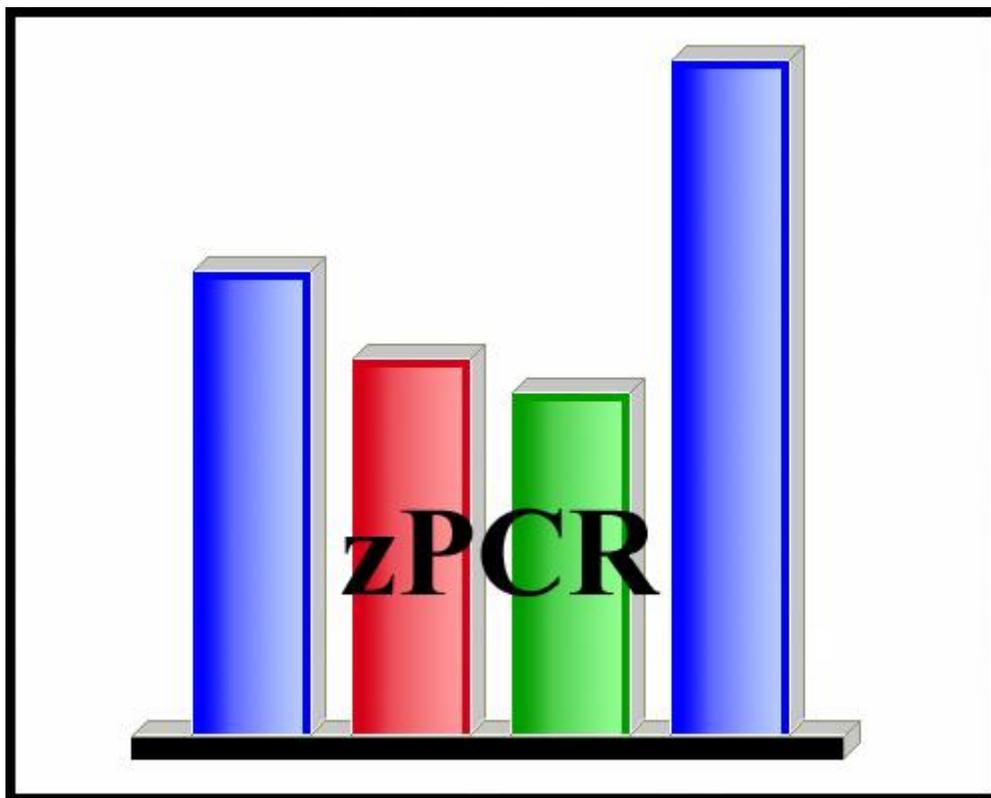# zPCR

Processor Capacity Reference for IBM Z and LinuxONE

External Study File Layout

zPCR v9.2e

v92e zPCR External Study File Layout 2018e02.docx

December 5, 2018

Table of Contents

Introduction

zPCR is a PC-based productivity tool under Windows, designed to provide capacity planning insight for IBM Z processors running various workload environments under z/OS, z/VM, z/VSE, KVM, and Linux. Capacity results are based on IBM's **LSPR** data, currently measured with z/OS v2.1.

Capacity is presented relative to a user-selected Reference-CPU, which may be assigned any capacity scaling factor and metric. Function in **zPCR** includes:

1. **LSPR Processor Capacity Tables**: Displays processor capacity ratios for 5 workload environments. Capacity tables provided include:

   - **Multi-image:** Each processor has a partition configuration typical for the model. All partitions are assumed to be running the same z/OS workload. Tables are available for General Purpose CPs and for IFL CPs.

   - **Single-image**: Each processor has a single shared partition with all CPs assigned (maximum = that supported by the SCP). Tables are available for General Purpose CPs and for IFL CPs.

2. **LPAR Configuration Capacity Planning:** Any specific LPAR configuration can be defined. Capacity projections are generated for each partition as well as the LPAR host as a whole. The LPAR host processor can be configured with General purpose CPs, zAAPs, zIIPs, IFLs, and ICFs where valid. Partitions are defined, specifying type (General Purpose, IFL, or ICF), SCP/workload, and LP configuration (dedicated/shared with number of logical CPs), and weight/capping assignments. zAAPs and zIIPs are always associated with a General Purpose partition running z/OS. IFLs can be associated with a GP partition running z/VM. Partition configurations can be created directly from z/OS RMF data, from EDF data, or from a previous **zPCR** study.

Results are presented in tables and graphs and can be easily captured for notes, presentations, or handouts. A complete study can be saved for future reference. A User's Guide, integrated online help, and relevant documentation are included.

The most useful aspect of **zPCR** is the ability to model any legitimate LPAR configuration (#2 above) and produce capacity results for it by partition or for the CEC complex as a whole. Both the LPAR configuration of a currently installed IBM Z processor, and the LPAR configuration for an intended processor upgrade can be modeled; results can then be compared to determine the expected capacity delta for the upgrade.

Each **zPCR** analysis can be captured as a **zPCR** "***study file***", which can subsequently be used to restore the study at any time.

When large numbers of partitions are being exploited, it can become tedious to enter all of the pertinent partition definition information into **zPCR** manually. z/OS can capture the current partition definition information as SMF (System Monitoring Facility) data. Performance monitoring tools such as RMF can then create various reports. **zPCR** has the ability to read RMF reports, directly importing the LPAR host and all of its partition definitions.

Other products also exist that can read SMF data and produce similar reports. This guide is intended to document a method through which partition definitions could be created automatically by such products or user written code. The file is an XML file with various tags that look similar to a **zPCR** study file. The tags are used to identify all the aspects of the LPAR host and its partition configuration to **zPCR**.

Overview

A *zPCR External Study* is a file that can be loaded into **zPCR**. It is intended to provide the definition for the LPAR host and each of its partitions. The file consists of the following primary XML tags:

<ExternalSource>   Describes the version and the source of the configuration data. This tag is required.

<Host>   Describes the LPAR host processor configuration. This tag is required.

<GeneralPurpose>   Used to describe each General Purpose partition.

<zAAP>   Used to describe each zAAP partition associated with a General Purpose partition running z/OS.

<zIIP>   Used to describe each zIIP partition associated with a General Purpose partition running z/OS.

<IFL>   Used to describe each IFL partition.

<ICF>   Used to describe each ICF partition.

It is suggested that the file extension used for a **zPCR** *External Study* be "**zPCR**". With this file extension assigned, it can be used just as any normal study file to start **zPCR**, or, when using *drag and drop* techniques, to populate an LPAR configuration.

The tags discussed in this document are supported by **zPCR** v8.7f or later.

Certain metrics, which are not defined in the **zPCR** *External Study*, are set to the **zPCR** default value or the user preferences value loaded at startup. Definitions for these metrics can be changed manually by the user at any time within a **zPCR** invocation. One such metric is the **Reference-CPU** model, its scaling-factor and scaling-metric.

In addition, any metric defined via the **zPCR** *External Study* can be changed during a **zPCR** invocation.

The LPAR host defined in the **zPCR** *External Study* is limited to z9 and later processor models (i.e., z9 BC, z9 EC, z10 BC, z10 EC, z114, z196, zBC12, zEC12, z13, and z14). Only the SCP versions included with **zPCR** can be supported. When loaded, any z/OS version found that is not supported in **zPCR** is translated to an appropriate one that is supported.

For z/OS partitions:

- On z13 and z14 processors, z/OS-1.13 or later must be specified.
- On zEC12 and zBC12 processors, z/OS-1.10 or later must be specified.
- On z196, z114, and z10 processors, z/OS-1.7 or later must be specified.
  Previous z/OS versions are not supported.

For z/OS, z/VM, KVM, and Linux partitions, the **zPCR** workload category assignment (there are 5 categories) will normally be based on user judgment. When nothing else is known, the *Average* workload category should be chosen.

With certain hardware counter data (CPU-MF), a more scientific method of selection is possible, See *zPCR User's Guide*, section *EDF Overview* and LSPR Workloads Document.

Any valid LPAR configuration is allowed, with the following exceptions:

- GP and IFL partitions running z/VM-5.4 are limited to 32 logical CPs.
- GP and IFL partitions on z13 and z14 running z/VM-6.4 or z/VM-6.3 are limited to 64 logical CPs. However, if SMT is enabled for the partition's IFLs, the limit becomes 32.
- z/VSE partitions are limited to 4 logical CPs
- ICF partitions are always limited to 16 logical CPs
- zAAP, zIIP, and ICF logical CPs cannot be associated with a z/VM partition (IFL logical CPs are allowed).

Upon reading the **zPCR** *External Study* file, any errors found will be placed in a file called "***configuration.errors***". This file is intended to help identify the items that need to be corrected.

The primary tags and their various supporting tags are documented below.

A sample **zPCR** *External Study* in the required format is provided at the end of this document.

Tag Descriptions

<ExternalSource>

This tag identifies the **zPCR** External File version and the configuration data source.

Tag	Description	Required	Value
<Version>	Identifies the file layout "version"	Yes	2.0
<Company>	Company Name / Product Name	Optional	Any text
<SMFFileName>	Name of the SMF file the data originated from	Optional	Any text
<SMFOrigin>	Date and time of the SMF data	Optional	Any text

<StudyID>

This tag provides text identifier for the study.

Tag	Description	Required	Values
<Name>	Study Identification information (50 character maximum)	Optional	Any text

<Host>

This tag is used to define the LPAR host processor model and its CP configuration.

Tag	Description	Required	Values	Comments
<FamilyName>	Processor family name	BC: No EC: No	FamName/Model	This tag is no longer required
<Name>	Machine/Type model Note that format varies between EC and BC models	Yes	Format is specific for each IBM Z processor family	See ***LPAR Host Processor Definitions*** table below
<GeneralPurposeCPs>	Number of General Purpose CPs installed	Yes	0 or the minimum to maximum allowed by the hardware model For BC models, this must match hardware defined	At least 1 CP (type: GP, IFL, or ICF) must be specified. BC models and slugged EC models limit the specific number of GP CPs that can be defined. Only certain BC and EC hardware models allow zero GP CPs to be defined.
<zAAPCPs>	Number of zAAP CPs installed	Yes Must be zero for z13 and z14	0 to maximum allowed by the hardware model	
<zIIPCPs>	Number of zIIP CPs installed	Yes	0 to maximum allowed by the hardware model	
<IFLCPs>	Number of IFL CPs installed	Yes	0 to maximum allowed by the hardware model	
<ICFCPs>	Number of ICF CPs installed	Yes	0 to maximum allowed by the hardware model	

IBM Z - BC Class LPAR Host Definitions

Family Name	<Name> Tag	Model Designations	GP Speed Class Specialty CPs are always full speed
IBM Z - Business Class Models			
z9 BC/R07	**2096-R07/A00** through **2096-R07J000**	**R07** **6 CP maximum** **3 GP maximum**	**A00**, **B00 thru J00** **For some speeds, certain GP** **N-way models are not available** **Cannot define zero GP CPs**
z9 BC/S07	**2096-S07/K00** through **2096-S07/Z00**	**S07** **7 CP maximum** **4 GP maximum**	**K00**, **L00 thru Z00** **For some speeds, certain GP** **N-way models are not available** **Z00 required for zero GP CPs**
z10 BC	**2098-E10/A00** through **2098-E10/Z00**	**E10** **10 CP maximum** **5 GP maximum**	**A00**, **B00 thru Z00** **A00 required for zero GP CPs**
z114/M05 **z114/M10**	**2818-M05/A00** through **2818-M10/Z00**	**M05** **5 CP maximum** **M10** **10 CP maximum** **5 GP maximum**	**A00**, **B00 thru Z00** **A00 required for zero GP CPs**
zBC12/H06 **zBC12/H13**	**2828-H06/A00** through **2828-H13/Z00**	**H06** **6 CP maximum** **H13** **13 CP maximum** **6 GP maximum**	**A00**, **B00 thru Z00** **A00 required for zero GP CPs**
z13s/N10 **z13s/N20**	**2965-N10/A00** through **2965-N20/Z00**	**N10** **10 CP maximum** **N20** **20 CP maximum** **6 GP maximum**	**A00**, **B00 thru Z00** **A00 required for zero GP CPs**
z14/ZR1	**3907-ZR1(MaxN)/A00** through **3907-ZR1(MaxN)/Z00**	**ZR1** **6 GP maximum** **MaxN** **N= 4, 12, 24, or 30**	**A00**, **B00 thru Z00** **A00 required for zero GP CPs**

IBM Z - EC Class LPAR Host Definitions

Family Name	<Name> Tag	Model Designations	GP Speed Class Specialty CPs are always full speed
IBM Z – Enterprise Class Processor Models			
z9 EC	2094-S08/700	S08, S18, S28, S38, S54 Snn: nn = CP maximum	400, 500, 600, 700 400, 500. 600: 8 GP maximum 700 required for zero GP CPs
z10 EC	2097-E12/700	E12, E26, E40, E56, E64 Enn: nn = CP maximum	400, 500, 600, 700 400, 500. 600: 12 GP maximum 700 required for zero GP CPs
z196	2817-M15/700	M15, M32, M49, M66, M80 Mnn: nn = CP maximum	400, 500, 600, 700 400, 500. 600: 15 GP maximum 400 required for zero GP CPs
zEC12	2827-H20/700	H20, H43, H66, H89, HA1 Hnn: nn = CP maximum HA1 = 101 CP maximum	400, 500, 600, 700 400, 500. 600: 20 GP maximum 400 required for zero GP CPs
z13	2964-N30/700	N30, N63, N96, NC9, NE1 Nnn : nn = CP maximum NC9 = 129 CP maximum NE1 = 141 CP maximum	400, 500, 600, 700 400, 500. 600: 30 GP maximum 400 required for zero GP CPs
z14	3906-M01/700	M01, M02, M03, M04, M05 M01 = 33 CP maximum M02 = 69 CP maximum M03 = 96 CP maximum M04 = 141 CP maximum M05 = 170 CP maximum	400, 500, 600, 700 400, 500. 600: 33 GP maximum 400 required for zero GP CPs

IBM LinuxONE - LPAR Host Definitions

Family Name	<Name> Tag	Model Designations	GP CP speed is fixed IFL CPs are full speed
LinuxONE - Rockhopper Models			
Rockhopper 2828	2828-L06/A00 2828-L13/A00 2828-L06/F00 2828-L13/F00	L06 6 CP maximum L13 13 CP maximum	A00 for zero GP CPs F00 for one GP CP (fixed speed)
Rockhopper 2965	2965-L10/A00 2965-L20/A00 2965-L10/C00 2965-L20/C00	L10 10 CP maximum L20 20 CP maximum	A00 for zero GP CPs C00 for one GP CP(fixed speed)
Rockhopper 3907	3907-LR1(MaxN)/A00 3907-LR1(MaxN)/C00	LR1 30 CP maximum MaxN N= 4, 12, 24, or 30	A00 for zero GP CPs C00 for one GP CP(fixed speed)
LinuxONE - Emperor Models			
Emperor 2964	2964-L30/400 2964-L63/400 2964-L96/400 2964-LC9/400 2964-LE1/400	L30 = 30 CP maximum L63 = 63 CP maximum L96 = 96 CP maximum LC9 = 129 CP maximum LE1 = 141 CP maximum	400 0 GP minimum 1 GP maximum
Emperor 3906	3906-LM1/400 3906-LM2/400 3906-LM3/400 3906-LM4/400 3906-LM5/400	LM1 = 33 CP maximum LM2 = 69 CP maximum LM3 = 105 CP maximum LM4 = 141 CP maximum LM5 = 170 CP maximum	400 0 GP minimum 1 GP maximum

Note: LinuxONE configurations are limited to IFL CPs and, optionally 1 GP CP of a specific speed. zAAP, zIIP, and ICF CPs cannot be configured.

<GeneralPurpose>

This tag is used to define each General Purpose partition

Tag	Description	Required	Values	Comments
<Name>	Partition name	Yes	18 characters	Name must be unique for GP partitions
<Type>	Type of partition: Dedicated/ Shared	Yes	**DED** or **SHR**	Defaults to SHR if not specified
<SCP>	SCP running in the partition	Yes	**z/OS-2.3**, **z/OS-2,2 z/OS-1.13, etc.** **z/VM-6.4**, **z/VM-6.3**, **z/VM-5.4** **z/VSE**, **KVM**, **Linux**, **zAware**, **SSC** **CFCC**	Some older z/OS versions may be converted to an appropriate one that is supported by zPCR
<LCPs>	Number of logical CPs	Yes	1 to the maximum number of General Purpose CPs defined for the LPAR Host	
<Weight>	Weight assigned	Yes	1-999	Shared partitions only
<Cap>	Partition is capped	Yes	**true** or **false**	
<AbsCap>	Partition is Absolute Capped; valid for zBC12, zEC12, z13, and z14 only	No (Shared partitions only; If used **<Cap>** is assumed as **true** regardless of setting)	Value greater than zero and less than number of LCPs defined (maximum of 2 decimal places honored)	
<Include>	Include checkbox	Yes	**true** or **false**	Default = False

Note: **CPU-MF** metrics may be specified for a z/OS or z/VM partition that is running on General Purpose CPs. The partition's workload assignment will be based on those tags. Otherwise, the **Average** category will be assigned.

SCP Assignment for Partitions

The SCP assignments listed below are valid.

- GP   z/OS, z/VM, z/VSE, KVM, Linux, zAware, CFCC
- IFL   z/VM, KVM, Linux, zAware, SSC
- ICF   CFCC

For z/OS and z/VM, a specific version must be specified. The version is used to enforce partitioning rules, and does not affect capacity results.

- z/OS   z/OS-2.3, z/OS-2.2, z/OS-2.1, z/OS-1.13, etc.
- z/VM   z/VM-6.4, z/VM6.3, z/VM-5.4

When the **SCP** for a partition is recognized as legitimate, it will be used. Otherwise, a default SCP assignment will be made as follows:

- GP   z/OS-2.2
- IFL   z/VM-6.4
- ICF   CFCC

Workload Assignment for Partitions

When the **SCP** for a partition is either **z/OS** or **z/VM**, and the **CPU-MF** metrics described below are included in the *External Study File*, the workload assigned to the partition will be based on those metrics. This will result in either the *Low*, *Average*, or *High* category assignment when read into **zPCR**. When **CPU-MF** metrics are not supplied, the default *Average* category will be assigned. zAAP and zIIP partitions are always assigned with the same workload category as its associated GP partition.

For **z/VSE**, **KVM**, and **Linux**, the default *Average* category will be assigned.

Workload assignments may be changed only after the *External Study File* has been read into **zPCR**.

CPU-MF Tags

The **\<General Purpose\>** tags below are specific to **CPU-MF** data when obtained for a **z/OS** or **z/VM** partition on a **z10 EC** or a **z10 BC** processor.

Tag	Description	Required	Values	Comments
\<L1MP\>	Level 1 cache miss percent	Optional	0 to 100%	These tags are used to compute an RNI, used to select the appropriate LSPR workload category to represent the partition's actual workload
\<MEMP\>	% of time memory is accessed	Optional; If \<MEMP\> is provided, any missing tags will be considered as being zero	0 to 100%; the sum of these must not exceed 100%	
\<L2LP\>	Percent of time Level 2 local cache is accessed			
\<L2RP\>	Percent of time Level 2 remote cache is accessed			

The **\<General Purpose\>** tags below are specific to **CPU-MF** data when obtained for a **z/OS** or **z/VM** partition on a **z114**, **z196**, **zBC12**, **zEC12**, **z13**, or **z14** processor.

Tag	Description	Required	Values	Comments
\<L1MP\>	Level 1 cache miss percent	Optional	0 to 100%	These tags are used to compute an RNI, used to select the appropriate LSPR workload category to represent the partition's actual workload
\<MEMP\>	% of time memory is accessed	Optional; If \<MEMP\> is provided, any missing tags will be considered as being zero	0 to 100%; the sum of these must not exceed 100%	
\<L3P\>	Level 3 cache percent			
\<L4LP\>	Level 4 cache local percent			
\<L4RP\>	Level 4 cache remote percent			

Note: For CPU-MF data to be considered for partition workload determination, the \<MEMP\> tag must be provided and all the related tags should be provided. Should any of the related tags be missing, they will be considered as being zero.

<zAAP>

This tag is used to define each set of zAAP logical CPs that are associated with a single General Purpose partition. All tags not specified here are inherited from the associated General Purpose partition. The workload assignment will be identical to that of the associated GP partition. Note that zAAP CPs are not supported on z13 and z14 models.

Tag	Description	Required	Values
<Name>	Partition name	Yes	18 characters; Must be identical to the name of its associated GP partition running z/OS
<LCPs>	Number of zAAP logical CPs assigned to the partition	Yes	1 to the number of zAAP CPs defined to the LPAR host
<Weight>	Weight assigned	Yes (Shared partitions only)	1-999
<Cap>	Partition is capped	Yes (Shared partitions only)	**true** or **false**
<AbsCap>	Partition is Absolute Capped (zBC12/zEC12, z13, z14 only)	No (Shared partitions only; If used **<Cap>** is assumed as **true** regardless of setting)	Value greater than zero and less than number of LCPs defined (maximum of 2 decimal places honored)
<Include>	Include checkbox	Yes	**true** or **false**

Note: zAAP partitions are always assigned the workload of its associated GP partition. zAAP partitions are not valid for z13 and z14 processor models, where zAAP eligible work must be run on a zIIP partition using **zAAP on zIIP** capability.

<zIIP>

This tag is used to define each set of zIIP logical CPs that are associated with a single General Purpose partition. All tags not specified here are inherited from the associated General Purpose partition. The workload assignment will be identical to that of the associated GP partition.

Tag	Description	Required	Values
<Name>	Partition name	Yes	18 characters; Must be identical to the name of its associated GP z/OS partition.
<LCPs>	Number of zIIP logical CPs assigned to the partition	Yes	1 up to the number of zIIP CPs defined to the LPAR host
<Weight>	Weight assigned	Yes (Shared partitions only)	**1**-**999**
<Cap>	Partition is capped	Yes (Shared partitions only)	**true** or **false**
<AbsCap>	Partition is Absolute Capped (zBC12/zEC12 and later only)	No (Shared partitions only; If used **<Cap>** is assumed as **true** regardless of setting)	Value greater than zero and less than number of LCPs defined (maximum of 2 decimal places honored)
<SMT>	Measured SMT Benefit; valid for z13 and z14 zIIP and IFL partitions only	No	**0.0** to **90.0**; the percent benefit due to enabling SMT. Include the tag shown below to indicate that the SMT benefit was a measured value.
<SMTMeasured>true</SMTMeasured>			
<Include>	Include checkbox	Yes	**true** or **false**

Note: zIIP partitions are always assigned the workload of its associated GP partition.

<IFL>

The following table describes the tags required to define an IFL partition.

Tag	Description	Required	Values
<Name>	Partition name	Optional; if not specified, a name will be generated	18 alphameric characters
<Type>	Type of partition: Dedicated/Shared	Yes	**DED** or **SHR**
<SCP>	SCP running in the partition	Yes	**z/VM-6.4**, **z/VM-6.3**, **z/VM-5.4** **KVM**, **Linux**, **SSC**, or **zAware**
<LCPs>	Number of logical CPs assigned	Yes	1 up to the total number of IFL CPs defined to the LPAR Host
<Weight>	Weight assigned	Yes (Shared partitions only)	1-999
<Cap>	Partition is capped	Yes (Shared partitions only)	**true** or **false**
<AbsCap>	Partition is Absolute Capped (zBC12/zEC12 and later only)	No (Shared partitions only; If used **<Cap>** is assumed as **true** regardless of setting)	Value greater than zero and less than number of LCPs defined (maximum of 2 decimal places honored)
<SMT>	Measured SMT Benefit; valid for z13 and z14 zIIP and IFL partitions only	No	**0.0** to **90.0**; the percent benefit due to enabling SMT. Include the tag shown below to indicate that the SMT benefit was a measured value.
<SMTMeasured>true</SMTMeasured>			
<Include>	Include checkbox	Yes	**true** or **false**

Note: *CPU-MF* metrics may be specified for a z/VM partition that is running solely on IFL CPs. The partition's workload assignment will be based on those tags. Otherwise, the *Average* category will be assigned.

<ICF>

The following table describes the tags to define each ICF partition. CFCC will always be set as the SCP running on an ICF.

Tag	Description	Required	Values
<Name>	Partition name	Optional; if not specified, a name will be generated	18 alphameric characters
<Type>	Type of partition: Dedicated/Shared	Yes	**DED** or **SHR**
<LCPs>	Number of logical CPs assigned	Yes	1–16; Limited to number of ICF CPs defined to the LPAR Host
<Weight>	Weight assigned	Yes (Shared partitions only)	**1-999**
<Cap>	Partition is capped	Yes (Shared partitions only)	**true** or **false**
<AbsCap>	Partition is Absolute Capped (zBC12/zEC12 and later only)	No (Shared partitions only; If used **<Cap>** is assumed as **true** regardless of setting)	Value greater than zero and less than number of LCPs defined (maximum of 2 decimal places honored)
<Include>	Include checkbox	Yes	**true** or **false**

Note: *CFCC* will always be assigned as the workload for an ICF partition.

Sample ESF

The *Sample External Study File* attached below will produce the LPAR configuration shown here.

Partition Detail Report [J:\...! zEC12 SampleESF.zPCR]

Edit Graph Documentation

Partition Detail Report
Based on LSPR Data for IBM Z Processors
Study ID: XYZ Enterprises

zEC12 Host = 2827-H20/700 with 8 CPs: GP=4 zAAP=1 zIIP=1 IFL=1 ICF=1
9 Active Partitions: GP=4 zAAP=1 zIIP=1 IFL=2 ICF=1
Capacity basis: 2094-701 @ 593.00 MIPS for a shared single-partition configuration
Capacity for z/OS on z10 and later processors is represented with HiperDispatch turned ON

			Partition Identification				Partition Configuration				Capping		Capacity	
Include ✔	No.	Type	Name	SCP	Assigned Workload	Mode	LCPs	Weight	Weight Percent	✔	ABS	Minimum	Maximum
✔	1	GP	GP01	z/OS-2.1*	Average	SHR	4	400	40.00%			2,194	5,486
✔		zAAP	GP01	z/OS-2.1*	Average	SHR	1	100	100.00%			1,416	1,416
✔	2	GP	GP02	z/OS-2.1*	Low	SHR	3	300	30.00%			1,785	4,462
✔		zIIP	GP02	z/OS-2.1*	Low	SHR	1	100	100.00%			1,549	1,549
✔	3	GP	GP03	z/OS-2.1*	High	SHR	2	200	20.00%			1,011	2,527
✔	4	GP	GP04	z/VSE	Average/VS	SHR	1	100	10.00%			560	1,399
✔	5	IFL	IFL01	z/VM-6.4	Average/LV	SHR	1	200	66.67%			1,037	1,555
✔	6	IFL	IFL02	Linux	Average/L	SHR	1	100	33.33%			518	1,555
✔	7	ICF	ICF01	CFCC	CFCC	DED	1	n/a				1,377	1,377

Table View Controls

Display zAAP/zIIP/IFL Partitions
- ◉ With Associated GP   ○ Separate by Pool

Show   GP Pool   Specialty Pools
- ◉ All Partitions   ☑ GP   ☑ zAAP   ☑ zIIP
- ○ Includes Only   ☑ IFL   ☑ ICF

Capacity Summary by Pool

CP Pool	Real CPs	LPs	DED LCPs	SHR LCPs	SHR LCP:RCP	Sum of Weights	Capacity Totals
GP	4	4		10	2.500	1,000	5,550
zAAP	1	1		1	1.000	100	1,416
zIIP	1	1		1	1.000	100	1,549
IFL	1	2		2	2.000	300	1,555
ICF	1	1	1				1,377
Totals	8	9	1	14			11,448

.

Host Summary | LCP Alternatives | zAAP/zIIP Loading | Calibrate Capacity

For significant configuration changes such as upgrading the processor family, consider capacity comparisons to have a +/-5% margin-of-error

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

```xml
<?xml version="1.0" ?>
<zPCR xmlns:xsi="http://www.w3.org/2001/XMLSchemainstance"
    xsi:noNamespaceSchemaLocation="zPCR.xsd">

<!-- Sample Comment (dashes required) -->

  <ExternalSource>
    <Version>2.0</Version>
    <Vendor>ABC Corporation</Vendor>
    <SMFFileName>Sample ESF</SMFFileName>
    <SMFOrigin>03/10/2015 10:20</SMFOrigin>
  </ExternalSource>

  <StudyID>
    <Name>XYZ Enterprises</Name>
  </StudyID>

<!-- Host specified as a zEC12 model -->
  <Host>
    <Name>2827-H20/700</Name>
    <GeneralPurposeCPs>4</GeneralPurposeCPs>
    <zAAPCPs>1</zAAPCPs>
    <zIIPCPs>1</zIIPCPs>
    <IFLCPs>1</IFLCPs>
    <ICFCPs>1</ICFCPs>
  </Host>

<!-- GP partition with 4 shared LCPs; no CPU-MF metrics; Associated zAAP -->
  <GeneralPurpose>
    <Name>GP01</Name>
    <SCP>z/OS-2.2</SCP>
    <Type>SHR</Type>
    <LCPs>4</LCPs>
    <Weight>400</Weight>
    <Cap>false</Cap>
    <Include>true</Include>
  </GeneralPurpose>

<!-- zAAP partition with valid zAPP tags; Others inherited from associated GP -->
  <zAAP>
    <Name>GP01</Name>
    <LCPs>1</LCPs>
    <Weight>100</Weight>
    <Cap>false</Cap>
  </zAAP>
```

```
<!-- GP partition with 3 shared LCPs; CPU-MF metrics; Associated zIIP -->
  <GeneralPurpose>
    <Name>GP02</Name>
    <SCP>z/OS-2.2</SCP>
    <Type>SHR</Type>
    <LCPs>3</LCPs>
    <Weight>300</Weight>
    <Cap>false</Cap>
    <Include>true</Include>
    <L1MP>1.0</L1MP>
    <MEMP>1.2</MEMP>
    <L3P>10.3</L3P>
    <L4LP>4.3</L4LP>
    <L4RP>2.4</L4RP>
  </GeneralPurpose>

<!-- zIIP partition with valid zIIP tags; Others inherited from associated GP -->
  <zIIP>
    <Name>GP02</Name>
    <LCPs>1</LCPs>
    <Weight>100</Weight>
    <Cap>false</Cap>
  </zIIP>

<!-- GP partition with 2 shared LCPs; CPU-MF metrics included -->
  <GeneralPurpose>
    <Name>GP03</Name>
    <SCP>z/OS-1.13</SCP>
    <Type>SHR</Type>
    <LCPs>2</LCPs>
    <Weight>200</Weight>
    <Cap>false</Cap>
    <Include>true</Include>
    <L1MP>3.3</L1MP>
    <MEMP>5.3</MEMP>
    <L3P>16.9</L3P>
    <L4LP>9.9</L4LP>
    <L4RP>4.4</L4RP>
  </GeneralPurpose>

<!-- GP partition with z/VSE SCP -->
  <GeneralPurpose>
    <Name>GP04</Name>
    <SCP>z/VSE</SCP>
    <Type>SHR</Type>
    <LCPs>1</LCPs>
    <Weight>100</Weight>
    <Cap>false</Cap>
    <Include>true</Include>
  </GeneralPurpose>
```

```
<!-- IFL partition with z/VM SCP -->
  <IFL>
    <Name>IFL01</Name>
    <SCP>z/VM</SCP>
    <Type>SHR</Type>
    <LCPs>1</LCPs>
    <Weight>200</Weight>
    <Cap>false</Cap>
    <Include>true</Include>
  </IFL>

<!-- IFL partition with Linux SCP -->
  <IFL>
    <Name>IFL02</Name>
    <SCP>Linux</SCP>
    <Type>SHR</Type>
    <LCPs>1</LCPs>
    <Weight>100</Weight>
    <Cap>false</Cap>
    <Include>true</Include>
  </IFL>

<!-- ICF partition -->
  <ICF>
    <Name>ICF01</Name>
    <Type>DED</Type>
    <LCPs>1</LCPs>
    <Cap>false</Cap>
    <Include>true</Include>
  </ICF>

</zPCR>
```