LPAR Configuration Capacity Planning Function
Advanced-Mode

QuickStart Guide

zPCR v9.1a

zPCR Function Overview

1. Display *LSPR Processor Capacity Ratios* tables
   - ✓ **Multi-Image table:** Provides capacity relationships for processors running with typical LPAR configurations, all partitions running the same SCP and workload. This table serves as a generalization of capacity expectation when multiple partitions are active.
   - ✓ **Single-Image Table:** Provides capacity relationships for processors with a single partition running the same SCP and workload. This table serves as a generalization of capacity expectation when only a single partition is active. Only capacity values for reasonable Single-Image configurations are shown.

   When viewing any *LSPR Table* window, the *LSPR Table Control* window will appear on the side. From that window you can select the specific IBM mainframe processor families that are to be displayed. It also provides the capability to build a *Favorites List* of up to 20 specific General Purpose or IFL processor models which can be displayed independently. The currently defined *Favorites List* will be saved with a zPCR study.

2. Display capacity expectation for any specific partition configuration using the *LPAR Configuration Capacity Planning* function

   Establish capacity relationships between processors with specifically defined LPAR configurations, running various SCPs and workloads in the partitions. This capability provides the most accurate capacity assessment, since it considers the exact partition configuration as well as the SCPs and workloads being run.

   The *LPAR Configuration Capacity Planning* function is the primary subject of this guide.

Capacity Planning Process

The remainder of this document will guide you through the following steps:
1. Enter *Advanced-Mode* (allows definition/comparison of multiple LPAR configurations)
2. Establish the *Reference-CPU* settings
3. Review the *LSPR Multi-Image Processor Capacity Ratios* table
4. Define an LPAR configuration representing a currently installed processor
5. Define an LPAR configuration representing a potential upgrade of the current processor
6. Compare the capacity results of the two LPAR configurations

General Guidance

Help: For online help concerning any open window, click the 🔍 (**Help**) toolbar icon.

Output: To generate output from zPCR, the following methods are available:

1. For windows that present capacity results, click the 📄 (**HTML**) toolbar icon to generate an output file in HTML format. HTML files can be opened with browser, word processing, and spreadsheet software, and imported into documents and notes.

2. Any in-focus window can be captured as a bitmap via the Windows' clipboard by pressing **Alt+PrintScreen**. Clipboard captures can then be pasted into documents and notes.

3. For certain windows that allow graphic output, click **Graph** on the menu-bar and select the desired item. Graphs and charts can be captured as JPEG or PNG formatted files.

Return: Most zPCR windows use **Return** to accept current settings and go back to the previous window. **Return** is implemented in two ways, depending on the window. Both cause the same result:

1. (**Return**) toolbar icon, located at the top of the window.
2. **Return** button, located at the bottom of the window.

Step 1: Enter Advanced-Mode

In **Advanced-Mode**, all zPCR function will be controlled from the **Advanced-Mode Control Panel** window. To open this window, on the initial **Function Selection** window:

1. Check the ✔ **Advanced-Mode** checkbox
2. Click the **Enter Advanced-Mode** button

From the **Advanced-Mode Control Panel** window, the following functions can be performed:

1. Change the **Reference-CPU** settings
2. View **LSPR Multi-Image Processor Capacity Ratios** table for GP or IFL CPs.
3. Define, manage, and compare **LPAR Partitioned Configurations**.

For documentation purposes, a **Study ID** may be entered in the text entry field provided at the top of the window.

Step 2: Establish Reference-CPU Setting

Double-click the REF 🔳 icon under the **Reference-CPU** tree to open the **Reference-CPU** window, and perform the following actions:

1. Select the processor **Family** and **Model** you want to be the **Reference-CPU** using the drop-down lists provided. Note that only 1-way processor models are allowed.
2. Enter the **Scaling-Factor** value you want to represent the capacity of this processor.
3. Select or enter a **Scaling-Metric** that your scaling-factor represents.

   If in doubt concerning **Reference-CPU** settings, click the **Typical** button to populate the fields with a specific processor model and a commonly used MIPS value for it.
4. Click **Return**.

   Note: The **Reference-CPU** settings may be modified at any time. Only the absolute capacity results presented in the various windows will change; capacity relationships between processors and between LPAR configurations will remain the same. Capacity comparisons must always be made using the same **Reference-CPU** settings.

Step 3: Review LSPR Capacity Ratio Table (Optional)

Double-click the LSPR 📊 **General Purpose CPs** icon under the **LSPR Processor Table** tree to open the **LSPR Multi-Image Capacity Ratios** table for **General Purpose CPs** or LSPR 📊 **IFL CPs** for **IFLs**. Each processor model is listed with a capacity value for the various workloads displayed. Capacity values in this table are based on the current **Reference-CPU** setting. After determining a capacity value for your current configuration, and applying a growth factor, use the same **LSPR Multi-Image Capacity Ratios** table to select a new replacement processor model that is likely to provide the desired capacity. There are 5 workload categories with which to view capacity; if in doubt, select the **Average** workload.

Step 4: Define the Current LPAR Configuration

Double-click the #1 z Configuration **#1** icon branch under the *LPAR Configurations* tree to open the *LPAR Host and Partition Configuration* window. A description for the LPAR configuration may be entered in the field provided in the window. From this window, you will define your LPAR host processor and its partitions by performing the following actions:

LPAR Host Processor Definition

Click the Specify Host button to open the *LPAR Host* window, allowing you to specify the LPAR host processor.

1. Select the processor *Family* and *Model* you want to be the LPAR host using the drop-down lists provided.
2. Select the number of CPs of each type that you want configured. Note that, for some processor families, the processor model name implies the number of GP engines configured; in these cases the GP count cannot be altered. The number of CPs of each type that can be configured is based on the specific processor family and model selected.
3. Click **Return**.

Partition Definitions

Click the GP button (GP / zAAP / zIIP if zAAP or zIIP real CPs were configured) to open the *Partition Definition* window. From this window, you will define each General Purpose partition, and any zAAP or zIIP logical CPs that they control. By default, a single partition is pre-defined when this window is initially opened, which should be modified to match your environment. Any field with a white background can be modified as follows:

1. **Include**: Checked by default, indicates that the partition participates in the LPAR configuration capacity assessment. Unchecking it provides an easy way to review capacity with the partition excluded, without having to delete it.
2. **Name**: Double-click the field to open it. Enter the name for the partition and press **Enter**.
3. **SCP**: Click the field to display a drop-down list from which to select the operating system for the partition. For z/OS, specific versions can be specified.
4. **Workload**: Click the field to display a drop-down list from which to select a workload for the partition. The list includes only workload names that apply to the SCP specified.
5. **Mode**: Click the field to display a drop-down list from which to select *Dedicated* or *Shared* mode for the partition.
6. **LCPs**: Click the field to display a drop-down list from which to select the number of logical CPs to be assigned for the partition.
7. **Weight**: Double-click the field to open it. Enter the partition weight and press **Enter**.
8. **Capping**: Check the capping checkbox if the partition is capped. *Absolute Capping* is discussed in the *zPCR User's Guide*.
9. Associate **zAAP** or **zIIP LCPs** with a GP partition: Select a GP row and then click the zAAP or zIIP button in the group box below. A separate zAAP/zIIP partition will be added with default settings for **Mode**, **LCPs**, **Weight**, and **Capping**. Modify these specifications as needed.

Click the Add GP button to create additional default GP partitions, which can then be modified as described above.

To duplicate a GP partition (including its associated zAAP or zIIP partitions), select the GP partition's row and click the Clone button. A new partition will be added that is identical to the one selected.

To delete a GP, zAAP, or zIIP partition, select its row and click the Delete button. For GP partitions, any associated zAAP and zIIP partitions will also be deleted.

Click **Return** to redisplay the *LPAR Host and Partition Configuration* window.

Click the IFL button or the ICF button to define partitions of those types. The partition definition procedure is identical to that for the General Purpose partitions.

The status and capacity of the LPAR configuration can be reviewed by clicking either the Host Summary button or the Partition Detail button. From the *Partition Detail Report* window, most partition metrics can be modified in much the same way as when defining partitions (fields with a white background can be modified).

When finished defining partitions or reviewing the LPAR configuration, click **Return** to redisplay the *LPAR Host and Partition Configuration* window. You can optionally click **Return** to close the window for this LPAR configuration, placing your attention back on the *Advanced-Mode Control Panel* window.

Note that, for existing IBM mainframe processors, the entire LPAR configuration can be automatically defined using EDF or RMF input from an existing z/OS partition. See the *zPCR User's Guide* for details.

Step 5: Add a 2nd LPAR Configuration

To add an LPAR configuration to the study, do one of the following:

1. Click the (**Add**) toolbar icon in the *Manage* group box. A 2nd LPAR configuration icon is created, with its LPAR configuration undefined.

2. Select the 1st LPAR configuration and click the (**Clone**) toolbar icon in the *Manage* group box. A 2nd LPAR configuration icon is created with its LPAR configuration defined as an identical copy of the 1st.

Double-click the new #2 **Configuration #2** icon to open the *LPAR Host and Partition Configuration* window, and define or modify the new LPAR configuration in the same manner described under **Define an LPAR Configuration** above.

To identify a processor model that is likely to satisfy the capacity requirement for an upgrade, refer to **Review LSPR Capacity Ratios Tables** above. Once the LPAR configuration has been created, its capacity projections may provide reason to change the specific processor model that was initially chosen to another.

Step 6: Compare Capacity of the 2 LPAR Configurations

To display the basic capacity values of the LPAR hosts, click the S toolbar icon in the *Compare* group box. The *Host Capacity Summary* window will display one row for each defined LPAR configuration, which includes capacity values by CP pool and Total CPC capacity.

To directly compare two individual LPAR Configurations, select both icons (click the 1st, then Ctrl+click the 2nd), and do one of the following:

1. Click the toolbar icon in the *Compare* group box. The LPAR configuration selected lowest on the tree will be compared back to the LPAR configuration selected above.

2. Click the toolbar icon in the *Compare* group box. The LPAR configuration selected highest on the tree will be compared back to the LPAR configuration selected below.

For either of these buttons, the *Host Capacity Comparison* window is displayed, comparing total capacity for each partition type, and for the LPAR host as a whole.

From the *Host Capacity Comparison* window, to display the *Partition Capacity Comparison* window, click either the Minimum Capacity button to compare partition minimum capacity values (preferred report), or the Maximum Capacity button to compare partition maximum

capacity values. Comparisons are only displayed for partitions where the name, SCP, and workload category are identical. The *Host Capacity Comparison* window remains open, and capacity values on it are updated to reflect any changes that might be made to the LPAR configuration on the right side of the *Partition Capacity Comparison* window.

Note that, while any comparison windows are open the *Advanced-Mode Control Panel* window is locked and any open LPAR configuration management windows are either hidden or closed. All open comparison windows can be terminated simultaneously by clicking **Return** on the *Host Capacity Comparison* window.

Deleting an LPAR Configuration

To delete an LPAR configuration, select it and click the (**Delete**) toolbar icon in the *Manage* group box beneath the *LPAR Configurations* tree. When deleting an LPAR configuration, all LPAR configurations below it will move up in the tree structure. The last remaining LPAR configuration icon cannot be deleted.

Renaming an LPAR Configuration

To rename an LPAR configuration, left click its ICON to select it, then right click its icon, click on **Rename** , enter the new name, and press **Enter**.

Wrapping Things Up

Saving a Study

To save your study with all its defined LPAR configurations, click the (**Save as ...**) or (**Save**) toolbar icon, or the equivalent item under **File** on the menu-bar.

Terminating zPCR

To terminate execution, click the (**Exit**) toolbar icon on the *Advanced-Mode Control Panel* window or the equivalent item under **File** on the menu-bar. If the study has not been saved in its current status, a dialog will appear. When terminating zPCR, all open zPCR windows will be closed.

Additional Usage Tips

User Preferences: You can customize zPCR to initialize with the same settings for several items. In particular, automating the *Reference-CPU* settings can be useful. From the initially presented *Function Selection* window, click the (**Preferences**) toolbar icon. Then, from the *Preferences* window, click **Change** in the *Reference Processor* group box, to open the *Reference-CPU* window, establish your desired settings, and click **Return**. Then click **Save** from the *Preferences* window. Other preferences settings are also available. Whenever zPCR is initiated, your designated preferences settings will be used. However, if loading a study, all settings will be those when the study was saved.

Workloads available in zPCR: To review the various LSPR workload categories that can be displayed in LSPR tables, click the **Workload Categories** button on the *LSPR Multi-Image Processor Capacity Ratios* table window or the *Function Selection* window. For partition definitions, unique workload names are available for z/OS, z/VM, Linux, z/VSE, zAware, and CFCC (Coupling Facility Control Code runs on ICF CPs).

zPCR Version: Check your tool download site for the most recent version of zPCR, as new processor data may be available or LPAR configuration algorithms may be improved from time to time. The version of zPCR being used is displayed at the top of the primary windows.

Questions / Comments?

The *zPCR User's Guide* PDF is available as a separate download. The text of this document can also be viewed as zPCR's context sensitive online help. The **LSPR Document** PDF is also available as a separate download.

Review the following items (found under **Documentation** on the *Function Selection* window or *Advanced-Mode Control Panel* window menu bar):

1. *zPCR NEWS File*
2. *zPCR User's Guide* *
3. *LSPR FAQ*
4. *LSPR Workloads*
5. *LSPR Document* *

6. *HiperDispatch Considerations*
7. *zAAP/zIIP Considerations*
8. *zAAP White Paper*
9. *Concerning Accuracy*

* Note: These PDFs can only be viewed from zPCR if they are copied into the zPCR installation's *Documentation* folder (must not be renamed).

For questions or comments, send a note to **zPCR@us.ibm.com**.