Calculating LPAR Image Capacity

The total CPU capacity available to a z/OS image is measured in MSUs (millions of service units) per hour. The field is shown under the heading IMAGE CAPACITY in the RMF CPU Activity Report - Partition Data Report Section or the CPC Capacity Report in RMF Monitor III and is calculated as follows:

- If the partition has a defined capacity limit, this value is that limit.
- If the partition has no defined capacity limit, this value is calculated based on the partition's logical CP configuration and PR/SM hard capping state.

Following is a sample CPC Capacity Report from RMF Monitor III shows

```
Command ===>                                                  Scroll ===> CSR
Samples: 97      System: SYSA  Date: 03/21/06  Time: 10.25.00  Range: 100 Sec
Partition:   OOSPA    2084 Model 314
CPC Capacity:     696   Weight % of Max: ****  4h MSU Average: 9
Image Capacity:   199   WLM Capping %: ****  4h MSU Maximum: 30
```

The report shows the CEC is an IBM 2084-314 with total CEC Capacity of 696 MSUs and Image Capacity of 199 MSUs for partition OOSPA (SYSA). The numbers of logical processors online to this LPAR are two.

MSUs per CP can be calculated by dividing CPC Capacity by the Total Number of CPs installed on the CEC.

In this example,

\[
\text{MSUs per CP} = \frac{696}{14} = 49.7
\]
Since there are two CPs online to LPAR OOSPA, the LPAR Image Capacity will be 
(49.7 * 2 = 99.4) 99.4, which differs with the value (199) reported by RMF.

In reality, the LPAR Image Capacity is based on the maximum number of logical general
purpose CPs a partition can configure including offline CPs. Assist processors, such as
zAAPs are not included in this count.

Issue a Display Matrix command and the response shows a total of four CPs assigned to 
LPAR OOSPA (SYSA), of which two are offline.

D M=CPU
RESPONSE=SYSA
IEE1741 10.35.56 DISPLAY M 297
PROCESSOR STATUS
ID CPU SERIAL
00 + 0A3A6A2084
01 + 0A3A6A2084
02 -
03 -
04 +A 0A3A6A2084
05 +A 0A3A6A2084

CPC ND = 002084.B16.IBM.02.000000023A6A
CPC SI = 2084.314.IBM.02.0000000000023A6A
CPC ID = 00
CPC NAME = OSYS
LP NAME = OOSPA LP ID = A
CSS ID = 0
MIF ID = A

+ ONLINE - OFFLINE . DOES NOT EXIST W WLM-MANAGED
N NOT AVAILABLE
A ASSIST PROCESSOR

Now calculate the LPAR Image Capacity based on the total maximum number of logical
CPs assigned to this LPAR including the ones offline.

Image LPAR Capacity = 49.7 * 4 = 199

This is the same value as reported by RMF on the CPC Activity Report as shown on the
previous page.

The MSU settings for IBM Processors can be found at:

The partition MSU rating is based always on the overall CEC MSU setting. It is not valid
to use the MSU rating for the LPAR configuration. In the example above, this would be a
logical four way. It would be incorrect to use the rating of an IBM 2084-304 since the
actual capacity delivered is four logical CPs on an IBM 2084-314.