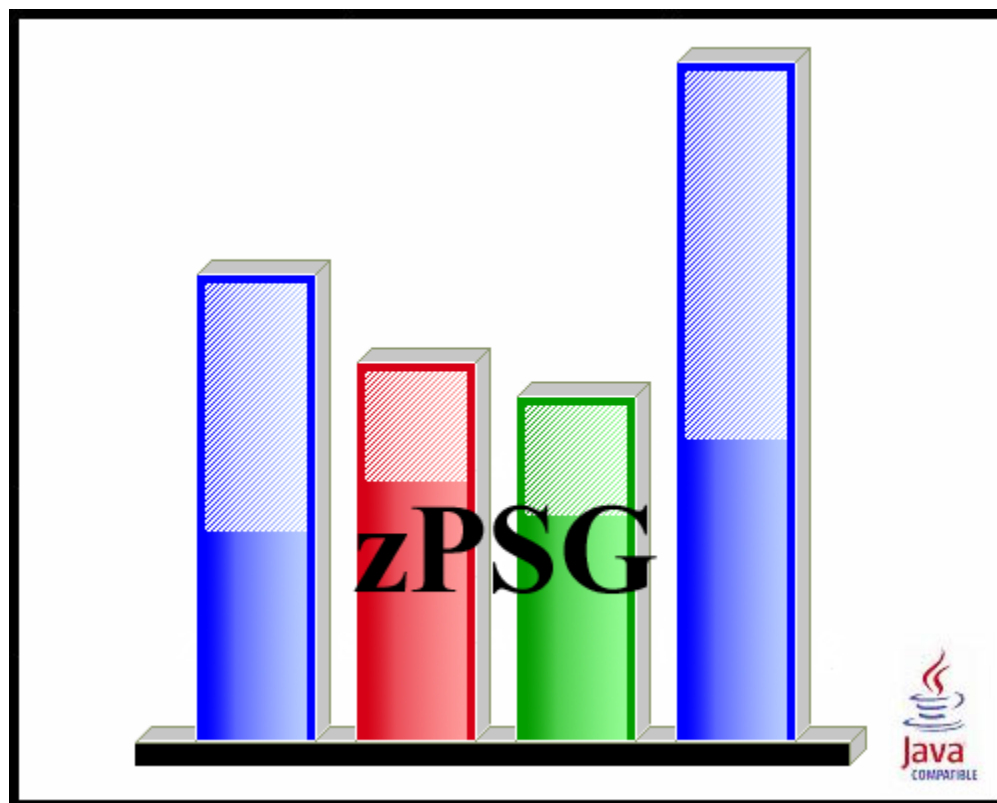


Processor Selection Guide  
for  
IBM System z

**zPSG**  
**User's Guide**  
for  
**WebSphere Enterprise Service Bus**



© IBM Corporation – 2004, 2011

Version 4.4  
zPSG WESB UG V44 2011a01.doc  
June 29, 2011

**The following are trademarks of the International Business Machines Corporation in the United States and/or other countries.**

CICS*	Multiprise*
DB2*	Parallel Sysplex*
e-business logo*	RMF
Enterprise Storage Server	S/390*
IBM*	WebSphere*
IBM ^	VSE/ESA
IBM logo*	VM/ESA*
IBM System z9	z/OS
IMS	z/VM
LSPR	zSeries

\* Registered trademarks of IBM Corporation

**The following are trademarks or registered trademarks of other companies.**

Linux is a registered trademark of Linus Torvalds.

Java and all Java-related trademarks and logos are trademarks of Sun Microsystems, Inc., in the United States and other countries

Microsoft, Windows and Windows NT are registered trademarks of Microsoft Corporation.

InstallShield Professional is a trademark of InstallShield Software Corporation

All other products may be trademarks or registered trademarks of their respective companies.

## WebSphere Enterprise Service Bus

### z/OS and Linux

This tool provides estimates of System z processor capacity for JMS and Web Services mediations running under WebSphere Enterprise Service Bus (WESB).

See the [WESB Glossary of Terms](#) for a definition of terms used in describing WESB applications.

Service-oriented architecture (SOA) is an architectural approach towards modeling a business as a set of linked, repeatable business tasks, or services. From an IT perspective, SOA allows businesses to build composite applications, which are applications that use services as building blocks for horizontal business processes. In an SOA, IT services and business services are precisely aligned.

Some of these business services or tasks can be automated and others can be manual, but they must all be completed in a particular order to create the final result. The order in which these tasks are organized, along with the guidelines around how they are completed, define the process to produce a particular end result. Typically, many of these tasks also overlap with others throughout an organization, causing a duplication of effort and the potential to produce different results when the same is desired. From a traditional software perspective, this duplication of tasks results in multiple development and maintenance streams. These have potentially divergent code bases that perform similar or identical function for different areas within the organization.

This can be a very costly proposition from a staffing, hardware, and software perspective, and introduces the added possibility that customers see differing results based on the system they interact with when the result must be the same. Service-oriented architecture looks to address these shortcomings by extending a capability known as process serving, allowing tasks, implemented as reusable services, to be composed into different patterns to create new business processes or easily modify existing ones, allowing the organization to react to changing business situations.

WESB simplifies implementation of an SOA by reducing the number, size, and complexity of interfaces between services. It resides between a requestor and a service, and provides the following capabilities:

- Transformation of message formats between requestor and service
- Routing messages between services
- Conversion of transport protocols between requestor and service
- Handling of business events from disparate sources

WebSphere Enterprise Service Bus provides the capabilities of a standards-based enterprise service bus. WESB manages the flow of messages between service requesters and service providers. Mediation modules within WESB handle mismatches between requesters and providers, including protocol or interaction-style, interface, and quality of service mismatches.

## **How To Do a WESB Sizing**

When you select WESB sizing support from the **Product Selection** window to begin a new sizing, the **WESB Application Definition** input window is presented.

The general approach to sizing WESB applications on System z is to determine which of the pre-defined SOA mediation profiles best represent the customer's application and provide an average transaction rate during a peak interval for each of these. Refer to the [WESB Application Definition](#) window to see the list of mediation profiles that can be included in a sizing. See [Scenario Descriptions](#) for a brief description of all the mediation profiles supported.

The usual span of time for a peak interval is 15 minutes, and you want to specify the average transactions per second for that interval. Note that if you have statistics for the average transaction rate for prime shift or for a day or week, you might want to apply a peak-to-average multiplier factor to averages for long periods of time to arrive at an average rate for a 15 minute interval.

To see results, click on the **Summary Report**, **CPU Utilization** or **Transaction Rate** buttons in the **Reports and Capacity Projections** section of the window.

The application window images shown in this user guide have been provided as a representation of the windows the user will see when using **zPSG** but there may be minor differences from the current version of **zPSG**, such as version numbers and dates.

## **Scenario Descriptions**

This section provides a list of the pre-defined scenarios that can be included in a sizing. A scenario is included in a sizing by providing a Message rate per second greater than zero. The message size(s) should also be specified if applicable. The scenarios are divided into two categories of processing for JMS Bindings and Web Services Bindings. The JMS mediations use one-way messaging and the Web Services mediations use request-reply messaging.

### **JMS Bindings**

- **JMS A: Non-Persistent Transform Value Mediation**

Transforms the value of a single element in the message using XSLT but does not modify the namespace or schema.

- **JMS B: Persistent Transform Value Mediation**

Transforms the value of a single element in the message using XSLT but does not modify the namespace or schema.

- **JMS C: Non-Persistent Transform Schema**

Transforms message from one schema to another using XSLT. The schemas are completely different but contain similar data which is mapped from one to the other. In addition to the transform a value from the request is transferred to the response by storing it in a context header.

- **JMS D: Persistent Transform Schema Mediation**

XSLT Schema transform mediation Transforms request and response messages from one schema to another using XSLT. The schemas are completely different but contain similar data which is mapped from one to the other. In addition to the transform a value from the request is transferred to the response by storing it in a context header

- **JMS E: Non-Persistent Route on Header Mediation**

Route the request based on the presence of a string in the JMS header.

- **JMS F: Persistent Route on Header Mediation**

Route the request based on the presence of a string in the JMS header.

- **JMS G: Non-Persistent Route on Body Mediation**

Route the request based on the content of a field in the body of the request.

- **JMS H: Persistent Route on Body Mediation**

Route the request based on the content of a field in the body of the request.

- **JMS I: Non-Persistent Composite Mediation**

The composite mediation consists of four mediation primitives wired together inside a single mediation module. This saves the overhead of inter-module call overheads, but at the expense of the ability to individually administer the pieces of the overall mediation. The Authorization mediation is a routing mediation which checks a password field in the request body. No logging is performed.

- **JMS J: Persistent Composite Mediation**

The composite mediation consists of four mediation primitives wired together inside a single mediation module. This saves the overhead of inter-module call overheads, but at the expense of the ability to individually administer the pieces of the overall mediation. The Authorization mediation is a routing mediation which checks a password field in the request body. No logging is performed.

- **JMS K: Non-Persistent Null Mediation**

The message is passed unchanged through an empty mediation component. The module acts as a simple static proxy.

- **JMS L: Persistent Null Mediation**

The message is passed unchanged through an empty mediation component. The module acts as a simple static proxy.

## Web Services Bindings

- **WS A: Transform value mediation**

Transforms the value of a single element in the request message using XSLT but does not modify the namespace or schema. No transformation is performed on the response message.

- **WS B: Transform Namespace Mediation**

Transforms request and response messages from one schema to another using XSLT. The schemas are largely the same but the name of an element differs and the two schemas have different namespaces.

- **WS C: Transform Schema Mediation**

Transforms request and response messages from one schema to another using XSLT. The schemas are completely different but contain similar data which is mapped from one to the other. In addition to the transform, a value from the request is transferred to the response by storing it in a context header.

- **WS D: Route on Header Mediation**

Route the request based on the presence of a string in the SOAP header.

- **WS E: Route on Body Mediation**

Route the request based on the content of a field in the body of the request.

- **WS F: Composite Mediation**

The composite mediation consists of four mediation primitives wired together inside a single mediation module. This saves the overhead of inter-module call overheads, but at the expense of the ability to individually administer the pieces of the overall mediation. The Authorization mediation is a routing mediation which checks a password field in the request body. No logging is performed.

- **WS G: Null Mediation**

The message is passed unchanged through an empty mediation component. The module acts as a simple static proxy.

## WESB Application Definition

zPSG - WESB Application Definition [untitled]

File Help

**IBM System z Processor Sizing**  
**WebSphere Enterprise Service Bus 7.0 on z/OS**

Customer :  Application name :

Scenario Descriptions

	Message Rate/sec	Average Msg. Size(K)	Average Msg. Size(K)	
<b>JMS Bindings</b>				
JMS A: Non-Persistent Transform Value Mediation	<input type="text" value="0.00"/>	<input type="text" value="2"/>		
JMS B: Persistent Transform Value Mediation	<input type="text" value="0.00"/>	<input type="text" value="2"/>		
JMS C: Non-Persistent Transform Schema Mediation	<input type="text" value="0.00"/>	<input type="text" value="2"/>		
JMS D: Persistent Transform Schema Mediation	<input type="text" value="0.00"/>	<input type="text" value="2"/>		
JMS E: Non-Persistent Route on Header Mediation	<input type="text" value="0.00"/>	<input type="text" value="2"/>		
JMS F: Persistent Route on Header Mediation	<input type="text" value="0.00"/>	<input type="text" value="2"/>		
JMS G: Non-Persistent Route on Body Mediation	<input type="text" value="0.00"/>	<input type="text" value="2"/>		
JMS H: Persistent Route on Body Mediation	<input type="text" value="0.00"/>	<input type="text" value="2"/>		
JMS I: Non-Persistent Composite Mediation	<input type="text" value="0.00"/>	<input type="text" value="2"/>		
JMS J: Persistent Composite Mediation	<input type="text" value="0.00"/>	<input type="text" value="2"/>		
JMS K: Non-Persistent Null Mediation	<input type="text" value="0.00"/>	<input type="text" value="2"/>		
JMS L: Persistent Null Mediation	<input type="text" value="0.00"/>	<input type="text" value="2"/>		
<b>Web Services Bindings</b>				
			Request	Response
WS A: Transform Value Mediation	<input type="text" value="0.00"/>	<input type="text" value="2"/>	<input type="text" value="2"/>	<input type="text" value="2"/>
WS B: Transform Namespace Mediation	<input type="text" value="0.00"/>	<input type="text" value="2"/>	<input type="text" value="2"/>	<input type="text" value="2"/>
WS C: Transform Schema Mediation	<input type="text" value="0.00"/>	<input type="text" value="2"/>	<input type="text" value="2"/>	<input type="text" value="2"/>
WS D: Route on Header Mediation	<input type="text" value="0.00"/>	<input type="text" value="2"/>	<input type="text" value="2"/>	<input type="text" value="2"/>
WS E: Route on Body Mediation	<input type="text" value="0.00"/>	<input type="text" value="2"/>	<input type="text" value="2"/>	<input type="text" value="2"/>
WS F: Composite Mediation	<input type="text" value="0.00"/>	<input type="text" value="2"/>	<input type="text" value="2"/>	<input type="text" value="2"/>
WS G: Null Mediation	<input type="text" value="0.00"/>	<input type="text" value="2"/>	<input type="text" value="2"/>	<input type="text" value="2"/>

Reports and Capacity Projections

characterizing the average transaction

to support peak transaction rate

support within SDP of  %

[Enter transaction information.](#)

This window is displayed when the **Size Workload** button is clicked on the **Product Selection** window when **WebSphere Enterprise Service Bus** has been selected for z/OS or Linux (the example used here is for z/OS).

**Note:** A scenario rate greater than zero must be specified for at least one scenario profile to get a sizing estimate.



## Description of Input Fields

### Menu bar

#### File

<b>New</b>	Start a new study. Sets all fields to initialization values.
<b>Load</b>	Load a previously saved study
<b>Save</b>	Save the current study
<b>Save as</b>	Save the current study as a new file
<b>Exit</b> (Ctrl-E)	Exit window and return to the <b>Product Selection</b> window
<b>Exit zPSG</b>	Terminate <b>zPSG</b> execution (Ctrl-Q). Exit zPSG can also be invoked from the Exit zPSG button on the tool bar.

#### Help

<b>Context Help (F1)</b>	Help for this window
<b>About zPSG</b>	Product information

### Toolbar

- ? button** Click this button to go to Help for this window.
- Exit zPSG button** Click this button to terminate **zPSG** execution.

### Customer =

Input field, for documentation purposes, not required. If you want to save a copy of the sizing estimate, you can use this field to document which sizing it is.

### Application name =

Input field, for documentation purposes, not required. If you want to save a copy of the sizing estimate, you can use this field to document which sizing it is.

## **Input Fields and Buttons**

### **Message Rate/sec**

Specify a scenario rate per second value for each of the scenario profiles that should be included in the sizing. Specify a value of zero if the scenario profile should not be included in the sizing. The default value for each of the scenario profiles is zero.

### **Average Msg. Size (K)**

Specify the average message size in KB for each of the scenarios that should be included in the sizing. The default value for each of the scenarios is 2K. This is for JMS bindings only.

### **Average Msg. Size (K) - Request**

Specify the average request message size in KB for each of the scenarios that should be included in the sizing. The default value for each of the scenarios is 2K. This is for Web Services bindings only.

### **Average Msg. Size (K) - Response**

Specify the average response message size in KB for each of the scenarios that should be included in the sizing. The default value for each of the scenarios is 2K. This is for Web Services bindings only.

## **Reports and Capacity Projections**

This section provides buttons to view output windows with summary reports and capacity projections.

### **Summary Report button**

Click this button to view a summary of the input assumptions for the sizing and a breakdown of the CPU/transaction among the transaction profiles included in the sizing.

### **CPU Utilization button**

Click this button to see an output window with estimates of processor utilization for all System z processors supported in zPSG.

### **Transaction Rate button**

Click this button to see an output window with estimates of transaction rates that can be supported on all System z processors supported in zPSG. You can also see the transaction rates that can be supported within a Saturation Design Point (SDP) specified for the processors.

### **SDP %**

#### **Description**

Input field, numeric, valid range is 1 to 100.

SDP stands for Saturation Design Point. This is a classic capacity planning concept which allows you to examine the amount of workload than can be supported in less than the full capacity of the processor model. It applies to the Transaction Rate output window and enables you to determine how much work can fit into a processor that is already being used for other applications.

#### **Default**

The default is 90%.

### **Return button**

Click this button to return to the ***Product Selection*** window.

### **Reference-CPU button**

Click this button to go to a window to change the System z processor used as a basis for capacity ratings. See the Reference-CPU section in the zPSG User's Guide for information about this setting.

### **Linux under z/VM button**

**For Linux only**

Click this button for important sizing considerations when Linux is deployed as a guest under z/VM.

## WESB Application Activity Summary

IBM System z Processor Sizing

### WebSphere Enterprise Service Bus 7.0 on z/OS Summary Report

Capacity based on z/OS-1.11 LSPR (07/22/2010) using "Low-Avg" workload  
Capacity basis: 2094-701 @ 593 MIPS for a shared single partition configuration

Scenario	Single Scenario Capacity	Scenario Rate / sec	Total Scenario Capacity	CPU Distribution
<b>JMS Bindings</b>				
1. JMS A: Non-Persistent Transform Value Mediation	1.6274	2.00	3.2548	10.7%
2. JMS B: Persistent Transform Value Mediation				
3. JMS C: Non-Persistent Transform Schema Mediation				
4. JMS D: Persistent Transform Schema Mediation				
5. JMS E: Non-Persistent Route on Header Mediation				
6. JMS F: Persistent Route on Header Mediation				
7. JMS G: Non-Persistent Route on Body Mediation				
8. JMS H: Persistent Route on Body Mediation				
9. JMS I: Non-Persistent Composite Mediation	3.2941	4.00	13.1763	43.4%
10. JMS J: Persistent Composite Mediation				
11. JMS K: Non-Persistent Null Mediation				
12. JMS L: Persistent Null Mediation				
<b>Web Services Bindings</b>				
13. WS A: Transform Value Mediation	1.7574	7.00	12.3015	40.5%
14. WS B: Transform Namespace Mediation				
15. WS C: Transform Schema Mediation				
16. WS D: Route on Header Mediation	1.6554	1.00	1.6554	5.4%
17. WS E: Route on Body Mediation				
18. WS F: Composite Mediation				
19. WS G: Null Mediation				
<b>Load overall Total:</b>	<b>2.1706</b>	<b>14.00</b>	<b>30.3880</b>	<b>100%</b>

Percent of workload estimated to be eligible for zAAP Processing = 40%

This window is displayed when the **Summary Report** button is clicked on the primary **WESB Application Definition** window. It shows a breakdown of the CPU per transaction for the various pre-defined transactions included in the sizing.

## **Menu bar**

### **File**

**Output** Write contents to a flat (PRN) file.

**Copy** Write contents to Window's clipboard

**Graph** Generates a pie chart showing the distribution of application activity

### **Help**

**Context Help (F1)** Help for this window

**About zPSG** Product information

## **Toolbar**

### **1st button**

Click this button to send sizing information to a PRN file for processing outside of zPSG.

### **2nd button**

Click this button to send sizing information to the clipboard, so that you can copy it into a note or other document.

### **? button**

Click this button to go to Help for this window.

## ***Processing Function* column**

Lists the pre-defined mediation profiles available on the primary ***WESB Application Definition*** window.

## ***Single Tran Capacity* column**

Reflects the amount of CPU (as represented by the Capacity Rating) for each mediation profile selected, and at the bottom for all mediation profiles included in the sizing.

## ***Trans Rate / sec* column**

Reflects the number of transactions completed per second for each of the pre-defined mediation profiles as specified on the ***WESB Application Definition*** window.

## ***Total Tran Capacity* column**

Reflects the amount of CPU (as represented by the Capacity Rating) for each transaction multiplied by the transaction rate specified in the ***Trans Rate / sec*** column, and at the bottom for all transactions.

## ***CPU Distribution* column**

Shows the percentage of the CPU/transaction used by each mediation profile.

### **Percent of workload estimated to be eligible for zAAP Processing = (z/OS only)**

Shows the estimated percentage of Java content for the pre-defined mediation profiles included in the sizing. Percentages of Java content were computed in all the performance lab measurements done to support the pre-defined mediation profiles supported in this tool. These percentages reflect the amount of CPU that we estimate you can offload to zAAP, assuming sufficient zAAP capacity to handle the load. You can generate an estimate of zAAP capacity requirements using the zAAP Capacity Estimator available from the CP Calculator menu on the **Product Selection** window.

### **Push Buttons**

Click the **Return** button to return to the primary **WESB Application Definition** input window.

Click the **Utilization Report** button to go to the **WESB Processor Capacity Projections - Processor Utilization** output window.

Click the **Transaction Rate Report** button to go to the **WESB Processor Capacity Projections - Transaction Rate Supported** output window.

Click the **Show Assumptions** button to see a list of the assumptions for the sizing in the **WESB Application Transaction Assumptions** window.

## WESB Transaction Assumptions

For this application ...  
the WESB workload is characterized by the following assumptions:

<u>Scenario</u>	<u>Scenarios Rate/sec</u>	<u>Average Msg. Size(k)</u>	<u>Average Msg. Size (K)</u>
<b>JMS Bindings</b>			
1. JMS A: Non-Persistent Transform Value Mediation	2.00	2	
2. JMS B: Persistent Transform Value Mediation	0.00	2	
3. JMS C: Non-Persistent Transform Schema Mediation	0.00	2	
4. JMS D: Persistent Transform Schema Mediation	0.00	2	
5. JMS E: Non-Persistent Route on Header Mediation	0.00	2	
6. JMS F: Persistent Route on Header Mediation	0.00	2	
7. JMS G: Non-Persistent Route on Body Mediation	0.00	2	
8. JMS H: Persistent Route on Body Mediation	0.00	2	
9. JMS I: Non-Persistent Composite Mediation	4.00	2	
10. JMS J: Persistent Composite Mediation	0.00	2	
11. JMS K: Non-Persistent Null Mediation	0.00	2	
12. JMS L: Persistent Null Mediation	0.00	2	
<b>Web Services Bindings</b>			
13. WS A: Transform Value Mediation	7.00	Request 2	Response 2
14. WS B: Transform Namespace Mediation	0.00	2	2
15. WS C: Transform Schema Mediation	0.00	2	2
16. WS D: Route on Header Mediation	1.00	2	2
17. WS E: Route on Body Mediation	0.00	2	2
18. WS F: Composite Mediation	0.00	2	2
19. WS G: Null Mediation	0.00	2	2

Return

This window is displayed when the **Show Assumptions** button is clicked on the **WESB Application Activity Summary** window.

All assumptions as listed will be included when generating output for the **Summary** window.

## WESB Processor Utilization

### WESB Processor Capacity Projections

zPSG - WESB Processor Capacity Projections [untitled]
\_ □ ×

File Graph Help

IBM System z Processor Sizing

**WebSphere Enterprise Service Bus 7.0 on z/OS**

Processor Utilization to Support 14.0000 Transactions per Second  
General Purpose CPs

Capacity based on z/OS-1.11 LSPR (07/22/2010) using "Low-Avg" workload  
Capacity basis: 2094-701 @ 593 MIPS for a shared single partition configuration

Processor	Feature	Flag	MSU	Capacity Rating	Projected Utilization	# Servers Required
<u>zEnterprise 196/700</u>						
2817-701	1W	=	150	1,283	2%	
2817-702	2W	=	281	2,477	1%	
2817-703	3W	=	408	3,643	<1%	
2817-704	4W	=	531	4,784	<1%	
2817-705	5W	=	650	5,899	<1%	
2817-706	6W	=	766	6,989	<1%	
2817-707	7W	=	879	8,056	<1%	
2817-708	8W	=	988	9,098	<1%	
2817-709	9W	=	1091	10,118	<1%	
2817-710	10W	=	1191	11,114	<1%	
2817-711	11W	=	1286	12,089	<1%	
2817-712	12W	=	1381	13,042	<1%	
2817-713	13W	=	1473	13,974	<1%	
2817-714	14W	=	1562	14,885	<1%	
2817-715	15W	=	1648	15,775	<1%	
2817-716	16W	=	1731	16,646	<1%	
2817-717	17W	=	1816	17,506	<1%	
2817-718	18W	=	1899	18,355	<1%	
2817-719	19W	=	1983	19,193	<1%	
2817-720	20W	=	2064	20,020	<1%	
2817-721	21W	=	2144	20,837	<1%	
2817-722	22W	=	2224	21,644	<1%	
2817-723	23W	=	2306	22,440	<1%	
2817-724	24W	=	2388	23,227	<1%	

Reference-CPU set to the IBM 2094-701 rated at 593  
Processors in view = 80; In listbox = 80; Selected = 001

Table View

General Purpose CPs  IFL CPs

Family z196/700

All  Within SDP  Selected

Return

To view FLAG information, place pointer on a processor flag indicator

This window is displayed when the **Utilization** button is clicked on the **WESB Application Definition** window or the **Utilization Report** button is clicked on the **WESB Application Activity Summary** window.



**Menu bar****File****Output** Write report contents to a flat (PRN) file.**Copy** Write report contents to Window's clipboard**Graph** (for processors currently selected in table)**Capacity** Generate bar graph depicting capacity values**Utilization** Generate bar graph showing utilization on selected processors**Help****Context Help (F1)** Help for this window**About zPSG** Product information**Toolbar****1st button**

Click this button to send sizing information to a PRN file, for processing outside of zPSG.

**2nd button**

Click this button to send sizing information to the clipboard, so that you can copy it into a note or other document.

**? button**

Click this button to go to Help for this window.

**Table*****Processor column***

A list of all processor models supported in zPSG

***Feature column*****For z/OS & Linux**Using the General Purpose CPs option under Table View, a designation of how many general purpose processing engines (CPs) for this entry. For example, 4W ("W" is short for "way") indicates 4 CPs or engines. Also see ***Flag*** column below.***Feature column*****For Linux only**Using the IFL CPs option under Table View, a designation of how many IFL engines for this entry. For example, 4W IFL ("W" is short for "way") indicates 4 IFL engines. Also see ***Flag*** column below.***Flag column***

If you place your cursor on a row in this column, an explanatory message about the System z model designation and the number of CP or IFL engines for the entry.

***MSU column***

Only for the General Purpose CPs Table View (does not apply to IFLs). Shows the MSU rating assigned to the number of CP engines for this entry.

### ***Capacity Rating column***

The capacity ratings reflect the relative capacity of each processor table entry to the reference-CPU and its capacity rating assigned on the Reference-CPU window. When **zPSG** is started the reference-CPU will be set to a 2094-701 (a z9 EC/700 processor with 1 general purpose CP) with a capacity rating of 593 MIPS.

### ***Projected Utilization column***

Shows the estimated CPU% for each processor entry in the table, based on the transaction rate(s) specified for the pre-defined mediation profiles included in the sizing. This is the primary output for a sizing.

### ***# Servers Required column***

If the estimated CPU% is greater than 100% (and therefore cannot fit on the processor), this column reflects the number of these models that would be needed to accommodate the load.

### **Table View Options Box**

Click a radio button in each section to customize the processor entries shown in the table:

- **General Purpose CPs** shows entries with some number of general CP engines
- **IFL CPs** shows entries with some number of IFL engines (for Linux only)
- **Family** shows all processor models for the family selected (Default)
- **All** shows all processor models supported in zPSG
- **Within SDP** shows all models that can accommodate the load within the Saturation Design Point
- **Selected** shows only selected models. Models are selected by clicking on the entry while holding down the Ctrl key on your keyboard.

### **Return button**

Click this button to return to the primary **WESB Application Definition** window.

## WESB Transaction Rate Supported WESB Processor Capacity Projections

zPSG - WESB Processor Capacity Projections [untitled]

File Graph Help

IBM System z Processor Sizing  
**WebSphere Enterprise Service Bus 7.0 on z/OS**  
Transaction Rate Supported  
General Purpose CPs  
Capacity based on z/OS-1.11 LSPR (07/22/2010) using "Low-Avg" workload  
Capacity basis: 2094-701 @ 593 MIPS for a shared single partition configuration

Processor	Feature	Flag	MSU	Capacity Rating	SDP = 90% ETR	SDP = 100% ITR
<u>zEnterprise 196/700</u>						
2817-701	1W	=	150	1,283	532	591
2817-702	2W	=	281	2,477	1,027	1,141
2817-703	3W	=	408	3,643	1,511	1,678
2817-704	4W	=	531	4,784	1,983	2,204
2817-705	5W	=	650	5,899	2,446	2,718
2817-706	6W	=	766	6,989	2,898	3,220
2817-707	7W	=	879	8,056	3,340	3,711
2817-708	8W	=	988	9,098	3,772	4,192
2817-709	9W	=	1091	10,118	4,195	4,661
2817-710	10W	=	1191	11,114	4,608	5,120
2817-711	11W	=	1286	12,089	5,013	5,569
2817-712	12W	=	1381	13,042	5,408	6,009
2817-713	13W	=	1473	13,974	5,794	6,438
2817-714	14W	=	1562	14,885	6,172	6,857
2817-715	15W	=	1648	15,775	6,541	7,268
2817-716	16W	=	1731	16,646	6,902	7,669
2817-717	17W	=	1816	17,506	7,259	8,065
2817-718	18W	=	1899	18,355	7,611	8,456
2817-719	19W	=	1983	19,193	7,958	8,842
2817-720	20W	=	2064	20,020	8,301	9,224
2817-721	21W	=	2144	20,837	8,640	9,600
2817-722	22W	=	2224	21,644	8,974	9,972
2817-723	23W	=	2306	22,440	9,305	10,338
2817-724	24W	=	2388	23,227	9,631	10,701

Table View

Reference-CPU set to the IBM 2094-701 rated at 593  
Processors in view = 80; In listbox = 80; Selected = 001

General Purpose CPs    IFL CPs  
 Family   z196/700  
 All    Within SDP    Selected

Return

To view FLAG information, place pointer on a processor flag indicator

This window is displayed when the **Transaction Rate** button is clicked on the **WESB Application Definition** window or the **Transaction Rate Report** button is clicked on the **WESB Application Activity Summary** window.

**Menu bar****File**

- Output** Write report contents to a flat (PRN) file.  
**Copy** Write report contents to Window's clipboard

**Graph** (for processors currently selected in table)

- Capacity** Generate a bar graph depicting capacity values  
**ETR** Generate bar graph showing transaction rate supported at SDP  
**ITR** Generate bar graph showing maximum transaction rate supported

**Help**

- Context Help (F1)** Help for this window  
**About zPSG** Product information

**Toolbar****1st button**

Click this button to send sizing information to a PRN file, for processing outside of zPSG.

**2nd button**

Click this button to send sizing information to the clipboard, so that you can copy it into a note or other document.

**? button**

Click this button to go to Help for this window.

**Table*****Processor column***

A list of all processor models supported in zPSG

***Feature column*****For z/OS & Linux**

Using the General Purpose CPs option under Table View, a designation of how many general purpose processing engines (CPs) for this entry. For example, 4W ("W" is short for "way") indicates 4 CPs or engines. Also see **Flag** column below.

***Feature column*****For Linux only**

Using the IFL CPs option under Table View, a designation of how many IFL engines for this entry. For example, 4W IFL ("W" is short for "way") indicates 4 IFL engines. Also see **Flag** column below.

***Flag column***

If you place your cursor on a row in this column, an explanatory message about the System z model designation and the number of CP or IFL engines for the entry.

**MSU column**

Only for the General Purpose CPs Table View (does not apply to IFLs). Shows the MSU rating assigned to the number of CP engines for this entry.

**Capacity Rating column**

The capacity ratings reflect the relative capacity of each processor table entry to the reference-CPU and its capacity rating assigned on the Reference-CPU window. When **zPSG** is started the reference-CPU will be set to a 2094-701 (a z9 EC/700 processor with 1 general purpose CP) with a capacity rating of 593 MIPS.

**SDP= xx % -- ETR column**

Shows the transaction rate for the application that can be supported within the Saturation Design Point specified on the primary **WESB Application Definition** window (the default SPD is 90%). ETR stands for External Throughput Rate, which is a standard System z term for transaction rate.

**SDP=100% -- ITR column**

Shows the transaction rate for the application that can be supported at 100% CPU. ITR stands for Internal Throughput Rate, which is a standard System z term indicating the throughput that can be achieved at 100% CPU. ITR is computed by dividing the ETR by the CPU% (expressed as a decimal). This is the way to correctly rate the processor capacity of each entry in the processor table for this workload (as opposed to MIPS ratings, which are generally erroneous).

**Table View Options Box**

Click a radio button in each section to customize the processor entries shown in the table:

- **General Purpose CPs** shows entries with some number of general CP engines
- **IFL CP's** shows entries with some number of IFL engines (for Linux only)
- **Family** shows all processor models for the family selected (Default)
- **All** shows all processor models supported in zPSG
- **Within SDP** shows all models that can accommodate the load within the Saturation Design Point
- **Selected** shows only selected models. Models are selected by clicking on the entry while holding down the Ctrl key on your keyboard.

**Return button**

Click this button to return to the primary **WESB Application Definition** window.

## **WESB Sizing Assistance**

Here are instructions for accessing the System z questionnaire from Techline. Note that on the Techline websites there are sizing questionnaires for distributed platforms in addition to System z. Be sure to use System z questionnaires for System z sizings. The questions and sizing methodologies are different from distributed platforms.

### **For IBMers:**

1. Obtain the latest copy of the WebSphere Enterprise Service Bus sizing questionnaire from the following website:
  - <http://w3-03.ibm.com/support/americas/techline/sizewise2f.html>
2. Submit a sizing request to Techline using the instructions found in the sizing questionnaire.

### **For Business Partners:**

1. Obtain the latest copy of the WebSphere Enterprise Service Bus sizing questionnaire via:
  - Phone: Call PartnerLine at 1-800-426-9990 (US and Canada)
  - Email: [pwcs@us.ibm.com](mailto:pwcs@us.ibm.com)
  - Online: <http://www.ibm.com/partnerworld/techline>
2. Submit a sizing request to Techline using the instructions found in the sizing questionnaire.

## **WESB Glossary of Terms**

### **Bindings Mode Connection**

When a JMS connection is made in bindings mode, MQ JMS uses the Java Native Interface (JNI) to call the MQ Queue Manager directly rather than communicating over TCP/IP. This connection mode is much more efficient when the sender and receiver reside in the same image of z/OS. Connections that require TCP/IP are called TCP mode connections.

### **Schema**

Used in XML validation processing. A schema is used to describe the grammar that constrains an XML document. If, for example, an XML-format personnel file contains entries for many employees, each of which must have 1 social security number specified as ### - ## - ####, the Schema would contain a rule enforcing the occurrence of 1, and only 1, SSN per employee in the prescribed format. XML Schemas provide the ability to exercise a high degree of control over the contents of an XML document. Validation using a Schema does, however, generally require more CPU than validation using a DTD.

### **SOAP**

Simple Object Access Protocol.

1. SOAP is a W3C specification which provides a standard for using XML to exchange structured and typed information between peers in a decentralized, distributed environment.
2. SOAP is also the name of the WebSphere Web Services implementation supported in WAS 4.0 and WAS 5.0. The new Web Services support provided by WAS 5.0.2 performs significantly better (uses less CPU) than the original SOAP support. (and it also conforms to SOAP specifications).

### **TCP Mode (or Client Mode) Connection**

When a JMS connection is made in TCP mode, JMS uses TCP/IP to call the MQ Queue Manager rather than communicating over the Java Native Interface as it does in bindings mode. With TCP Mode Connections, the MQ Queue Manager does not have to be on the same server, or indeed the same platform.

### **Transacted Session**

This option is used to group a series of messages into an atomic unit of work. All messages in the work unit either succeed or fail. The application server commits the session. If the application server detects an error, it may roll back the transaction. The message is not actually sent until the transaction is committed. The next transaction begins after a call to either commit or rollback.

### **Web Services**

Web Services is the name given to communication that employs the SOAP standard for messaging. SOAP messages are XML documents containing certain required

elements. They enable potential users of applications to find and invoke applications without the need to understand their implementation and underlying structure. Web services uses SAX parsing.

### **Web Transaction**

This is a term we use to refer to any sequence of WAS activity that is repeatable and you want to use as the unit of work for projecting capacity requirements. In most cases, it is based on a business transaction. A web transaction can involve multiple interactions with WAS, any number of Java servlets/EJBs, multiple access to DB2, and multiple data connectors to back-end applications like CICS or IMS. Nothing inherent in WAS dictates what the scope of a transaction is. The important thing is to match your transaction rate with the scope of a web transaction that you choose., i.e. if your web transaction is long and involves a number of activities, the transaction rate would be lower than if you break up this sequence of activity into shorter web transactions.