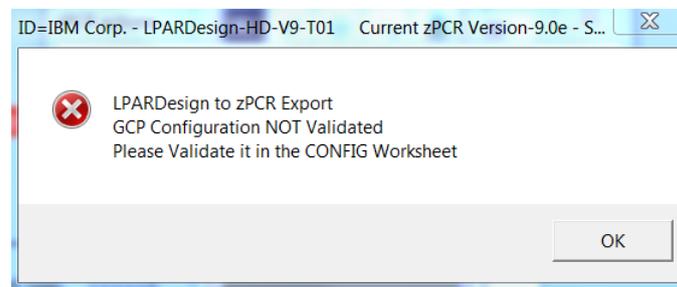
10.2 Current limitations of the link to zPCR feature.

10.2.1 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

10.2.2 Processors type.
HiperDispatch® is available on the z/OS operating system on GCP, zIIP and IFL processors types.
So, we cannot currently generate configurations with ICFs as ICF are not HiperDispatch® eligible.
You have to add them manually in the zPCR study.

10.2.3 Reference CPU.

Reference-CPU
REF 2094-701 @ 593,00 MIPS

We use [2094-701 @ 593,00 MIPS] as a reference CPU.
Again, you might be led to change this default.

10.2.4 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.

10.2.5 z/OS Version.

In this current release of LPARDesign we have set the z/OS Version to the LSPR Version so z/OS V2R2.

10.3 Using the zPCR EXPORT feature.

This feature export the current LPARDesign definition to a zPCR Basic study file.
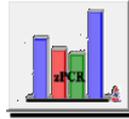
After all configurations have been checked, click on the [zPCR icon] button.

This box is displayed :

zPCR actions
Export LparDesign Config to a zPCR Basic Study file
Import LparDesign Config from a zPCR Basic Study file

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

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

Export LparDesign Config to zPCR Study file

zPCR Version	9.0e
Machine Type selected	2964-725
Hardware Model	N96
z/OS Version for each LPAR	z/OS-2.3*
Workload Type for each LPAR	User Defined
zAAP Loading %	0
zIIP Loading %	100
VM Version for each LPAR	z/VM-6.4
VM Workload Type for each LPAR	Average

Select Export File   **Cancel**
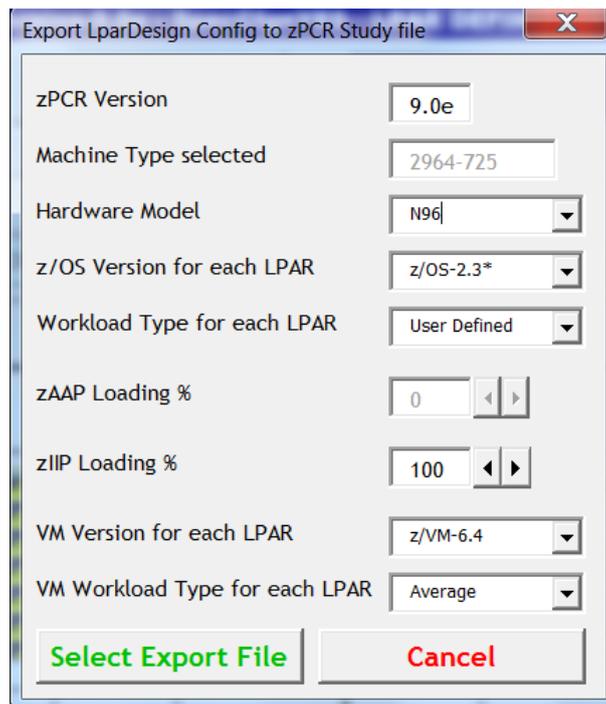
Note: In certain situations, you might have to properly set the actual Hardware Model.

A 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:
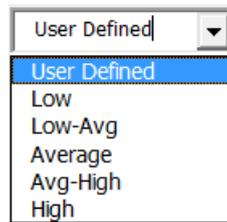
In this case, **all the workload will have this characterisation** set in the zPCR study file.

You have to select these useful informations to create a proper zPCR Basic study File:
- The Hardware Model
- The z/OS or zVM version
- The workload type
- The zIIP 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:
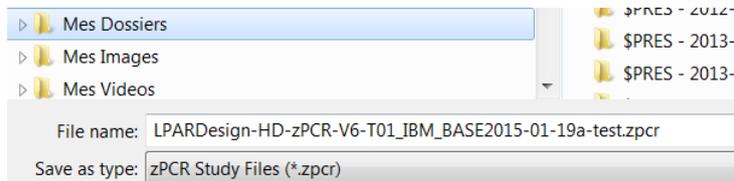
You can select the folder and the file name. Then select SAVE and you will receive this message box specifiying your choices:
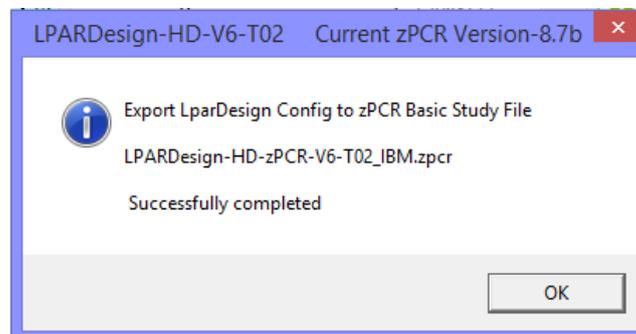
Note :
- When in zPCR, do not forget to reconfigure the ICF if appropriate.
- Only zPCR 8.7 and higher supports the z13 (2964) machine with 85 LPARs.

## 10.4 Using the zPCR IMPORT feature.
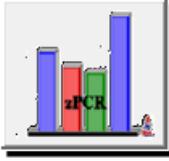
Click on the [button image] button.
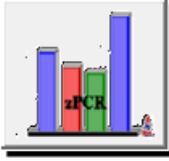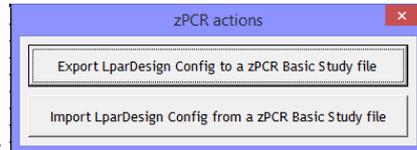
This box is displayed :

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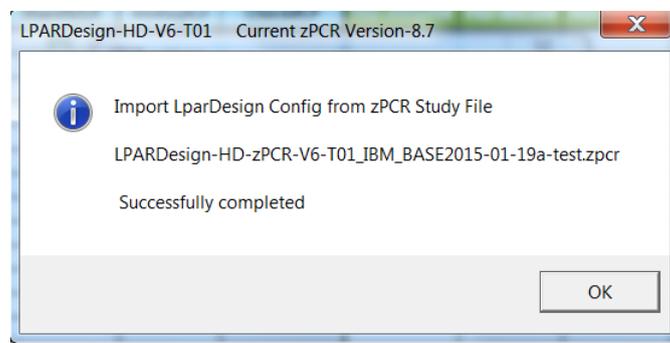
You are now in LPARDesign again and have to run all the appropriate function to validate your configuration.

Note : As zPCR only take into account 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. So be careful.

Note : No ICF will be imported.

11. FAQ, Common Mistakes and Release recommendations.

11.1 FAQ

Q1 - When I open the workbook, the CFG-LP VALID is set to NO.
R1 – This is the standard 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 zIIP, but the tool says that the configuration does not support HiperDispatch® or the GCP configuration has not been verified.
R2 – Whe you have zIIPs, you must go first 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 – zPCR ICF not in the configuration.
This is normal because these processors are not managed by HiperDispatch®.

Q4 – 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.

Q5 – 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**

Q6 – 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:
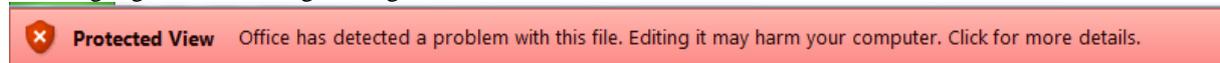

What you have to do now is simple:
        Click on the "click for more details" area.
        You will get this other message:
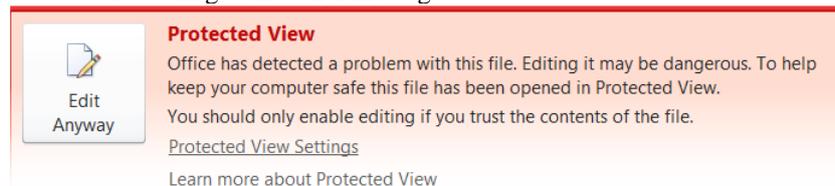
        Then click on "Edit Anyway"
        You will have this VB error message:
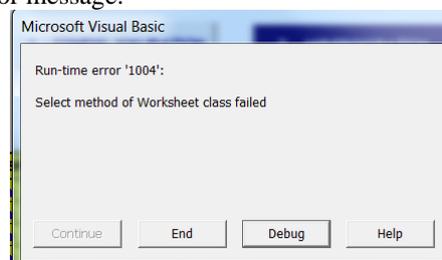
        Then click on "End"
        Save the spreadsheet
        Re open it and all should be fine now.

11.2 COMMON MISTAKES.

M1 – **Do not delete the remaining rows in the CONFIG, CONFIG-IFL or CONFIG-ZXXP worksheets even if you have less than 30, 40, 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, set the number of LP to zero or let it blank or set the Weight to zero or let it blank 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 zIIP are to be use, set 0 in the #zIIP in the START spreadsheet.

M6 – In the list of available machines, you might find generic names like "Systems z13s" or z13-4XX. Those are NOT machines that you can select, they are pointers in the list to help you find faster the machine you want. If you select these generic names, you will get this pop-up message:
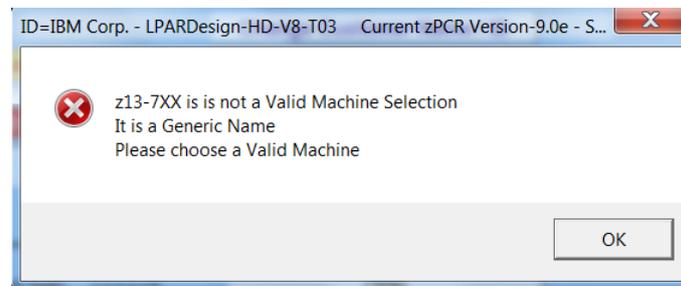

- For **IFL only machines** with no GCP, select machine like z13-4**00**, zEC12-7**00**. "**00**" means NO GCP.

11.3 RELEASE RECOMMENDATIONS:

R1 – Use the new navigation BAR to "walk" within the different worksheets (not available in the CONFIG-MSU worksheet as not appropriate in this worksheet).
Here is it again:
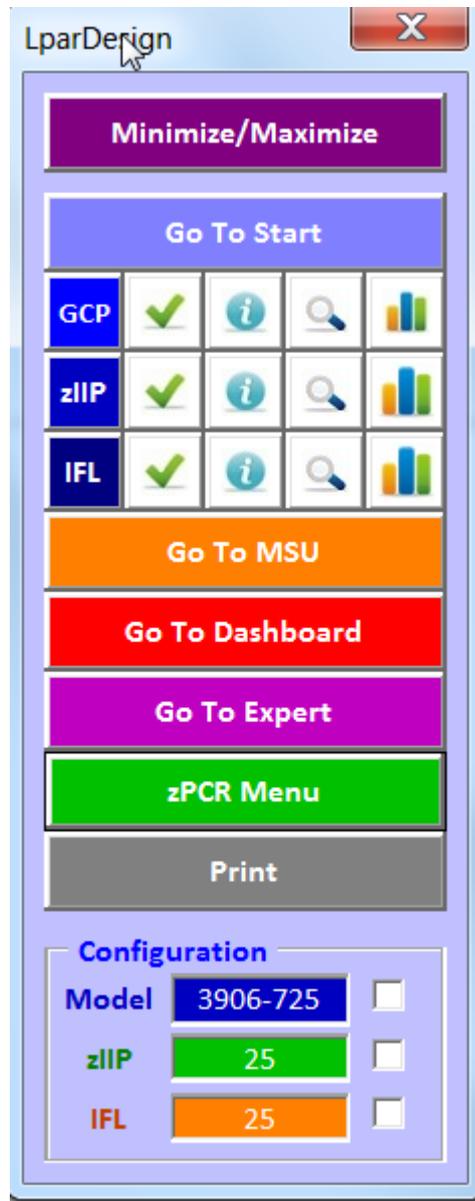
If you want to change the Configuration Go to Start – other Icons are fast access when you work in a specific PU type.
To read some spreadsheet easier, you can use the Minimize/Maximize button to "make room". When in Minimize configuration, the BAR will only use this space:
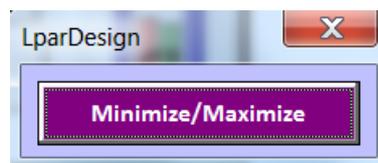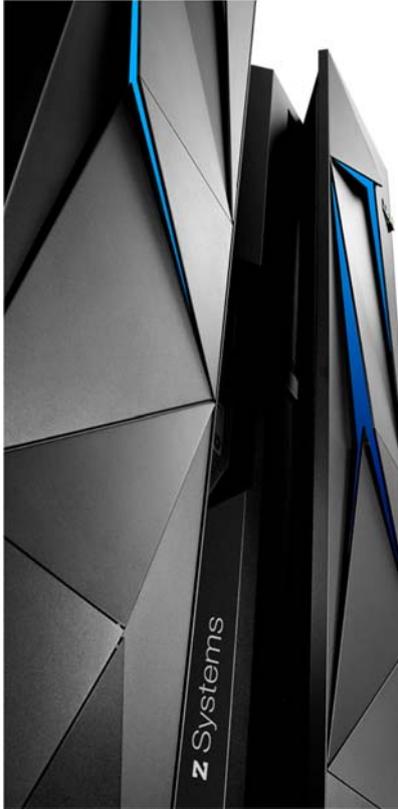
END OF DOCUMENT - Lpardesign-HD-Zpcr-V9-T01_Userguide.Docx