An Introduction to zPCR

IBM's Processor Capacity Reference for System z9 and eServer zSeries

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Agenda

- What is **zPCR**
- Inputs
- Usage considerations
- Sample exercise
- Where to get more information

What is **zPCR**

- A Java based PC tool
- Provides the capacity relationships for System z9 and zSeries processors, considering …
  - SCP/workload environment (based on LSPR workloads)
  - LPAR configuration
- The IBM tool to properly size mainframe upgrades
  - Expected accuracy of ±5%

Inputs to zPCR

- RMF CPU Activity Report for the installed machine
  - Machine type and model
  - LPAR definitions
- RMF Workload Activity Report(s)
  - Determine the workload mix for each partition
- Proposed machine
  - Processor type and model
  - LPAR definitions

Usage Considerations

- All capacity results from zPCR are relative to a user defined *Reference-CPU*. When comparing the capacity of various processors, it is critical all analyses be done using the same reference-CPU setting. Otherwise the ratios between processors will NOT be correct.
- The impact of LPAR on capacity affects all processors, and not necessarily equally. As such, you need to use zPCR to determine the capacity for the LPAR configuration of the current processor as well as the planned replacement. The ratio between these two values is the expected capacity delta.

Inputs for Sample zPCR Exercise

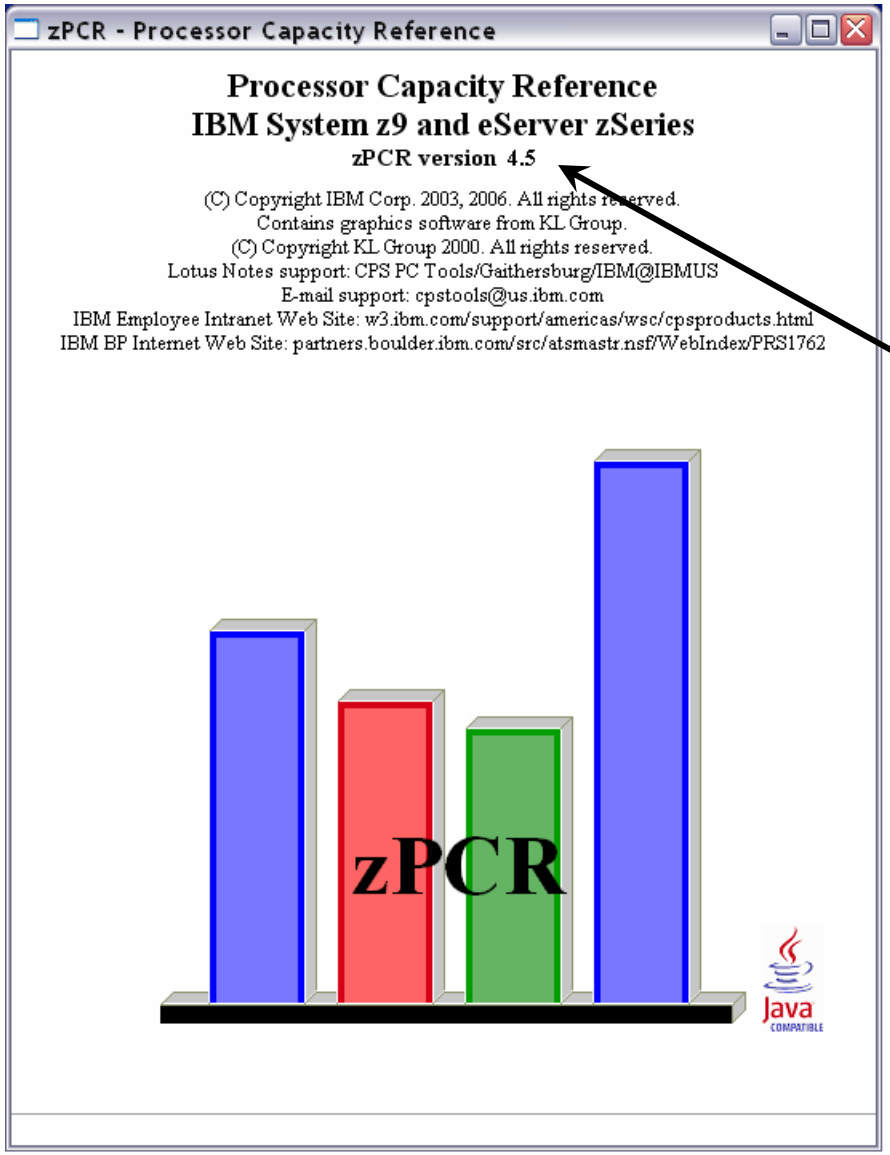
- Current machine characteristics
  - 2084-309 (B16 – 3,300 MIPS customer defined)

LPAR name	# LCPs (TRAD)	Weight	DASD I/O per Consumed MSU	Operating System Version
WSC1	6	500	17	z/OS 1.4
WSC2	3	250	20	z/OS 1.4
WSC3	3	250	18	z/OS 1.6

- Proposed machine characteristics
  - 2094-707 (S18) with 1 zAAP

LPAR name	# LCPs (TRAD)	Weight	# LCPs (zAAP)	Operating System Version
WSC1	5	500	NA	z/OS 1.4
WSC2	3	250	NA	z/OS 1.4
WSC3	3	250	1	z/OS 1.6

zPCR Logo Window

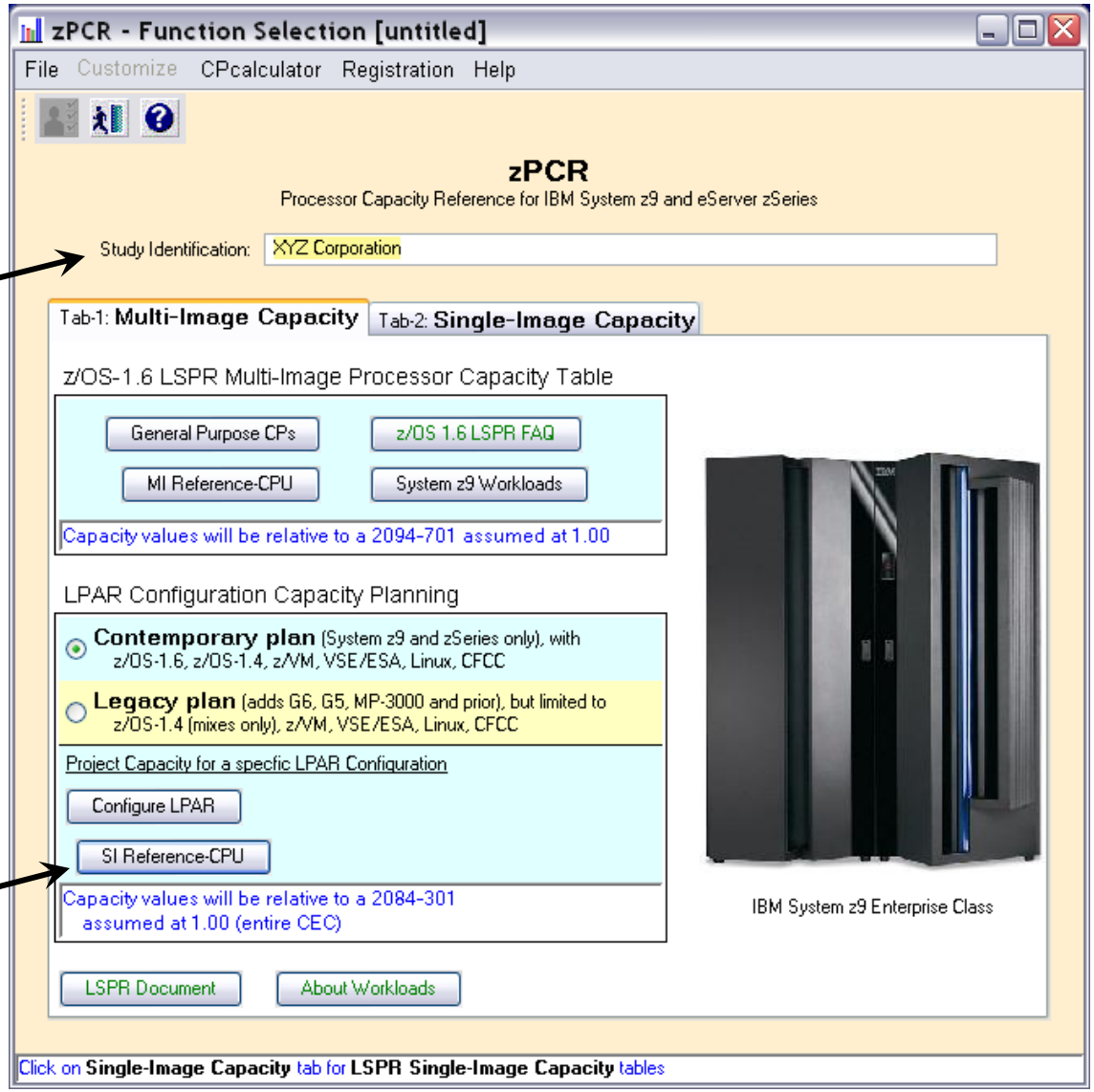


Version Identification

zPCR Function Selection Window

(1)
Enter Study Identification

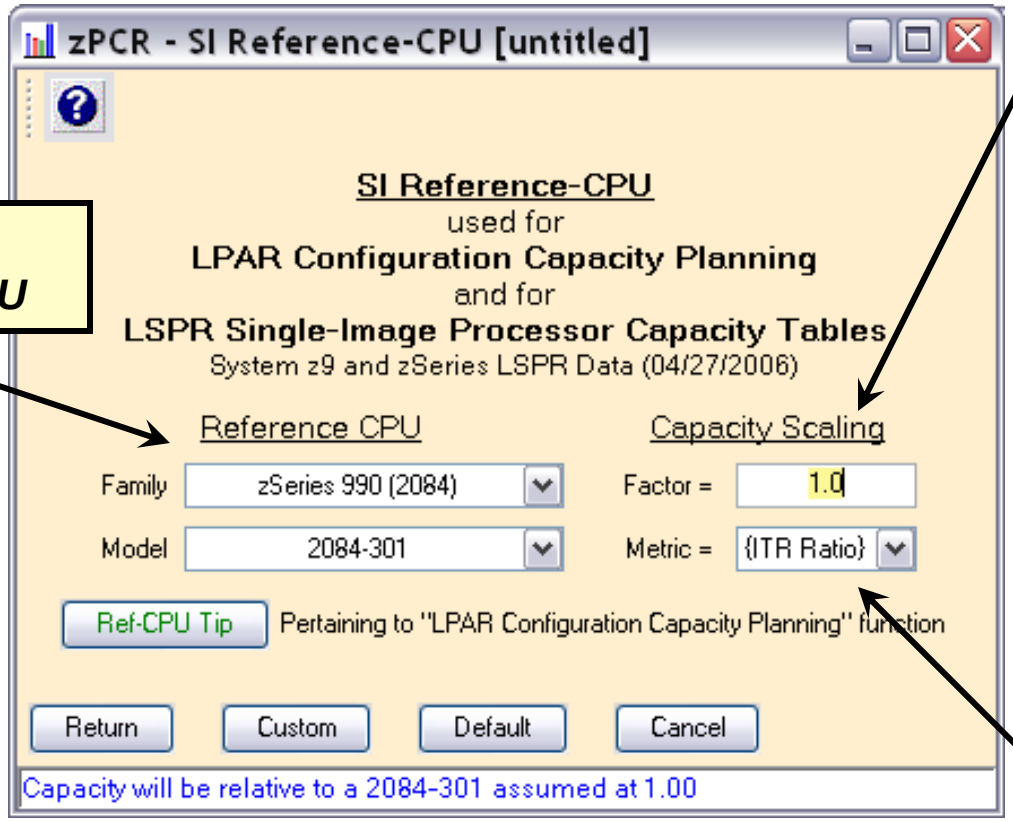
(2)
Click SI Reference-CPU



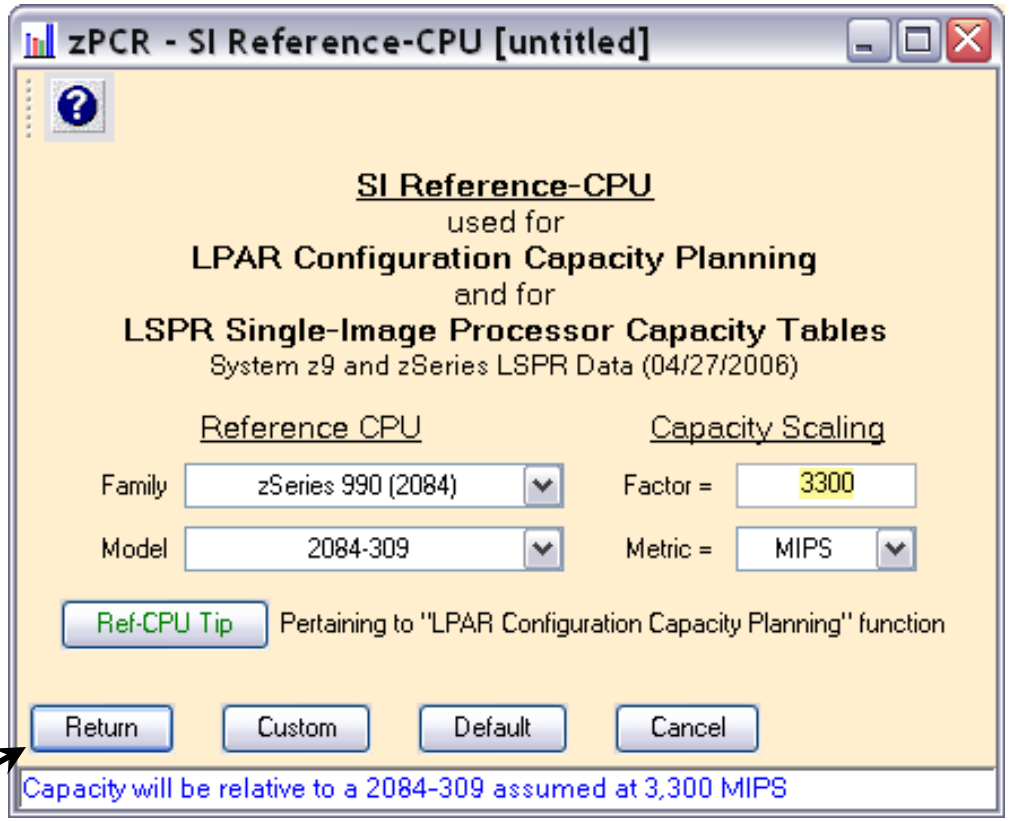
zPCR SI Ref-CPU Window

(2)
Set ***Capacity Rating***

(1)
Set ***Reference-CPU***

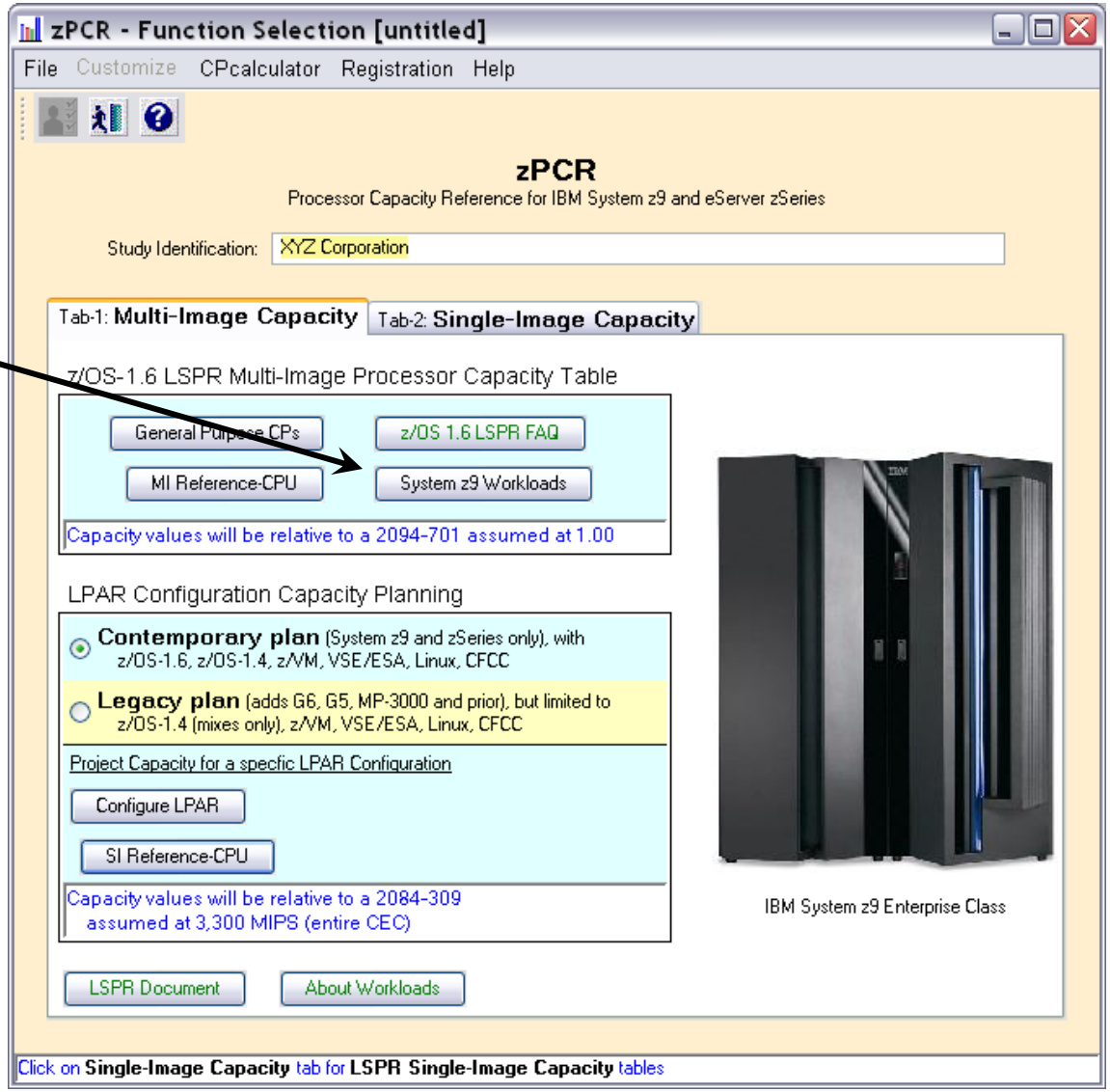


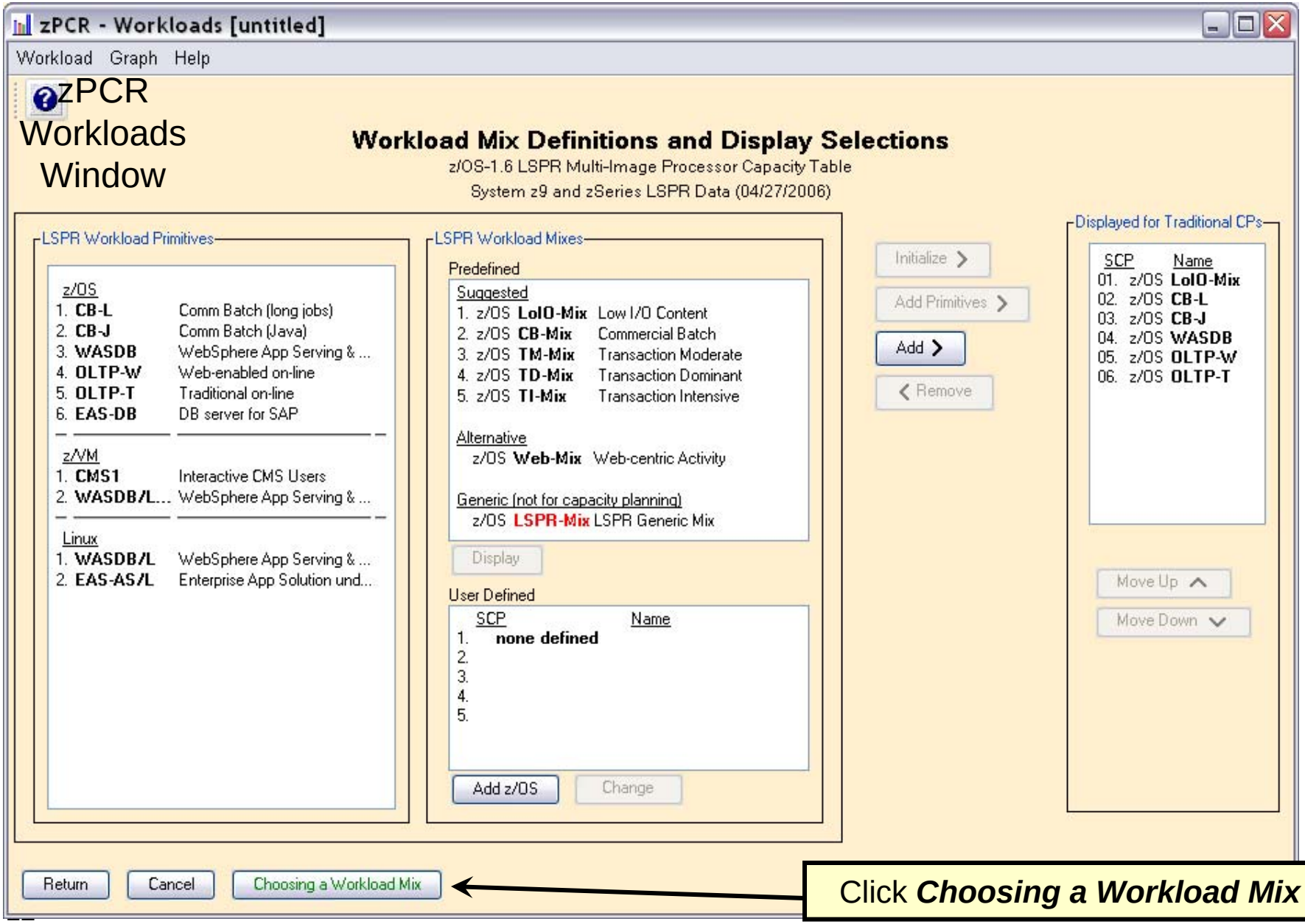
(3)
Set ***Capacity Metric***



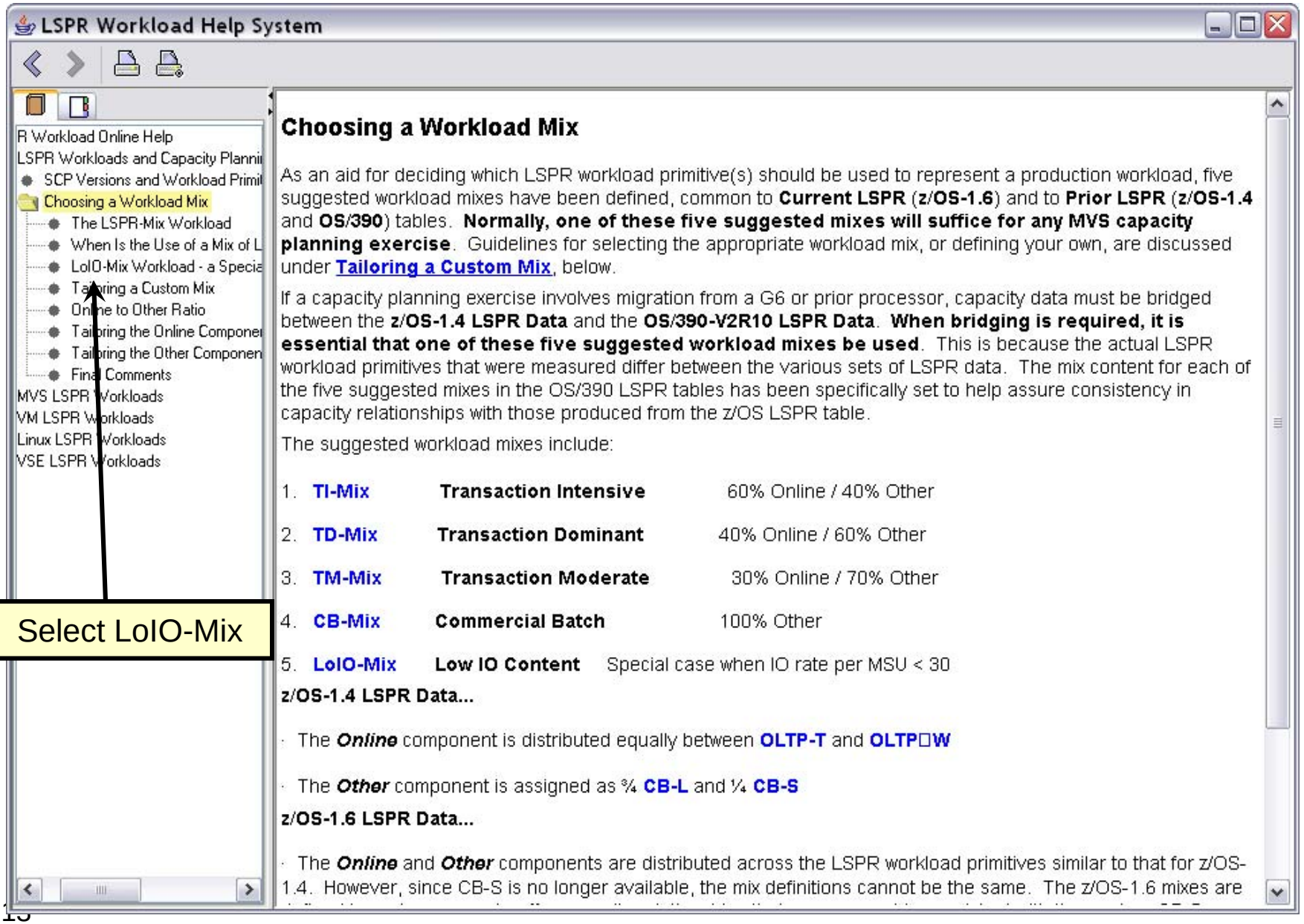
Click ***Return***

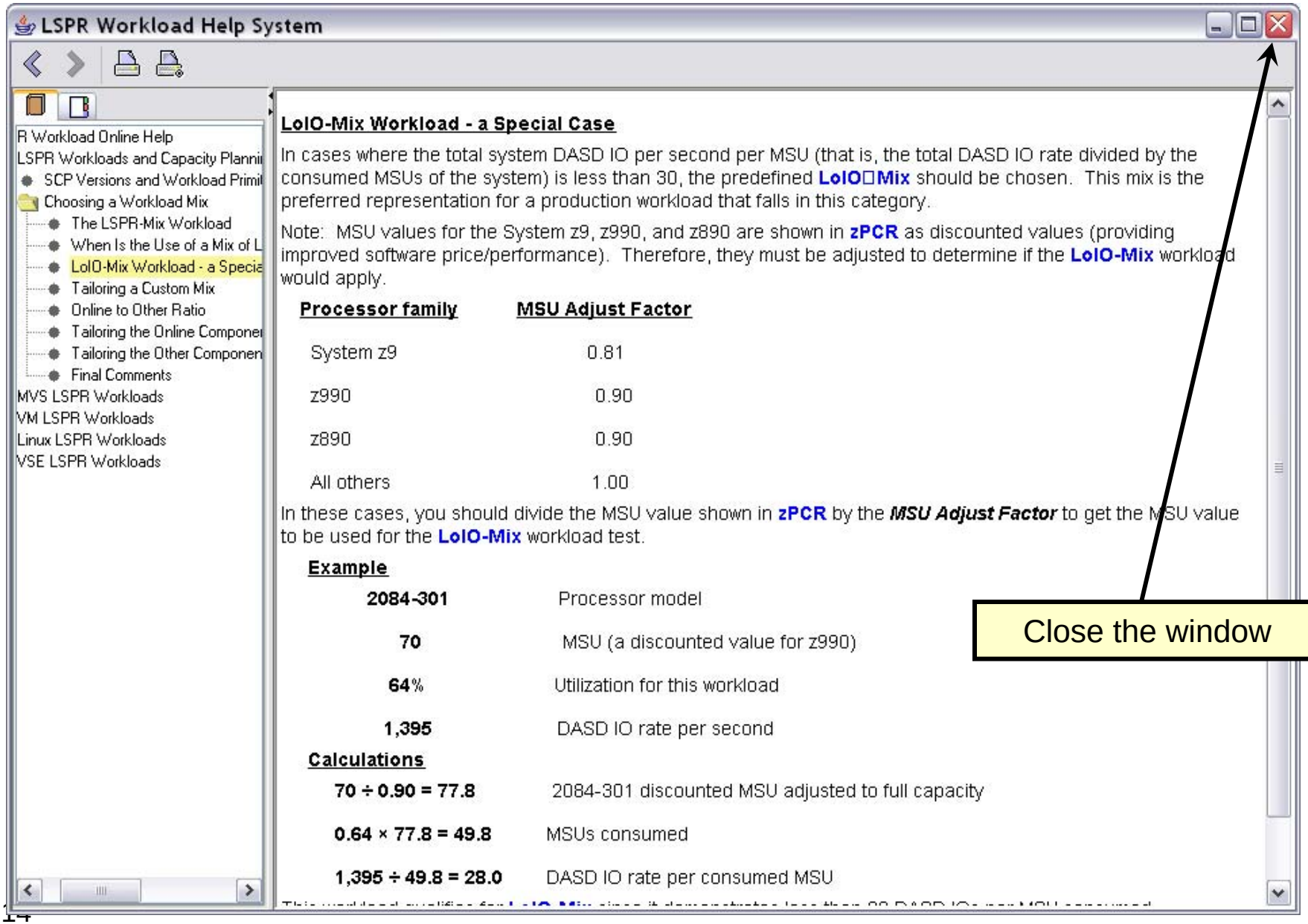
Click ***Workloads***

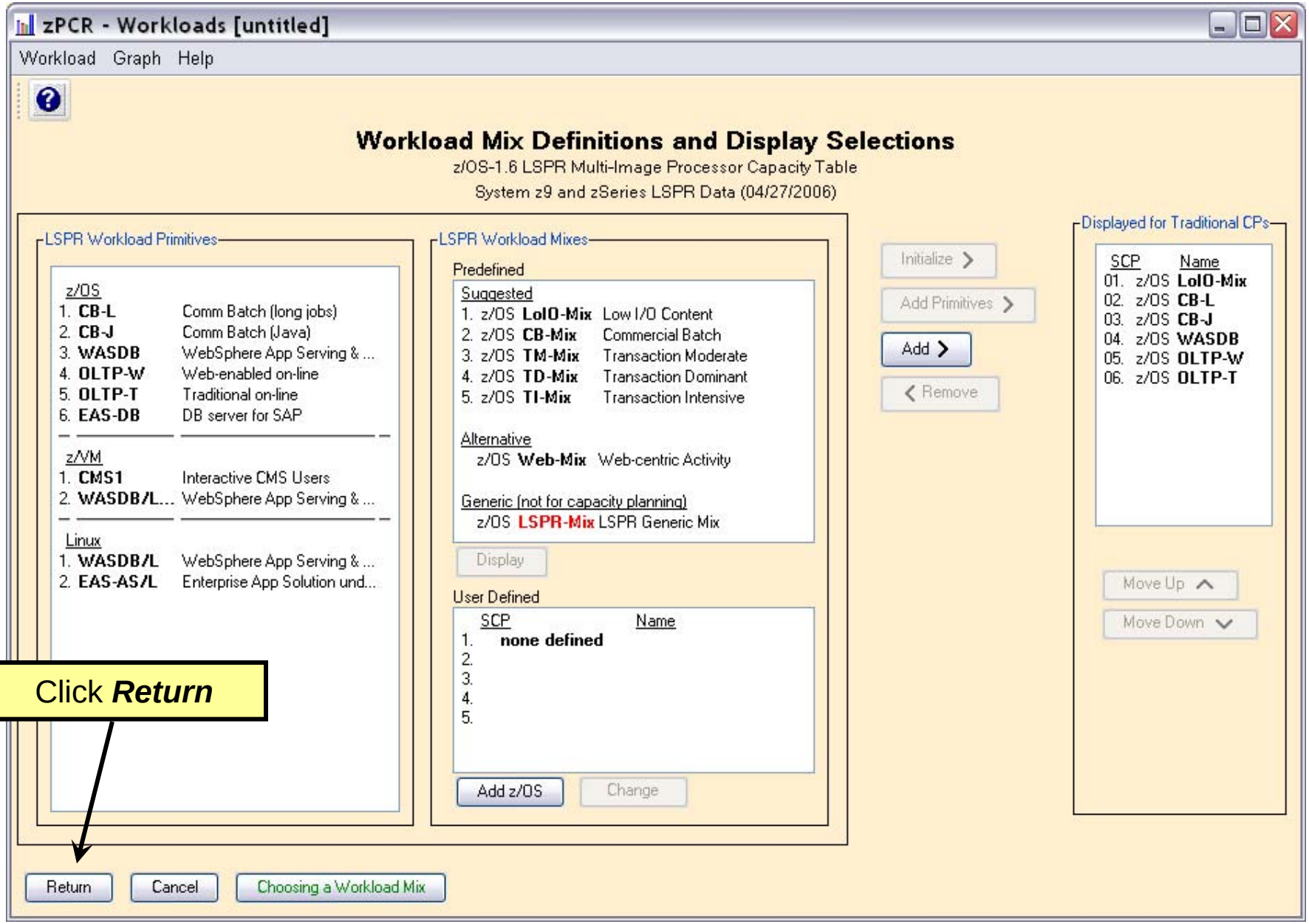




Click ***Choosing a Workload Mix***

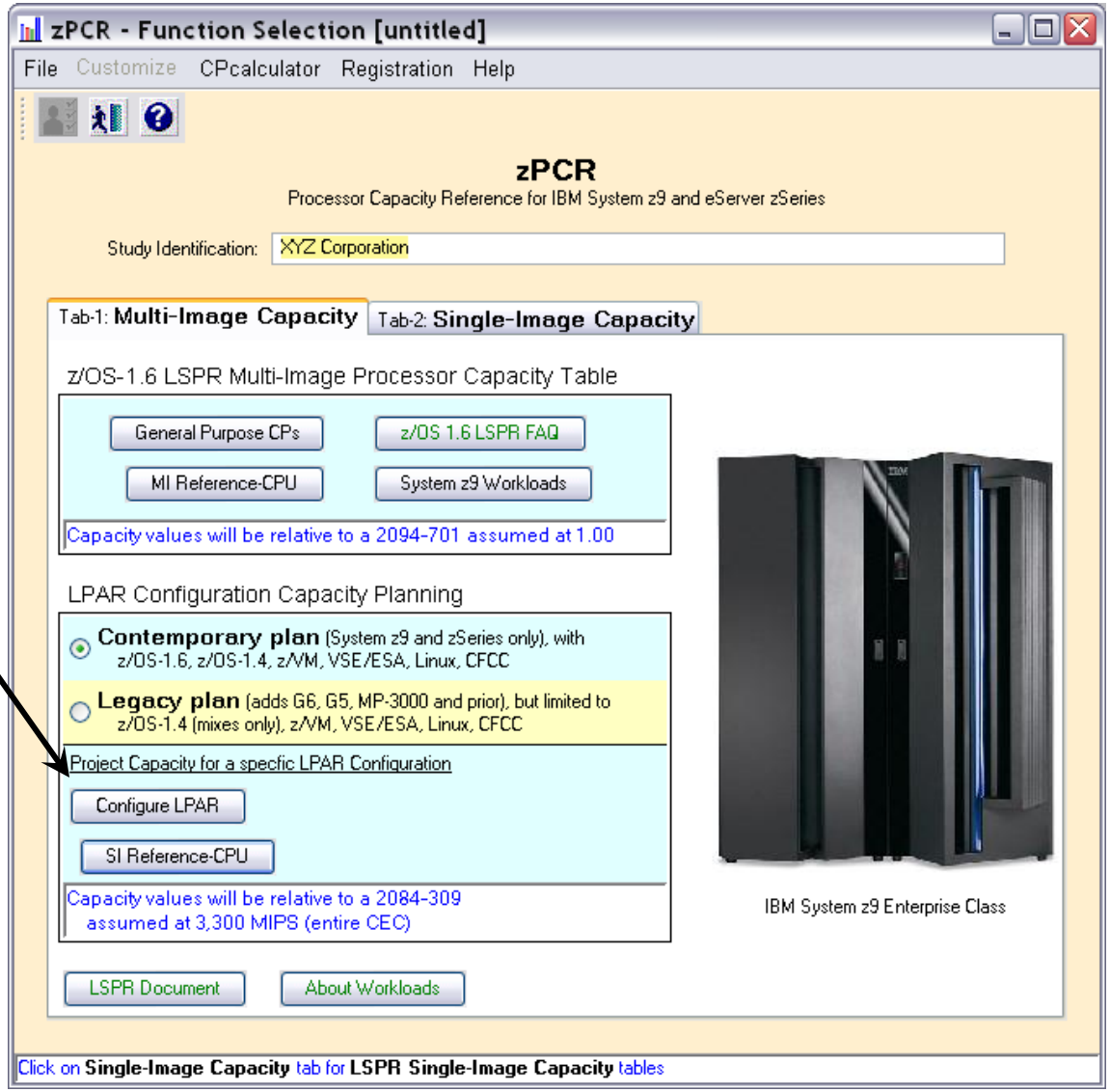




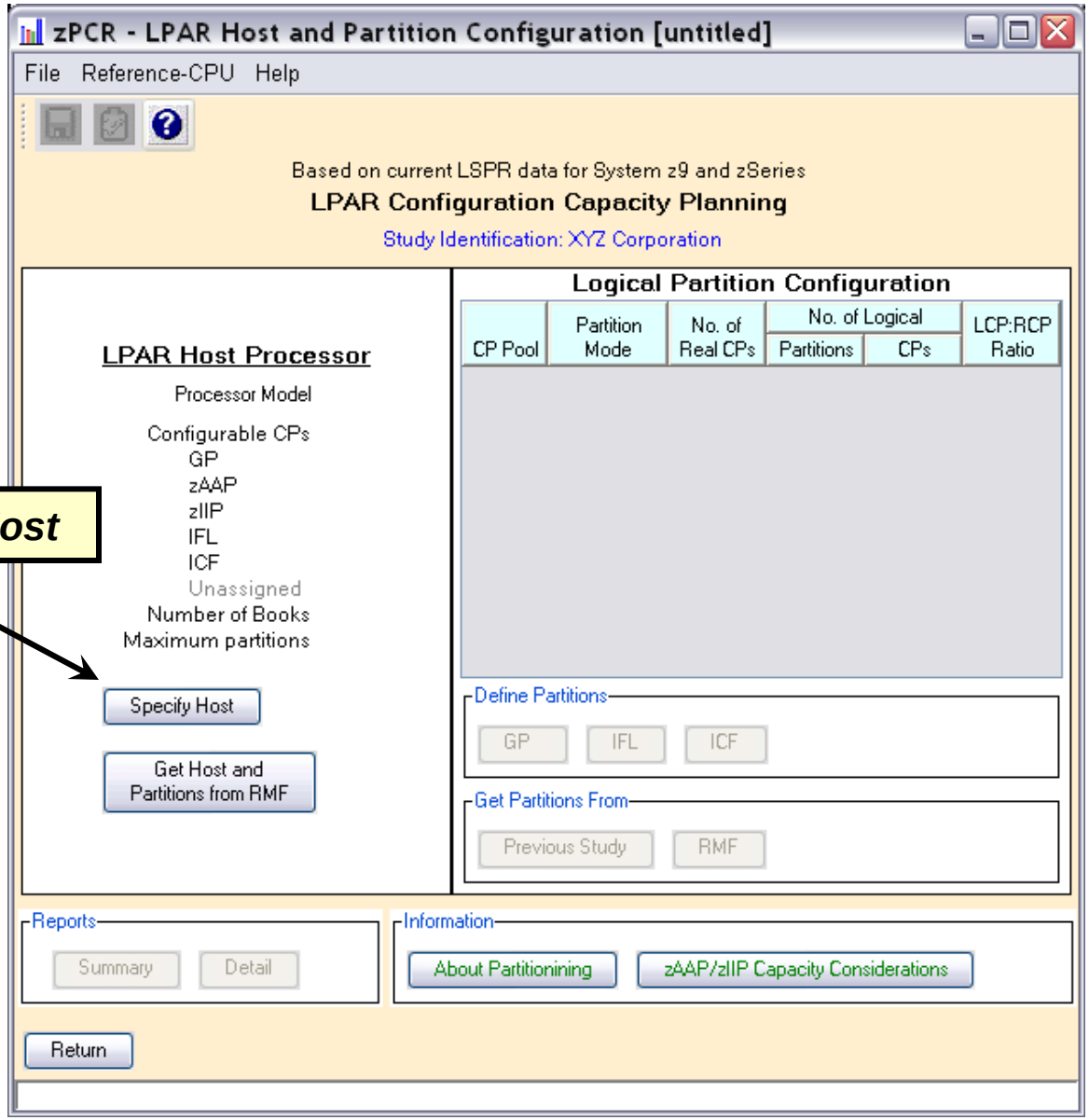


Click ***Return***

Press ***Configure LPAR***



zPCR Host & Partition Configuration Window

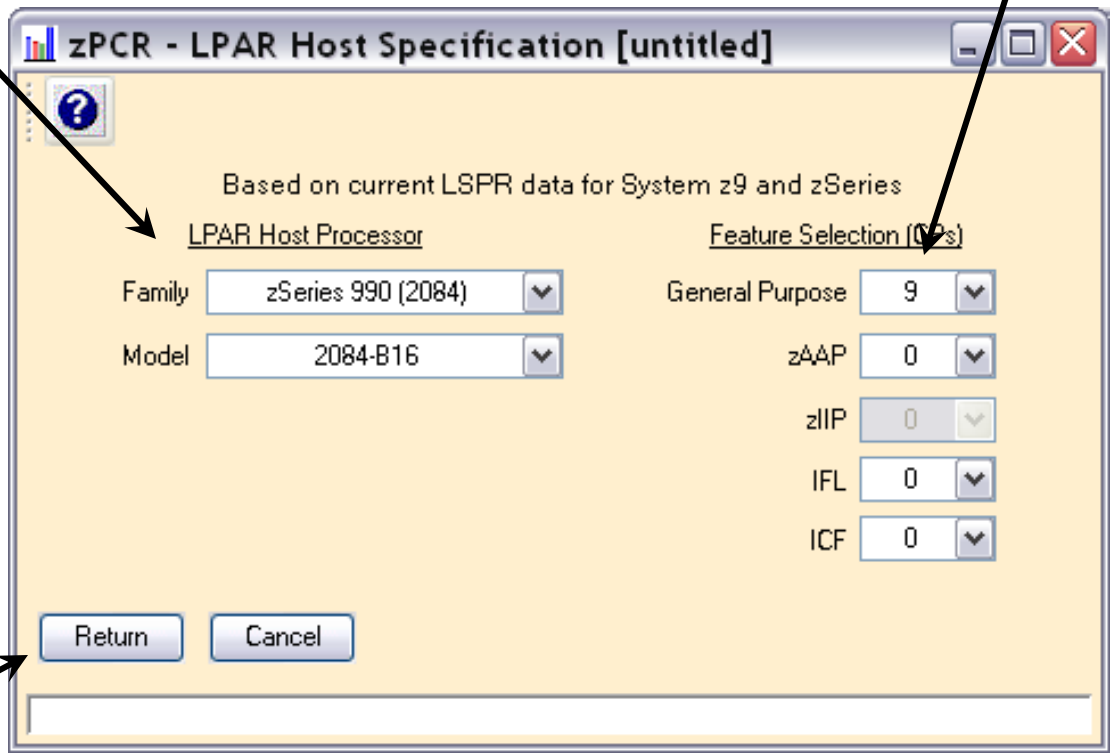


Click ***Specify Host***

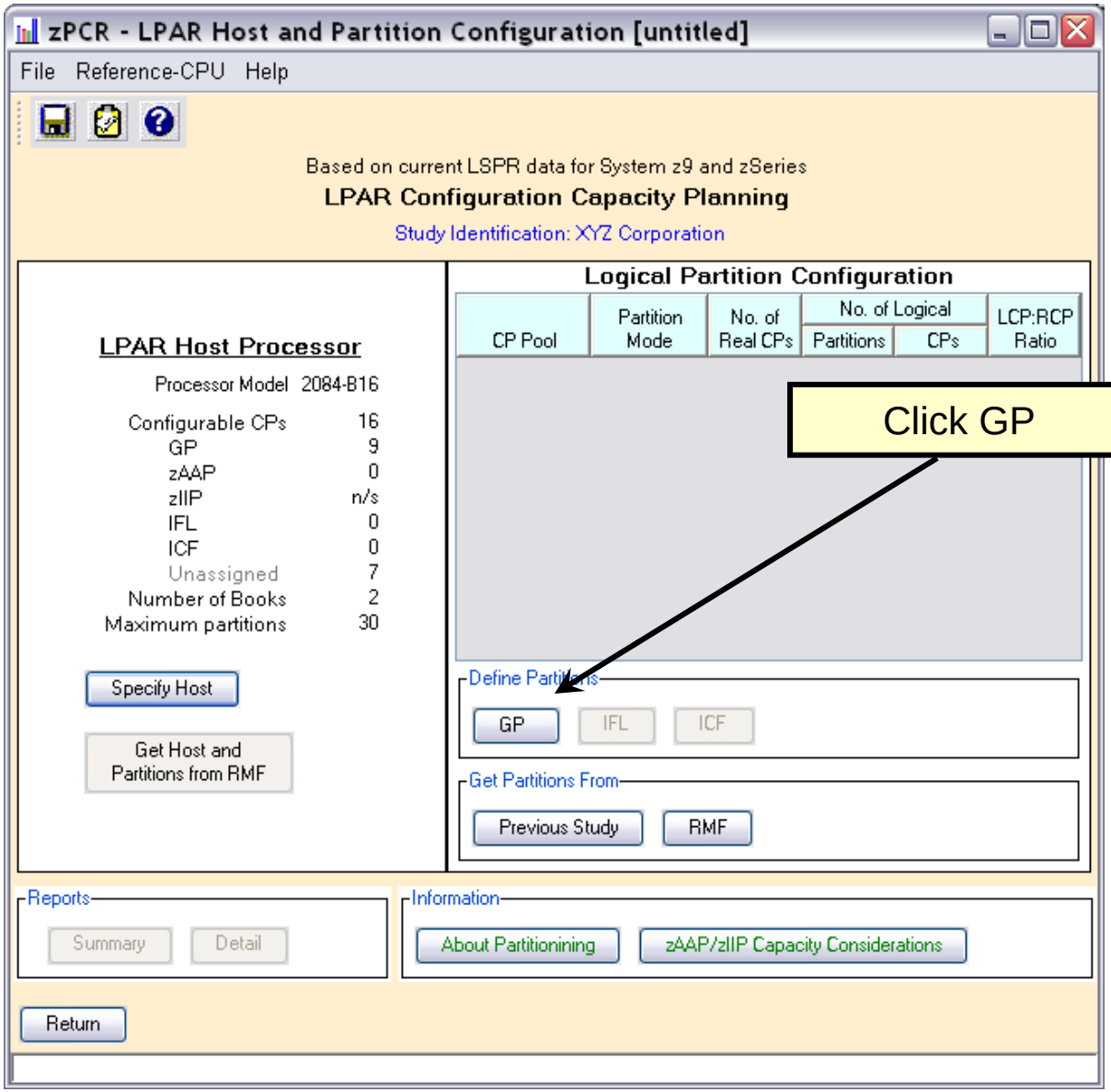
zPCR Host Specification Window

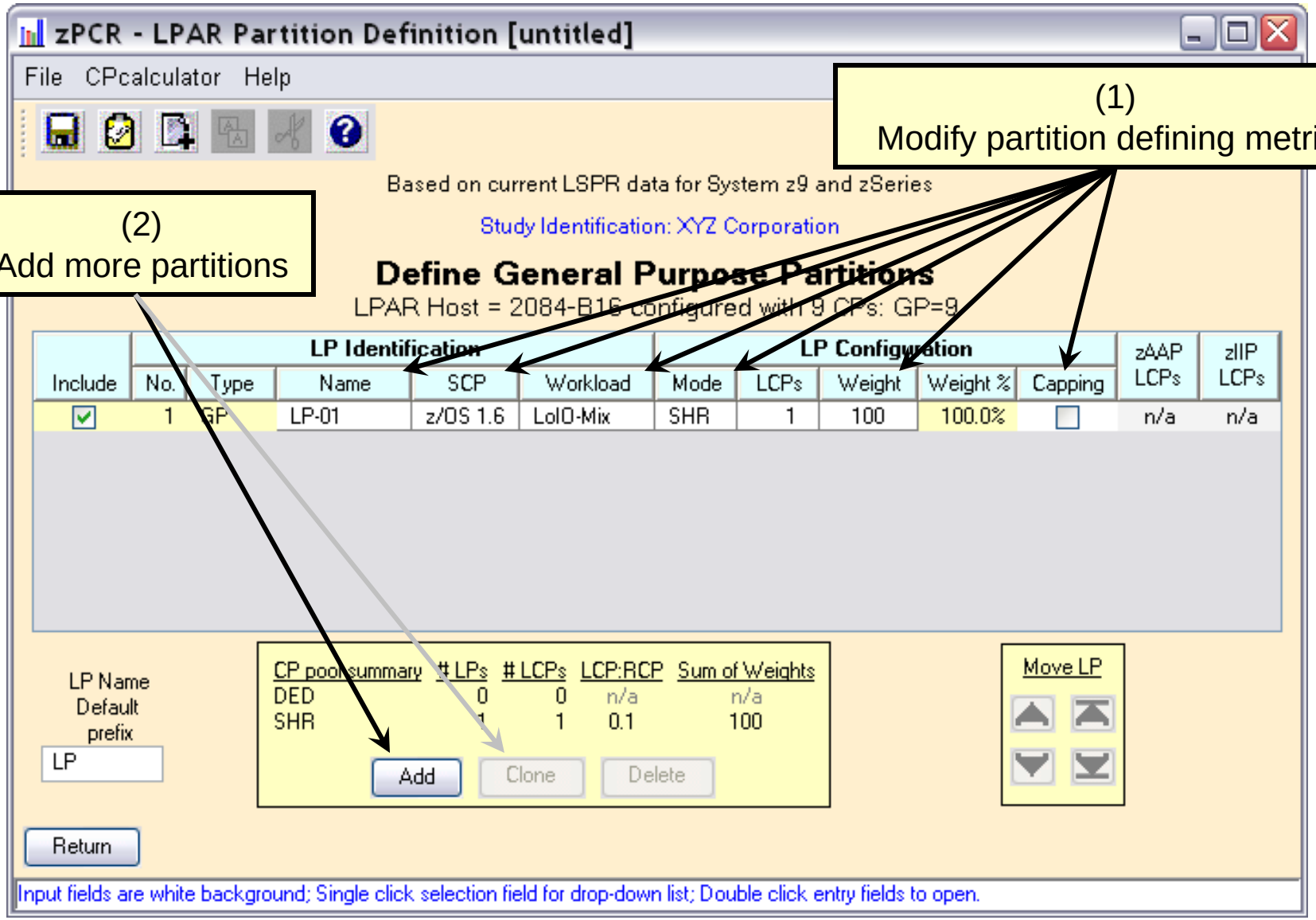
(1)
Select Host Processor Model

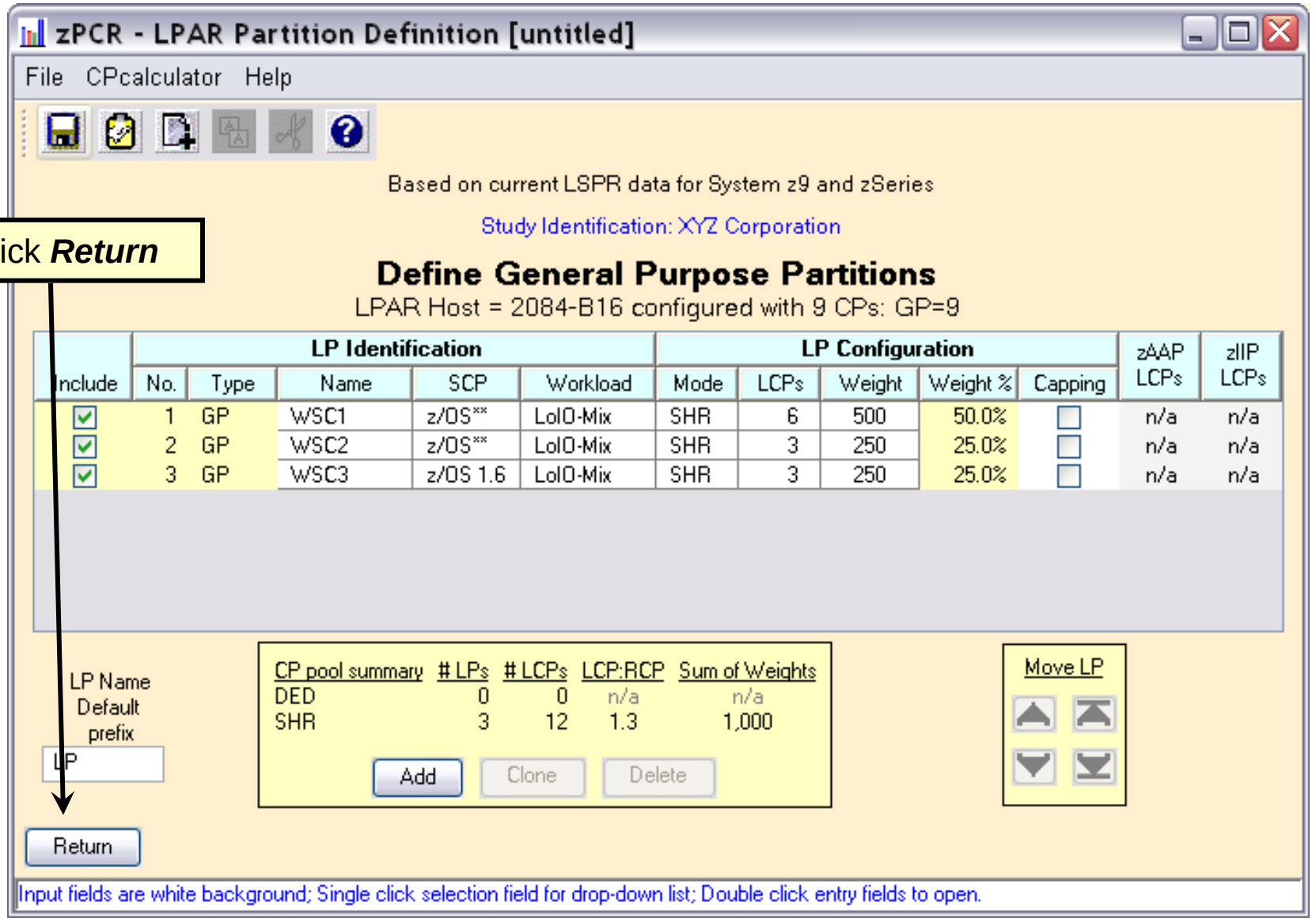
(2)
Select Number of CPs for each installed Feature Code



(3)
Click ***Return***

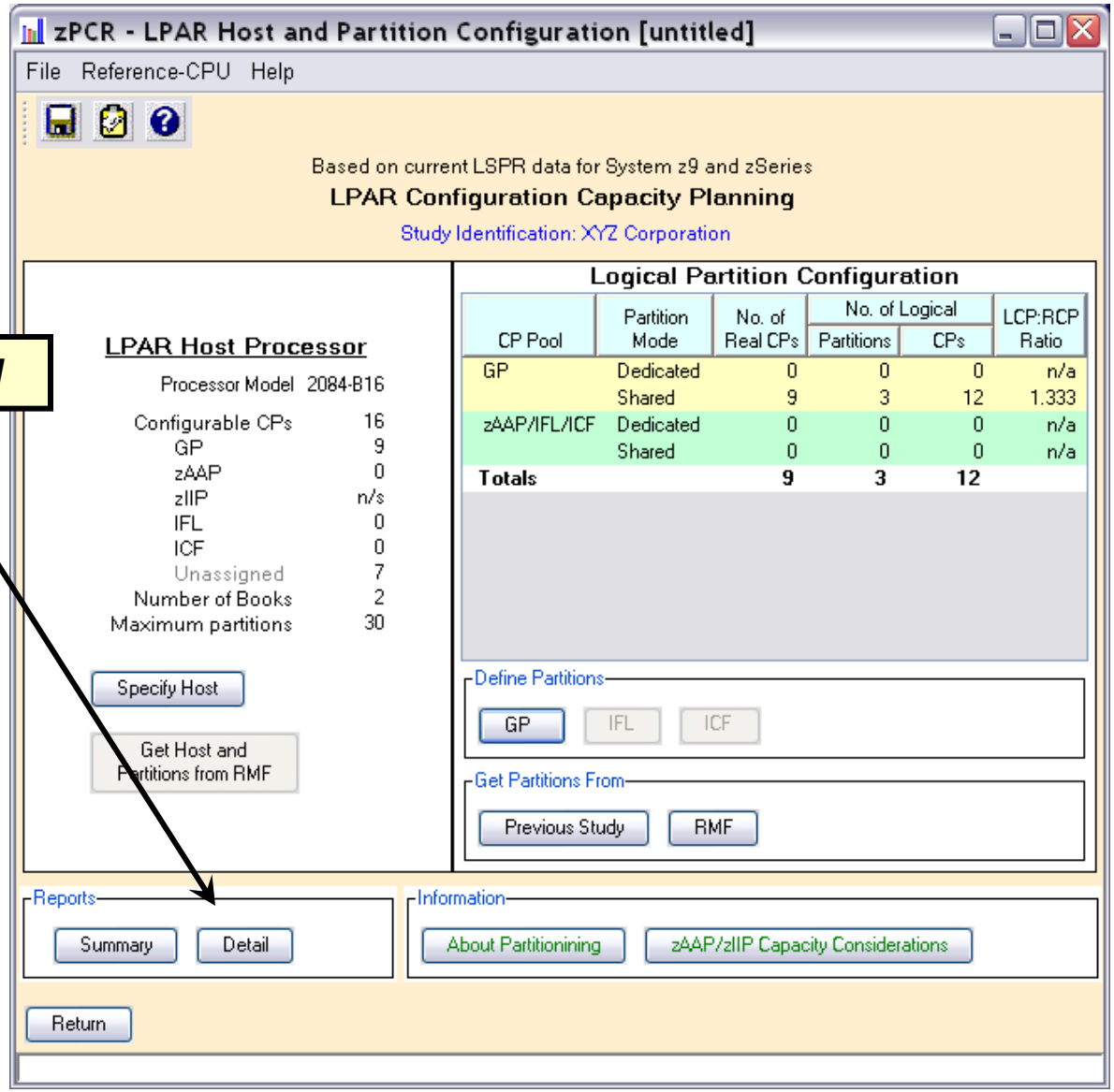






Click ***Return***

Click ***Detail***



(2)
Write results to clipboard

(1)
Review capacity results

(3)
Click ***Return***

zPCR - LPAR Detailed Capacity Report [unti

File CPcalculator Help

Based on current LSPR data for System z9 and zSeries

Study Identification: XYZ Corporation

LPAR Host and Partition Capacity

LPAR Host = 2084-B16 configured with 9 CPs: GP=9
Partitions: Active=3 GP=3 zAAP=0 zIIP=0 IFL=0 ICF=0

Capacity is relative to a 2084-309 assumed at 3,300 MIPS

Include	LP Identification					LP Configuration					LP Capacity	
	No.	Type	Name	SCP	Workload	Mode	LCPs	Weight	Weight %	Capping	Minimum	Maximum
☑	1	GP	WSC1	z/OS**	LoIO-Mix	SHR	6	500	50.0%	☐	1,592.2	2,123.0
☑	2	GP	WSC2	z/OS**	LoIO-Mix	SHR	3	250	25.0%	☐	805.8	1,074.4
☑	3	GP	WSC3	z/OS 1.6	LoIO-Mix	SHR	3	250	25.0%	☐	809.2	1,078.9

Table View

Partitions displayed: (•) All ( ) Includes Only

CP Pools displayed: ☑ GP ☐ zAAP/IFL/ICF

LPAR configuration capacity summary

3 Partitions in GP RCP Pool	3,207.2
0 Partitions in zAAP/IFL/ICF RCP pool	0.0
3 Partitions - combined total	3,207.2

Return | Comparison Report

zPCR V4.5

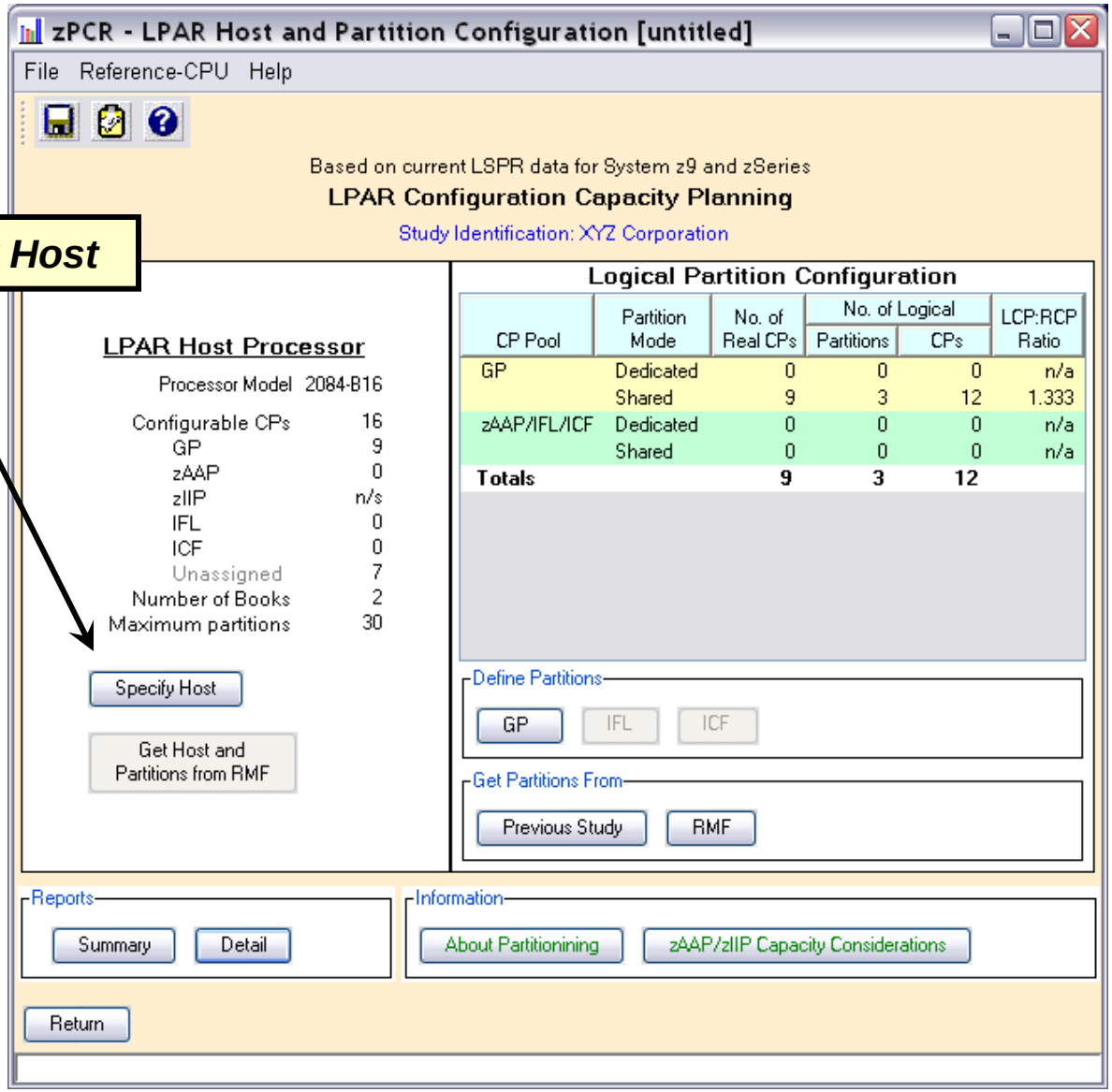
Input fields are white background; Double click entry fields to open.

Contents of Clipboard

Can be pasted into a note or document

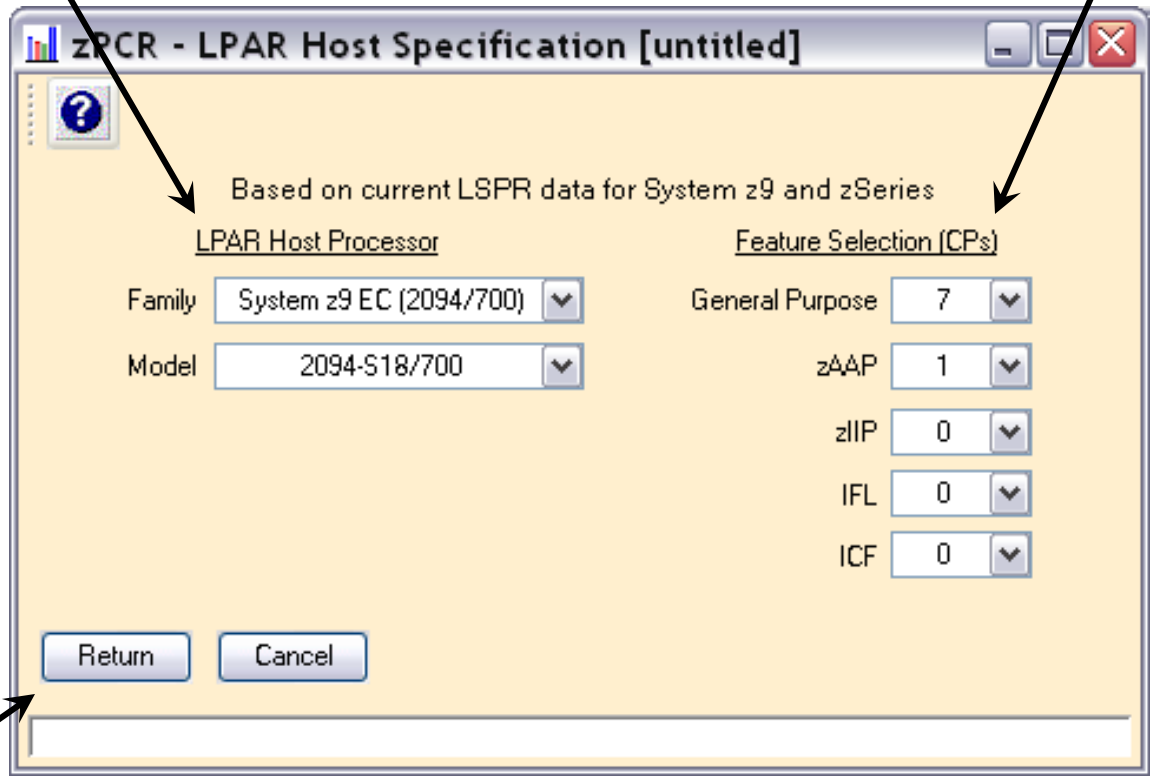
```
zPCR (4.5) - LPAR Capacity Report
    Based on current LSPR data for System z9 and zSeries
Study Identification: XYZ Corporation
LPAR Host and Partition Capacity
    LPAR Host =  2084-B16 configured with 9 CPs:  GP=9
    Partitions: Active=3 GP=3 zAAP=0 zIIP=0 IFL=0 ICF=0
    Capacity is relative to a 2084-309 assumed at 3,300 MIPS

     LP Identification                          LP Definition                              LP Capacity
Inc  No  Type     Name      SCP      Workload    Mode #LCPs Weight  Weight% Capping   Minimum  Maximum
---  +---+--------+---------+--------+---------  +----+-----+-------+-------+------   +--------+--------
 Y     1 GP       WSC1      z/OS**   LoIO-Mix     SHR    6     500     50.0%           1,592.2  2,123.0
 Y     2 GP       WSC2      z/OS**   LoIO-Mix     SHR    3     250     25.0%             805.8  1,074.4
 Y     3 GP       WSC3      z/OS 1.6 LoIO-Mix     SHR    3     250     25.0%             809.2  1,078.9

                       LPAR configuration capacity summary
                       +-------------------------------------------------------------------
                           3  Partitions in GP RCP pool                                3,207.2
                           0  Partitions in zAAP/IFL/ICF RCP pool                          0.0
                           3  Partitions - combined total                              3,207.2
```

Click ***Specify Host***

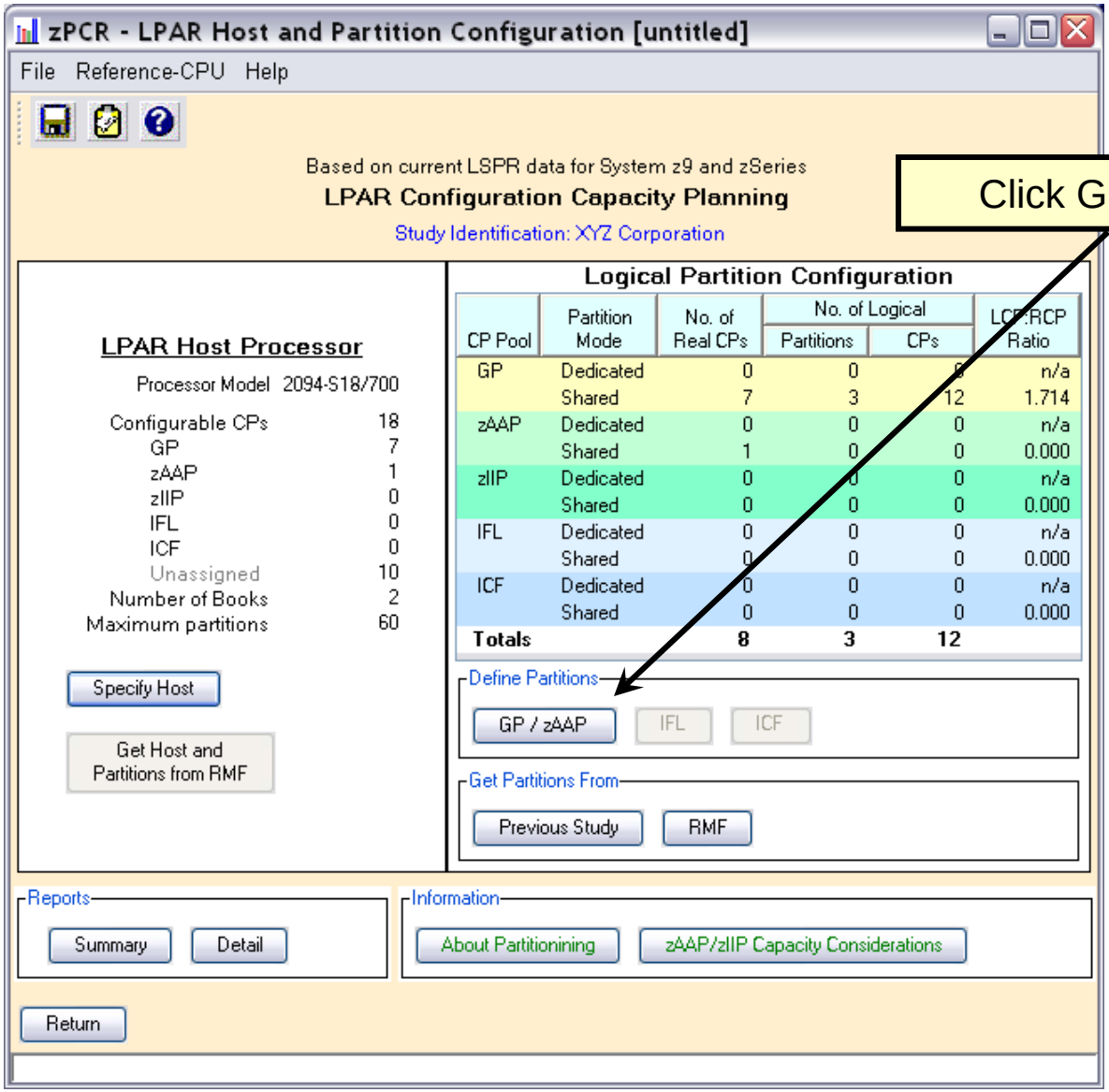


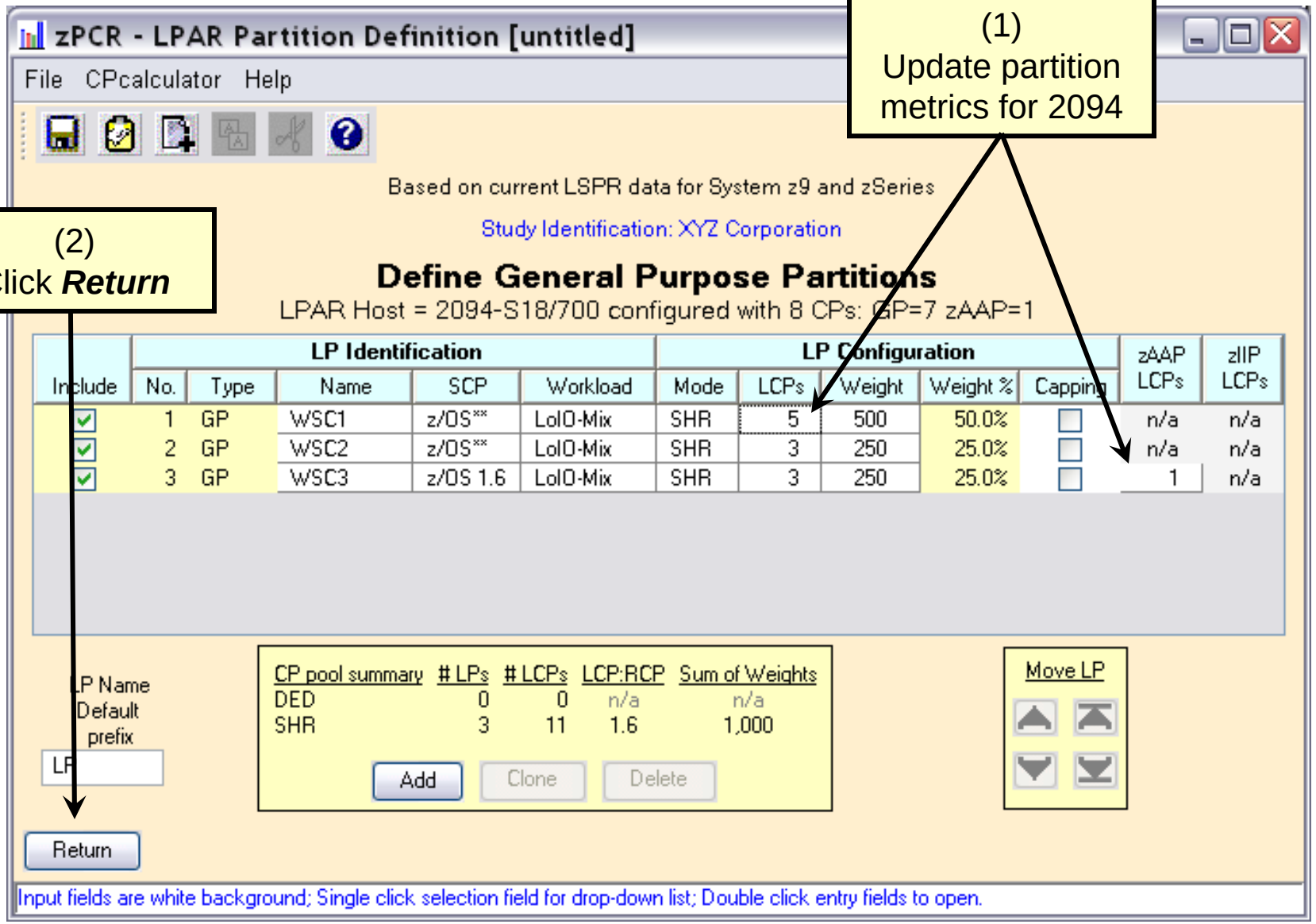
(1)
Select Host Processor Model

(2)
Select Number of CPs for each installed Feature Code

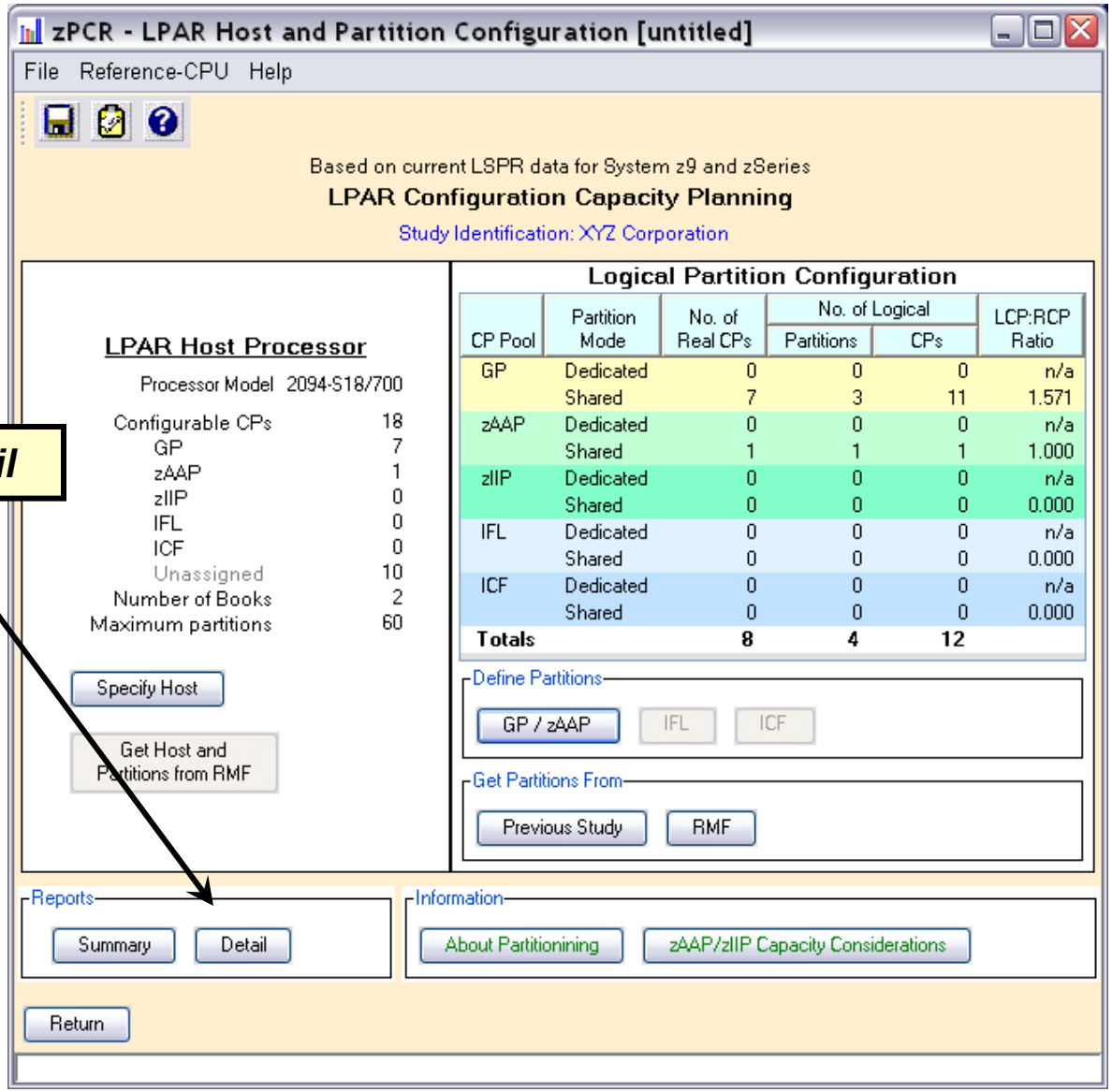


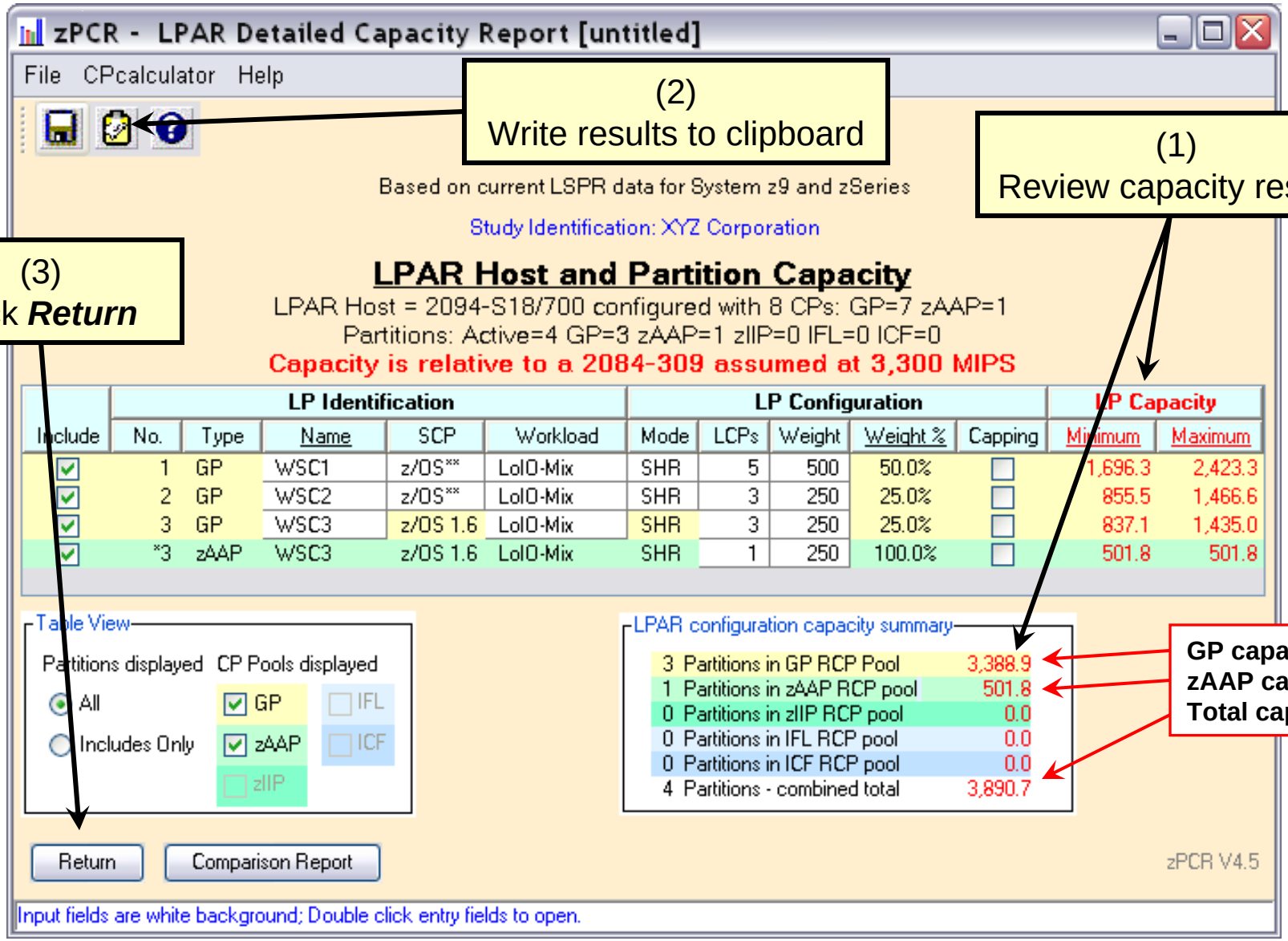
(3)
Click ***Return***





Click ***Detail***





Contents of Clipboard

Can be pasted into a note or document

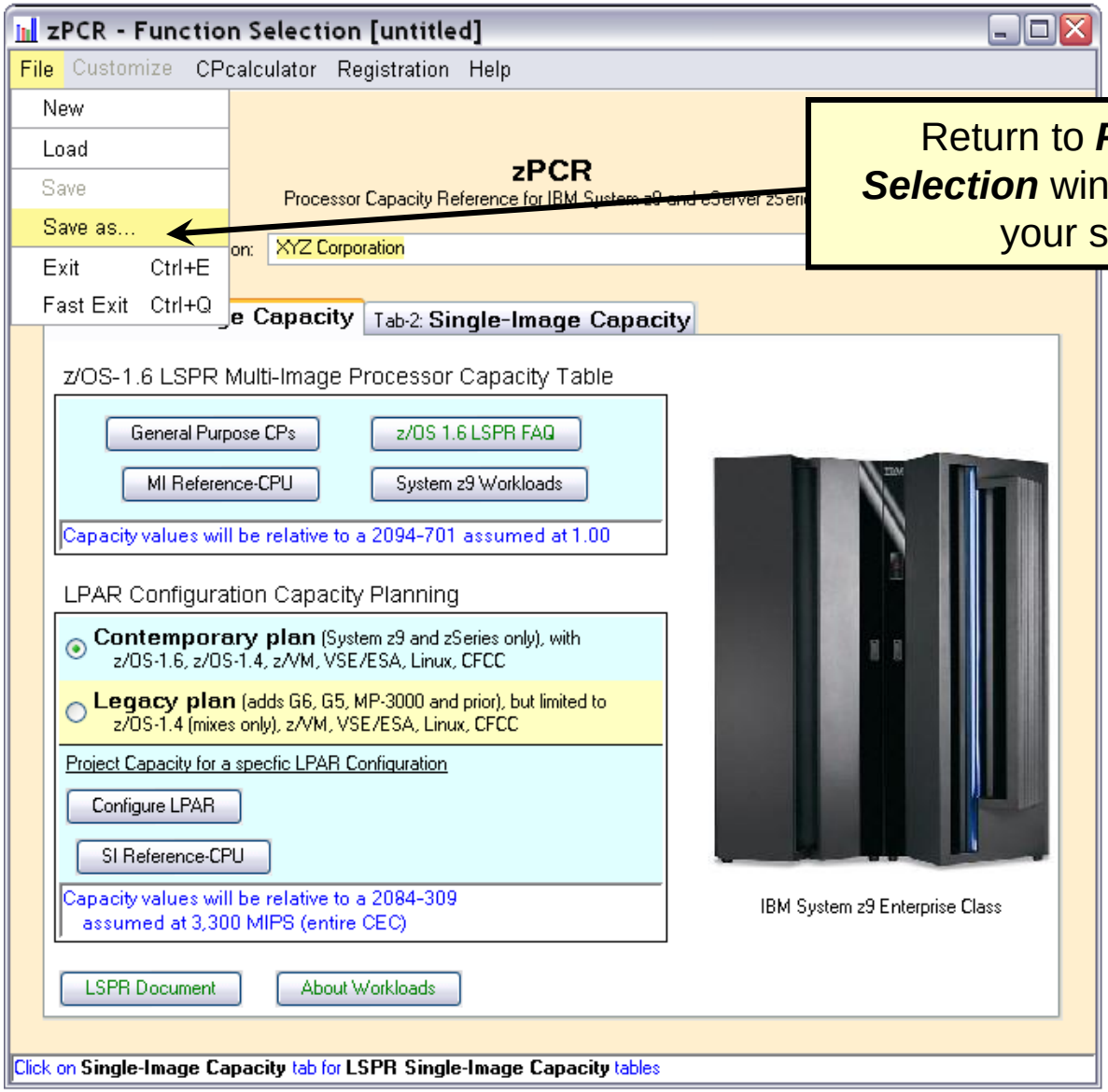
```
zPCR (4.5) - LPAR Capacity Report
    Based on current LSPR data for System z9 and zSeries
Study Identification: XYZ Corporation
LPAR Host and Partition Capacity
    LPAR Host =  2094-S18/700 configured with 8 CPs:  GP=7 zAAP=1
    Partitions: Active=4 GP=3 zAAP=1 zIIP=0 IFL=0 ICF=0
    Capacity is relative to a 2084-309 assumed at 3,300 MIPS

     LP Identification                          LP Definition                          LP Capacity
Inc  No  Type     Name      SCP      Workload   Mode #LCPs Weight  Weight% Capping   Minimum  Maximum
---  +---+--------+---------+--------+---------  +----+-----+-------+-------+------  +--------+--------
 Y     1 GP       WSC1      z/OS**   LoIO-Mix    SHR    5     500     50.0%          1,696.3  2,423.3
 Y     2 GP       WSC2      z/OS**   LoIO-Mix    SHR    3     250     25.0%            855.5  1,466.6
 Y     3 GP       WSC3      z/OS 1.6 LoIO-Mix    SHR    3     250     25.0%            837.1  1,435.0
 Y     3 zAAP     WSC3      z/OS 1.6 LoIO-Mix    SHR    1     250    100.0%            501.8    501.8

                      LPAR configuration capacity summary
                      +-------------------------------------------------------------------
                          3  Partitions in GP RCP pool                              3,388.9
                          1  Partitions in zAAP RCP pool                              501.8
                          0  Partitions in zIIP RCP pool                                0.0
                          0  Partitions in IFL RCP pool                                 0.0
                          0  Partitions in ICF RCP pool                                 0.0
                          4  Partitions - combined total                            3,890.7
```

zPCR Results

- Reference-CPU is a 2084-309 assumed to provide 3,300 MIPS (customer defined)
- Current 2084-309 (B16) with LPAR configuration provides approximately 3,207[(1)] MIPS. (LPAR cost can be inferred as 3,300 – 3,207, or 93 MIPS)
- 2094-707 (S18) with 1 zAAP running the proposed LPAR configuration would deliver approximately 3,389[(2)] GP MIPS. and 502[(2)] zAAP MIPS. for a total capacity of approximately 3,890[(2)] MIPS.
- Capacity ratios, considering …
  - GP CPs only: 3,389[(2)] ÷ 3,207[(1)], or 1.06 (6% more capacity)
  - Overall: 3,890[(2)] ÷ 3,207[(1)], or 1.21 (21% more capacity)
    (assumes that zAAP capacity can be utilized)

[(1)] 2084-309 capacity of 3,207 MIPS is misstated as 3,287 MIPS in the audio presentation

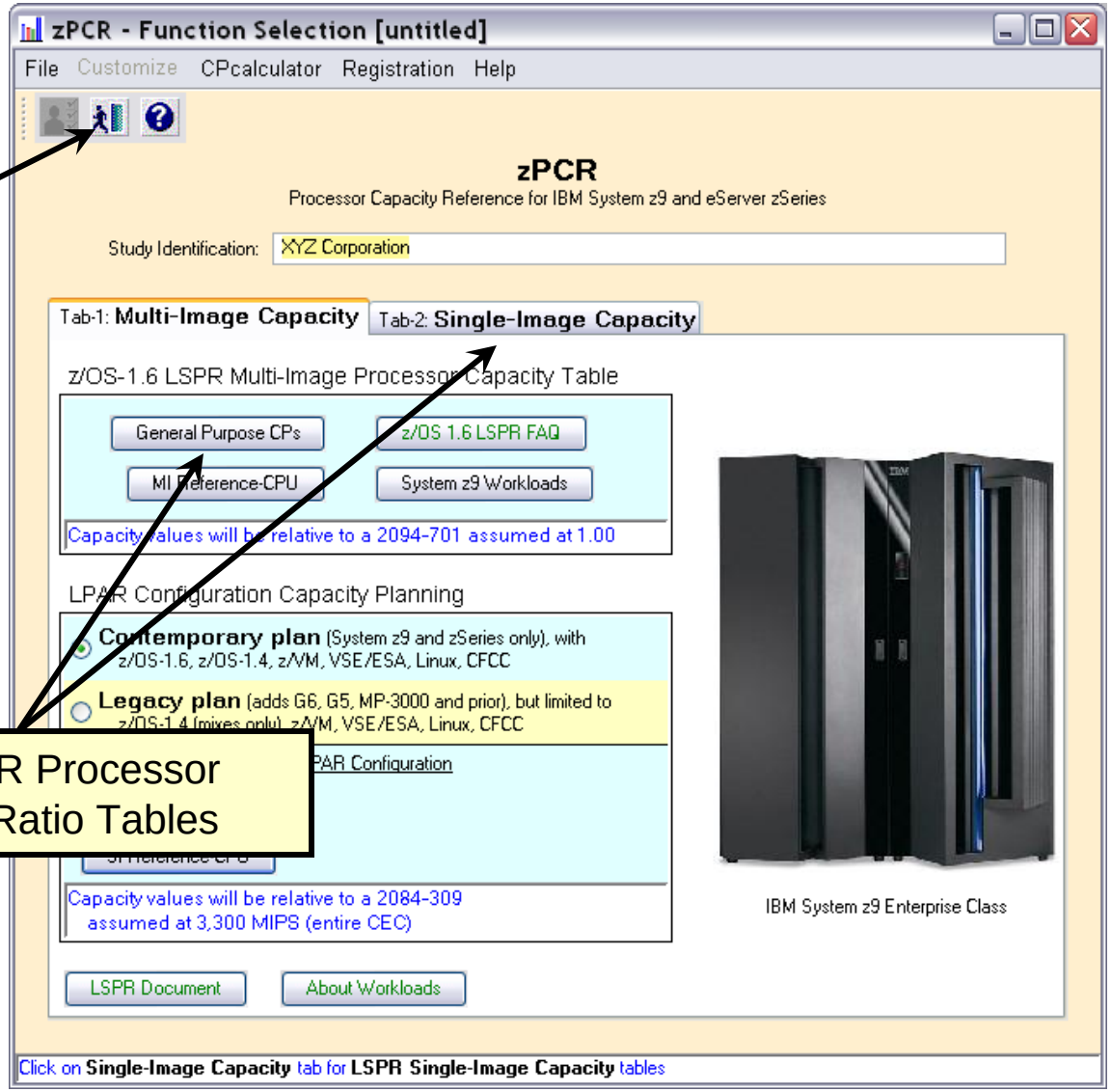
[(2)] 2094-707 capacity results differ slightly from the audio presentation due to zPCR logic improvements since v4.1b



Return to ***Function Selection*** window to save your study

Exit zPCR

View LSPR Processor Capacity Ratio Tables



Installing **zPCR**

- The requirement to specify an installation password for zPCR has been removed as of version 7.5b.

Where to Get More Information

- The **zPCR** User's Guide (implemented both as a PDF document and as online help)
  - Provides information about all the features contained in the tool
- The **zPCR** Email address
  - Provides defect support

Note: Effective with **zPCR** v4.3, the **zPCR Newsgroup**, discussed in the audio presentation, has been discontinued. Notices, FAQs, etc. can be found on the **zPCR** web site and in the NEWS file, available when **zPCR** is installed.