



SAP[®] Standard Application Benchmark Publication Process

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Introduction

The purpose of this document is to capture the establishment and maintenance of a set of fair and competitive practices for the publication of information related to SAP® Standard Application Benchmarks. The set of rules are geared to drive the SAP Standard Application Benchmarks and technology to a higher standard in the industry and will be maintained by a workgroup, which acts on behalf of the SAP Benchmark Council. Each of the workgroup members involved in the development of these rules will strive to support the defined environment for publication of benchmark results.

This document was created by the workgroup on a volunteer basis through the participation of the following companies: Compaq Computer Corp., Fujitsu Siemens Computers GmbH, Hewlett-Packard Company, IBM Corp., Intel Corp., Microsoft Corp., Oracle Corp., SAP AG, and SUN Microsystems, Inc. The document is based on an initiative presented at the SAP Benchmark Council meeting held in December 2000. The workgroup held its initial meeting on February 1, 2001. A total of 10 conference calls were held, during which a base framework for this SAP benchmark policy for publications was built. On May 23, 2001, the policy was empowered by the SAP Benchmark Publication Workgroup (henceforth referred to as "Workgroup"), and on June 6, 2001, it was authorized by the SAP Benchmark Council (referred to throughout as "Council").

The following information is contained in this document:

- Definition of a minimum set of data that must be contained in any publication and/or comparison of certified benchmark results
- Description of the common Web site for certified SAP Standard Application Benchmark results
- Guidelines for publishing and/or comparing certified benchmark results
- Definition of the challenge process to allow partners to contest or defend the publication of SAP Standard Application Benchmark results
- Terms for the Workgroup to withdraw a certified benchmark result from the common Web site
- Description of the logistics of the Workgroup and conference calls
- Rules for company representation
- Copyright request handling
- Openness statement

SAP customers, partners are entitled to view the change history of this document at <http://service.sap.com/benchmark>.

1. Minimum Required Data for Publication of Benchmark Results

For publications or references to SAP Standard Application Benchmark results, the following data is required:

1.1. SAP business software and release

The name of the SAP business software and release number used in the certification header must be included. For example, mySAP™ ERP 2005, SAP NetWeaver 2004s, etc. If the benchmark certificate includes the term Unicode, it also must be included.

1.2. Configuration

The configuration of the system tested also must be specified, including two-tier with central server name or three-tier with database server name (except for BI-MXL), RDBMS (except for EP-ESS) and operating system. If one of the following; processor, core, thread, CPU, n-way or any equivalent statement is mentioned in the publication then processor and cores and threads must be included.

1.3. Number of tested benchmark users

Only the number of tested benchmark users for dialog/user-based benchmarks is to be included.

Achieved throughput

Achieved throughput must also be mentioned, in business numbers, such as “processed order line items or accounts balanced.”

SAP Benchmark	Number of Benchmark Users	Throughput Per Hour
SD (SD Parallel)	X	-
ATO	-	Number of assembly orders
BW (<3.0)	-	Load Phase: Number of rows Realignment: Number of balanced accounts Query Phase: Number of navigation steps
BW (≥3.0)	-	Load Phase: Total number of rows Analysis Phase: No. of query navigation steps
Retail (POS inbound)	-	Number of sales data line items
Retail (Replenishment)	-	Number of replenished stores
ISU/CCS	-	Utility Reference Customers
APO DP	-	Number of characteristic combinations
APO PP-DS	-	Number of transport & production orders
APO SNP	-	Number of transport & production orders

TRBK	-	Day: Number of postings to bank accounts Night: Number of balanced accounts
BCA	-	Day: Number of postings to account Night: Number of balanced accounts
HR	-	Number of processed periods
CATS	-	Number of activity reports
FI	X	-
MM	X	-
PP	X	-
WM	-	Number of stock movements
PS	-	Number of projects
EP-ESS	X	
IC	X	
BI-D	-	Number of query navigation steps
BI-MXL	-	Number of query navigation steps

1.5. Certification number and a link directing readers to the public Web page

A mention, such as the following, needs to be included: “For more details, see <http://www.sap.com/benchmark>.”

1.6. Disclaimer sentence when publishing results of a benchmark within 10 days of certification, prior to receipt of the certification number

Publications referencing a new SAP Standard Application Benchmark result may be released without the certification number on the certification day and during the following 10 business days. In this case, the publication must include all benchmark data mentioned in the “official request for approval” e-mail sent by SAP to the other technology partners involved in the benchmark and the following sentence:

“The SAP certification number was not available at press time and can be found at the following Web page: www.sap.com/benchmark.”

All other referenced SAP Standard Application Benchmarks must follow the minimum data requirements as stated in Chapters 1.1 – 1.5.

2. Definition of Two-Tier and Three-Tier Benchmarks

In general, benchmarks are run in two-tier or three-tier configurations. Two-tier and three-tier benchmarks are defined as follows.

2.1 Definition of two-tier benchmark

An SAP Standard Application Benchmark can be termed a two-tier benchmark if it is:

- Executed on one system

– more –

- Capable of running under **one** operating system

The actual configuration of the server system during the benchmark run may be different as long as no hardware reconfiguration is necessary to run the system under one operating system.

Detailed definition of a two-tier benchmark:

- One operating system must be capable of distributing an SAP solution component instance, such as an SAP R/3 instance, with its dispatcher and all work processes across all controlled processors of the whole server system.
- Several servers, such as Numa-Q, for example, are considered as two-tier if there is also one physical box and only “one” operating system can be run on this box.
- Multiple nodes or Massive Parallel Processing (MPP) systems do not satisfy this requirement and therefore are considered three-tier.

2.2. Examples of two-tier setups

- Separate boxes with separate operating systems controlled by one cluster operating system that is able to distribute an SAP solution component instance, such as an SAP R/3 instance, across all controlled processors
- A single box split into several partitions where one and the same operating system (OS) is running on each partition, if it is possible to run the same box with one instance of this OS
- A system with NUMA architecture running one OS, using process binding, processor sets and so on
- An SMP system running one OS

2.3. Definition of three-tier benchmark

A three-tier configuration includes separate operating systems on separate physical machines. Also, a single system with separate operating systems when it is not possible to run one operating system on the whole system is considered three tier.

2.4. Examples of three-tier setups

- Separate boxes with separate operating systems connected by a LAN connection
- Separate boxes with separate operating systems connected by a high-speed cluster interconnect
- Separate boxes with separate operating systems controlled by a cluster manager (this cluster manager may be able to start processes anywhere on the cluster)
- A single system with separate operating systems when it is not possible to run one operating system on the whole system

2.5. Definition of “one server”

The servers shown on the benchmark certificate will be defined according to the definition of two-tier: One server is defined as the complete physical hardware (the maximum number of processors, cores and threads, memory and disks that can be addressed and used with one operating system), no matter whether it is being used or not. This one server would be capable of running under **one** operating system (see definition 2.1). The actual configuration during the benchmark may be different.

2.6 Examples of “one server” systems

- A 16 processor/32 core/64 thread system that is partitioned into two 8 processor/16 core/32 thread systems will be a "16 processor/32 core/64 thread SMP." Even if one partition will not be used (but is physically present), it still would be a 16 processor/32 core/64 thread SMP.
- An MPP cluster will be viewed as separate servers, because it is not possible to run one operating system on all of them.

3. Web Page Dedicated to SAP Benchmarks

All available certified benchmarks are listed at <http://www.sap.com/benchmark>. The Web page is maintained by the SAP Performance, Data Management & Scalability group in cooperation with SAP Marketing and is available to the public. The Web page will be updated within two working days after a certification has been issued. The sort order for the first version of the Web page is as follows: The results will be sorted by certification date on the Web page. The SAP benchmark Web page makes the SAP benchmark policy publicly accessible. It also contains a list of all rule violations and benchmark withdrawals.

4. Publication Rules and Benchmark Requirements

The following requirements must be fulfilled for any publication that mentions SAP Standard Application Benchmarks.

4.1. Publication definition

A publication subject to these rules and requirements is defined as any document published by SAP, its partners that:

- 4.1.1 Contains reference to certified benchmark results
- 4.1.2. Or contains the word "benchmark" in an SAP context
- 4.1.3. Or could be confused with SAP benchmarks

All such publications must be reviewed and approved by SAP AG. SAP reserves the right to discuss certain partner publications in a bilateral method due to legal contracts.

4.2. Publication content

- 4.2.1. All of the minimum data (specified in Chapter 1) for each of the certified benchmarks represented must be included in the publication.
- 4.2.2. Any publication may only include numbers that refer to published benchmark results. It is not allowed to adjust any published number or to make estimates.

4.2.3. Statements on the publication must be accurate and can only refer to certified benchmark data that is presented in the publication. For example, when comparing two two-tier benchmarks, you may state “highest two-tier SAP SD Standard Application Benchmark result” if it is true, but not the generic phrase “highest SAP SD Standard Application Benchmark result.”

4.2.4. It is permitted to point out that there is no certified benchmark result available from a particular SAP technology partner for a certain SAP benchmark.

4.2.5. The type and number of processing units and other system configuration options is defined by the publicly available system description. It is the responsibility of the vendor to include this information and ensure its accuracy.

4.2.6. Publications may compare certified benchmark results across all SAP release versions for each type, however, each version (as specified in the minimum data requirements) must be prominently visible on the publication.

4.2.7. “Compare” means to set results side by side in order to show differences and likenesses. To compare a result (or results) is an aim of showing relative values or excellences by bringing out characteristic qualities, whether similar or divergent.

4.2.8. Price/performance is not a metric of certified SAP Standard Application Benchmarks. It is not permitted to release and/or compare any price information of hardware, software and service in conjunction with a SAP Standard Application Benchmark result, including those specified in 4.1. A price reference based on other benchmark organizations (e.g., TPC, SPEC, etc.) is permitted, as long as price is part of the benchmark metric and the benchmark disclosure is publicly available.

4.2.9. The publication may only compare certified benchmarks of the same type, such as ATO or SD.

4.2.10. It is not allowed to compare SAP Standard Application Benchmarks for SAP BW Releases <3.0 and >= 3.0.

4.3. Fence claims

In a publication, it is allowed to include so-called fence claims, which indicate segmentation.

4.3.1 All Benchmarks apart from BI-MXL
Segmentation is permitted for the following categories:

4.3.1.1 Two-tier and three-tier configurations

4.3.1.2 Fence claims will be allowed for only processor, or only core or processor and core as reported in the SAP Standard Benchmark Certification Report document (two-tier entire system under test; three-tier as reported for the database). If the number of processors and/or cores is used for segmentation purposes, the two-tier or three-tier classification is needed. The processors and cores and threads must

be included in the main body text. If one of the following: processor, core, thread, CPU, n-way or any equivalent statement is mentioned in the publication then processor and cores and threads must be included.

4.3.1.3 Operating system platforms as follows:

- Linux
- OS/400
- Unix
- Windows
- z/OS

4.3.2 BI-MXL Benchmark

Segmentation is permitted for the following categories:

4.3.2.1 With BI-Accelerator and without BI-Accelerator configurations

4.3.2.2 Number of records as follows:

- 3 billion
- 1 billion
- 300 million

4.3.3 Any combination of the above segmentation categories (within sections 4.3.1 and 4.3.2) combined with the SAP Standard Application Benchmark is permitted in a fence claim.

The leadership statement refers to the number of tested benchmark users for dialog/user-based benchmarks and achieved throughput in business numbers for batch benchmarks (see table in Chapter 1). For benchmarks with more than one throughput number (as of today, BW and TRBK) the leadership statement has to be specified in case the publicized benchmark is not leading in all areas (i.e., BW Load, BW Realign, BW Query, TRBK Day processing, TRBK Night processing).

It is also allowed to use common wording such as “record,” “world record,” and so on, provided it is a true statement at the time of the “As-Of-Date.” Specific examples for are as follows:

- Best 32 processor, three-tier SAP SD Standard Application Benchmark result on Windows
- Best 24 core, two-tier SAP BW Standard Application Benchmark Load Phase result on UNIX
- Best 36 processor and 72 cores, two-tier SAP ATO Standard Application Benchmark result on UNIX as of July 14, 2003
- Best in class up to 16 cores, two-tier SAP SD Standard Application Benchmark result
- Best 4 processor, two-tier SAP TRBK Standard Application Benchmark Day processing result
- Best three-tier, SAP MM Standard Application Benchmark result on Windows
- Four processor performance leader on two-tier SAP ATO Standard Application Benchmark

Specific examples for the BI-MXL benchmark are:

- Best SAP BI Mixed Load Standard Application benchmark result using BI Accelerator based on a 1 billion initial records loaded
- Best SAP BI Mixed Load Standard Application benchmark result for initial record load of 300 million

4.3.4. For a fence claim, it is mandatory to include the “As-Of-Date” and specific name of the SAP Standard Application Benchmark conducted (e.g., SD (SD-Parallel), ATO, MM, etc.).

An “As-Of-Date” indicates the date in which a certain fence-claim statement made in a publication is valid. The “As-Of-Date” has to be explicitly written in the publication. An implicit date such as “date of publication” is not sufficient. The exact wording is not defined, but it must be clearly identifiable as an “As-Of-Date.”

4.3.5 For SAP Standard Application Benchmarks for SAP BW it is mandatory to add the following footnote:

"SAP Standard Application Benchmarks for SAP BW Releases available prior to Release 3.0 are not comparable with benchmarks for SAP BW Release 3.0 or later."

5. Challenge Process

In general, technology partners or involved parties are encouraged to solve any issues regarding publications of SAP benchmark results on their own. The involvement of the Workgroup should not be the standard procedure.

If, however, an issue cannot be resolved in this manner, then a challenge may be officially submitted to the Workgroup. The following section gives a detailed description of the challenge process put forth by the Workgroup.

5.1. Submitting a challenge

The challenging party (challenger) submits an e-mail to the chairperson of the Workgroup and the challenged party (company representatives in Workgroup). The e-mail must include:

- 5.1.1. A description of the violation
- 5.1.2. A reference or document in which the violation refers
- 5.1.3. An e-mail address and phone number of the challenger

5.2. Challenge timeline

The challenge must be submitted at least six business days prior to the next Workgroup conference call, whereby the sent date of the e-mail is the start date of the challenge. If the six-business-day deadline cannot be respected, the challenge will be presented during the next regularly scheduled conference call.

During the time up to the relevant conference call, the involved parties can still resolve the challenge on their own. If the issue is successfully resolved during this time, all parties involved must send a confirmation e-mail to the chair of the Workgroup.

5.3. Workgroup conference call

5.3.1. If the parties were able to resolve the issue after the challenge was submitted, then the challenge is closed and not brought up during the Workgroup conference call.

5.3.2. If the parties were not able to resolve the issue, the challenge will be decided by the Workgroup. Each party has a maximum of 10 minutes to present his or her case. After discussion, the Workgroup votes on the challenge.

5.4. Workgroup vote

5.4.1. If the Workgroup decides that the submitted challenge is not valid, the issue is simply dropped.

5.4.2. If the Workgroup confirms that a party violated a benchmark publication rule, the violation will be posted on the public benchmark Web page. The entry in the violation list will be available on the Web page within two business days after the ruling of the Workgroup.

The violation list includes:

- 5.4.2.1. Date of the Workgroup vote
- 5.4.2.2. Company name of the challenged party
- 5.4.2.3. Description of the violation
- 5.4.2.4. Corrective actions
- 5.4.2.5. Clarification from the Workgroup

5.5. Corrective action

In the case of a confirmed challenge, the Workgroup expects the challenged company in violation to execute corrective action as soon as possible.

6. Withdrawal of a Certified Benchmark Result

The Workgroup has the right to withdraw a certified benchmark in certain instances, such as when the 6-months rule is violated (Hardware and system software components must be available or must become generally available within the next six months). After the Workgroup has withdrawn a result, it will be removed from the benchmark list on the SAP benchmark Web page within two working days and the benchmark white paper during the next revision, within eight weeks following the incident.

In addition, an entry on the SAP benchmark violation list will be created within two working days after the Council has withdrawn the result. The entry in the violation list includes a description of the violation.

The partner that must withdraw a benchmark result and all other companies that refer to the withdrawn result are asked to remove all mentions of the result from their Web pages and all other publications and sources under their control within 10 business days.

7. Temporary De-listing

The de-listing of an SAP certified benchmark result from the Web site may take place in certain circumstances (e.g., marketing launch delay, clarification required, partner synchronization, etc.) where the partner needs to limit public exposure to only the certification notification e-mail from SAP.

The partner must officially request the de-listing from the Web site by contacting Georg Fischer of the SAP Benchmark Council at ge.fischer@sap.com, including detail justification in an e-mail. The de-listing will last for a maximum of 20 working days from the sent date of the original e-mail addressed to Georg Fischer, at which time it will be reposted to the Web site at the latest opportunity. A de-listing for a certified benchmark may be requested only once.

8. Council Meetings and Workgroup Conference Calls

8.1. Schedule of Council meetings

Regular Council meetings are scheduled for the second Wednesday of each month.

8.2. Workgroup conference calls

The Workgroup holds regular conference call meetings on the Thursday before each Council meeting (9 a.m. to 11 a.m. Pacific Time, 6 p.m. to 8 p.m. Central Europe Time).

If at the official starting time of the meeting a simple majority of the workgroup members is present, the conference call begins immediately. If at the official starting time a simple majority of the workgroup members is not present, the meeting begins when enough members have dialed in to constitute a simple majority, but no later than 10 minutes after the official starting time. If there are no points on the agenda, the meeting automatically ends 10 minutes after the official starting time; members who are not dialed in at that point in time are counted as absent.

8.3. Chairperson of the Workgroup conference call

The Workgroup's conference call has one chairperson. The chairperson is the company representative. The chairperson is in place for four conference calls. After that, the chairperson will rotate to the next company.

8.4. Function of the chairperson

The chairperson issues the agenda and conference call dial-in information via e-mail no less than one business day prior to the Workgroup conference call. The chairperson writes the meeting minutes and distributes them via e-mail to the Workgroup members within five business days of the conference call.

The chairperson should regularly check the sapbenchmarkchair@yahoo.com mailbox for new agenda items or other communications from workgroup team members. The chairperson is responsible for maintaining the spreadsheet with member contact information and company call attendance. At the end of the chairperson's term, the chairperson is responsible for forwarding the updated spreadsheet and mailbox password on to the new chairperson.

9. Company Representation in the Workgroup

9.1. Workgroup member companies

The current list of member companies can be found on the benchmark Web page, where company names are listed in alphabetical order. A company qualifies as a full member of the Publication Workgroup if it has gained the right to vote at least once (see section 9.4). If, after having obtained full membership, a company fails to participate in the publication calls more than 6 times in a row, full membership is lost and will have to be regained, as described.

For more information on member companies and contact information, contact Georg Fischer at ge.fischer@sap.com.

9.2. Company representative

Each qualified company may provide up to two representatives for the Workgroup.

9.3. Change of company representative

In case of a change of representative, the company must send an e-mail to the current chairperson of the Workgroup conference calls alerting him or her of the change.

9.4. Voting rights of the company representative

The representative participates in benchmark conference call meetings and has voting rights in the Workgroup for his or her company.

The member company loses the right to vote if the company's representative does not participate in the monthly conference call three times consecutively. This automatically changes the member status of the company from active to passive.

The member company regains the right to vote immediately after participating in two consecutive Workgroup conference calls. This automatically changes the member status of the company from passive to active.

9.5. Quorum

At Workgroup meetings, we need at least a simple majority of the voting members present at the call to constitute a quorum.

9.6. Motions

The outcome of a vote concerning a motion will be based on a simple majority. The possible votes are yes, no and abstention.

Examples:

Yes	No	Abstention	Total	Motion
5	2	3	10	passes
2	5	3	10	does not pass
4	4	2	10	does not pass

10. Copyright Handling of the Benchmark Policy

10.1. Submitting a copyright request

A copyright request must be submitted via e-mail to the Workgroup chairperson's e-mail, sapbenchmarkchair@yahoo.com, at least two working days prior to the next conference-call meeting. The request must include:

- 10.1.1. All sections and paragraphs that are to be covered by the copyright
- 10.1.2. A description and purpose of why the copyright is being requested

10.2. Approval of a copyright request

A copyright request will be presented by the chairperson and will be followed by:

- 10.2.1. A discussion of the Workgroup
- 10.2.2. A motion to accept a request

Whatever the outcome of the motion, the requesting party will be notified of the status of the request. If the Workgroup needs more information about this request, they have the right to defer a decision until the next conference call.

11. Feedback, Comments, Openness Statement

The Workgroup invites all interested companies to use and refer to all rules and regulations defined and described in this paper. The intention of the Workgroup with this document is to emphasize the openness of the Workgroup to evolve application benchmarks and technology to a higher and common standard in the industry. Comments and feedback are appreciated. Please feel free to contact the Workgroup via e-mail at sapbenchmarkchair@yahoo.com.

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