SPEC Research Group Charter

August 10th, 2010 - Rev 1.8

1. General Policies and Principles of SPEC

The intent of this section is to provide an overview of the general policies and principles of the SPEC organization. The controlling documents for governance of SPEC are the Articles of Incorporation and Bylaws, filed with the State of California, and available from the SPEC Administrator.

In the event of disagreement between this document and SPEC's Bylaws, or disagreement between this document and decisions by the SPEC Board of Directors, said Bylaws or decisions shall take precedence over this document.

1.1 SPEC's Purpose

The primary purpose of the Standard Performance Evaluation Corporation (SPEC) is to develop suites of benchmark programs that are effective and fair in comparing the performance of high performance computing systems, and to assure that they are readily available to manufacturers and users of such systems.

1.2 SPEC's Formation

SPEC was formed from the instigation and sponsorship of Electronic Engineering Times (E.E. Times), and by the cooperative development work of Hewlett-Packard Co., Sun Microsystems Inc., Apollo Computer Inc., and MIPS Computer Systems Inc.

1.3 The Corporation

Upon approval by the representatives of the founding companies, their effort to develop a benchmark standardizing activity was converted into a non-profit Corporation of the state of California on November 14, 1988.

The Corporation has a Board of Directors, President, and a staff to carry out the business of SPEC. The Board has established four technical groups:

- The Graphics and Workstation Performance Group (GWPG)
- The High Performance Group (HPG)
- The Open Systems Group (OSG)
- The Research Group (RG)

Each group has a steering committee to manage and supervise the development of applicable benchmarks. Each steering committee may sponsor a number of Working Groups to facilitate benchmark development. The Board may establish additional technical groups.

1.4 The Board

To facilitate continuity and consistency on the Board, SPEC's policy is that the Board of Directors has staggered two-year terms, with half of the Board elected each year. Decisions of the board require agreement of the majority. Elections to the Board will be held at the annual meeting to be held at the beginning of the calendar year. Board positions are held by individuals, not by companies. Currently there are eight (8) elected directors on the Board.

2. Objective of the SPEC Research Group (RG)

The Research Group (RG) is an approved group of the Standard Performance Evaluation Corporation (SPEC), and as such operates under the bylaws and guidelines of SPEC. The mission of the Research Group will be to promote cutting-edge research on benchmarking methodologies and tools facilitating the development of benchmark suites and performance analysis frameworks for established and newly emerging technologies.

2.1. Research Group Steering Committee (RGSC)

The Research Group Steering Committee, RGSC, is the administrative body for the operations of the organization and its standing Working Groups. They review and monitor all activities for compliance with this charter and for compliance with the bylaws of SPEC and provide administrative management for the activities of its Working Groups and are responsible for reviewing and approving all new project applications. Details on the RGSC are provided in Section 5.

2.2. Research Group Activities

RG will be involved in the following activities, managed and coordinated by the RGSC:

- Establish and maintain a repository for generic benchmarking tools.
- Establish and supervise Working Groups focused on developing standard application scenarios and workloads, referred to as *research benchmarks*, for newly emerging technologies and application domains.
- Review and publish proposed benchmarking tools and research benchmarks.
- Publish a regular newsletter.
- Establish and maintain a portal for benchmarking-related resources: e.g., benchmarking research bibliography, popular tools, whitepapers, and best practices.
- Publish a journal on benchmarking methodologies and tools.
- Recognize outstanding contributions to benchmarking research.
- Organize conferences and workshops fostering the transfer of knowledge between industry and academia.

2.2.1. Management of Benchmarking Tool Repository

The RG will establish and maintain a repository providing generic tools that address recurring issues in benchmark development as well as reusable software components that significantly reduce the effort for building new benchmarks. Some examples include workload generators, performance monitoring and measurement frameworks, workload characterization, test harnesses and profiling tools. The focus will be on open source domain-independent tools that have been well tested and shown to provide generic functionality that can be reused in future benchmark development. In addition, benchmark development frameworks targeted at specific application domains will be considered.

Any organization or individual will be eligible to submit a proposal for publishing a tool in the repository. Submitted proposals will undergo a review process by the RGSC prior to publication. The criteria based on which tools will be selected for inclusion in the repository are described in Section 2.2.3.

2.2.2. Development of Benchmarks for Newly Emerging Technologies

The second major activity of the RG will be the establishment and supervision of Working Groups focused on developing standard application scenarios and workloads that can serve as a basis for the evaluation of newly emerging technologies. Additional emerging areas will be added as computing evolves and the need for new benchmarks arises. Most members of RG Working Groups will be from universities and research organizations. A Working Group must consist of members from at least 3 (three) different organizations.

The goal will be to evaluate new technologies and paradigms at the early stages of their inception before full-fledged industrial implementations are pursued. By providing standard application scenarios and workloads, the SPEC RG will encourage researchers to consider performance issues at the very beginning of the technology lifecycle. Moreover, as emerging technologies eventually get adopted by industry, these newly developed research workloads will be available for SPEC's regular groups, working groups and subcommittees to use as a basis for developing new standard benchmarks. This will reduce the time to market for novel "first-of-a-kind" benchmarks and potentially increase the impact the RG.

Each Working Group will pursue the design and specification of a set of standard application scenarios and workloads for an emerging technology collectively referred to as a *research benchmark*.

A research benchmark will be released in the form of a specification covering the following aspects:

1. A description of the target application.
2. A detailed description of a set of application scenarios and respective workloads for the target domain.
3. A strategy for scaling the workloads.
4. Guidelines for customizing the workloads.
5. Guidelines for implementing the scenarios and workloads.
6. Possible metrics that can be used as a basis for characterizing the performance and efficiency of specific implementations of the technology.
7. Possible dependencies in terms of runtime environment or target hardware.
8. (optional) Prototype implementation of initial benchmark components.

Research benchmarks will differ from conventional benchmarks in a number of ways:

i. Research benchmarks will be defined at a higher level of abstraction and will provide room for a wide range of different implementations.
ii. They will rather provide a range of possible metrics and leave it up to the user to decide how to weigh them or use them as a basis for performance comparisons.
iii. Research benchmarks should support the ability to customize the workload to different usage scenarios.

In summary, research benchmarks will serve as a basis for defining specific workloads to evaluate prototype implementations of the considered technologies.

In addition to working groups started by the SPEC RG, any organization is allowed to make a proposal for establishing of a working group to cooperate on a new project within SPEC RG. This proposal will be evaluated according to the criteria in Section 2.2.3. A newly established working group should consist of at least 3 (three) different partners (organizations) to ensure a balanced work manner and sufficient resources.

2.2.3. Review of Benchmarking Tools and Research Benchmarks

Submitted proposals for benchmarking tools and research benchmarks will undergo a rigorous review process. Each proposed tool or benchmark will be reviewed by a minimum of four appointed members of the Research Group Steering Committee who will be asked to write an evaluation report with a recommendation. In addition, the proposals will be discussed and reviewed at a meeting of the Research Group Steering Committee. Based on the results of this meeting, the Research Group will make a final determination and communicate this outcome to the submitter.

Proposals for benchmarking tools will be evaluated based on the following criteria:

1. Relevance to the performance evaluation community
2. Overall utility
3. Originality or novelty
4. Tool maturity / user base
5. Ease-of-use and quality of documentation

Proposals for research benchmarks will be evaluated based on the following criteria:

1. Relevance of the considered technology or application domain
2. Evidence showing the need for benchmarks in the respective domain
3. Novelty and representativeness of the proposed application scenarios and workloads
4. Adequacy of the proposed strategies for customizing and scaling the workloads
5. Quality of the implementation guidelines

2.2.4. Dissemination of Regular Newsletter

The Research Group will publish and disseminate a regular newsletter (initially twice a year) reporting on new benchmarking tools, research benchmarks, newly established Working Groups, as well as any other information of interest to the benchmarking research community. The newsletter will be published online on SPEC's web site and announced through mailing lists and other advertisement channels.

2.2.5. Management of a Portal for Benchmarking-related Resources

Establish and maintain a portal for benchmarking-related resources. Some examples include:

- Benchmarking research bibliography
- Popular tools that could be of use to the benchmarking community
- Best practice documents
- Whitepapers on benchmarking

2.2.6. Publication of Journal on Benchmarking Methodologies and Tools

The establishment of a journal focusing on novel benchmarking methodologies and tools is a long-term goal for the Research Group. Currently, no journal exists in this area and its introduction will be welcomed by the research community. Submitted articles will undergo a rigorous review process and will be evaluated according to high standards for quality, originality and relevance. Aiming at quality rather than quantity, only exceptional high-quality articles will be accepted for publication to ensure credibility both in the academic and industrial world. In addition to normal articles submitted to the journal, selected best papers from conferences and workshops organized with the participation of SPEC (e.g., the ACM/SPEC International Conference on Performance Engineering (ICPE) or the SPEC Benchmark Workshop) and invited papers from leading researchers will be considered for publication in the journal. The Research Group Steering Committee will select an editor-in-chief for the journal and will approve the composition of the editorial board as well as the guidelines for peer-reviewing for this journal.

2.2.7. Recognition of Outstanding Contributions to Benchmarking Research

A *SPECtacular Benchmarking Research Award* will be established to recognize individuals that have made long-lasting influential contributions to the field of benchmarking research. The award will be granted based on nominations by members of the Research Group. Nominations will be reviewed and discussed at a meeting of the Research Group Steering Committee.

At most one (1) *SPECtacular* award per year will be given. A call for nominations will be sent out approximately three (3) months before annual meeting of the RGSC/SPEC, and the award will be given to the winner during the annual meeting.

Contributions in the following areas will be considered:

- High-impact research contributions on novel benchmarking methodologies.
- Contribution of a highly influential research benchmark or a highly successful benchmarking tool.
- Significant contributions to foster interactions and exchange of ideas between the academia and industry.
- Outstanding dissertations in the area of performance evaluation.

2.2.8. Organization of Conferences and Workshops

The Research Group will actively participate in the organization of conferences and workshops on benchmarking and performance evaluation. A major goal of such events will be to foster the transfer of knowledge and interaction between industry and academia. In particular, members of the Research Group will be actively involved in the organization of the ACM/SPEC International Conference on Performance Engineering (ICPE) series as well as the SPEC Benchmark Workshop.

3. Projects

Projects will be assigned to standing Working Groups which are the operational bodies responsible for the development, production and management of specifications, programs, and benchmarks for performance measurement. Projects are approved by a two-thirds (2/3) vote of the RGSC members. All final releases of rules and specifications applicable across multiple projects, programs, and benchmarks shall be approved by the RGSC prior to release.

The Working Groups will be responsible for the work to develop, evaluate and approve the specifications, programs and benchmarks. All Working Groups' documents and records of the Working Groups' actions, methods and procedures shall be retained for review and inspection. The specifications, programs, and benchmarks described herein will be made available to all interested parties at the earliest possible release dates.

The specifications, programs, and benchmarks will list the names and affiliations of individuals participating in the development effort.

4. Structure

Research Group (RG)

- RG members are organizations (universities, research institutes, companies)
    - Open to any member of other SPEC groups without additional membership fees
    - Organizations that are not members of SPEC can become RG members and will have to pay a small membership fee
    - New members join by submitting an application form to the SPEC office
- RG members may become active participants in any working group or subcommittee of the RG.
- Each RG member will have a primary representative who has voting rights; each RG member has one vote. RG members will only have voting rights within the RG unless they are also members of other SPEC groups such as GWPG, HPG or OSG.
- RG members will not be granted any membership privileges beyond the ones described in the current document unless they are also members of other SPEC groups (GWPG, HPG or OSG).
- Work of the RG is coordinated and managed by the Research Group Steering Committee (RGSC)

Research Group Steering Committee (RGSC)

- RGSC members are individuals that belong to the RG members
- RGSC is elected by the active RG members (one vote per member)
- RGSC can include up to two individuals from the same RG member. In case a member company is represented with two individuals they will only have one vote on the RGSC.
- The principal activities of the RGSC are the development and maintenance of RG's mission.
- Target size of RGSC is 10-15 people including officers
- RGSC Officers: Chair, Vice Chair, Secretary. Other officers of the RGSC may be appointed by a vote of the committee at its discretion.
- RGSC will appoint a Webmaster and Release Manager of the RG
- RGSC can establish multiple Working Groups under the RG focusing on different areas

Working Groups

Working Groups (WGs) may be established by the RGSC to address specific issues. All proposals, recommendations, or decisions made by a WG are subject to approval or further action by the RGSC, unless specific authority for a decision has been delegated by the RGSC to the WG.

The conduct of a WG meeting may, at the discretion of the Chair of that WG, be less formal than the RGSC rules require. There is no specific requirement for the advance notice of a WG meeting. WG meetings may also be held in closed caucus.

The following persons can participate in meetings of the WG:

- Representatives of voting RG members
- Representatives of non-voting RG members

Guests invited by WG officers and others may attend at the discretion of the WG Chair; they are observers and may only participate with permission from the WG Chair.

RG and its Working Groups will adhere at all times to the principles of due process and antitrust compliance as set forth in detail in the *Guidelines for Handling SPEC Information*.

Exceptions to policy: For due cause, the RG may vote to approve exceptions to this policy or may adopt resolutions that may conflict with policies expressed in this document; in such cases an amendment to this document will be brought forth within a reasonable time period afterwards.

Conflict with Bylaws or Board: In the event of disagreement between RG resolutions vs. SPEC's Articles of Incorporation and Bylaws or decisions by the SPEC Board of Directors, the RG shall yield.

Coordination with Board: Certain organizational activities require board participation and approval. For example, the board must approve press releases, setting prices for benchmark licenses, and any major resource, reallocations of SPEC administrative staff and Public Relations to assist with the non-technical aspects of releasing a new benchmark suite. This work may be facilitated by a joint committee of the board and the RGSC (e.g. Planning Committee) or proposals may be brought directly to the board by the RGSC or Working Group Chair.

Advisers: RG can, after notification in writing to the Board of Directors, enlist the aid of advisers and consultants from the industry and academia.

Officers of RGSC and Working Groups (WGs)

The terms of the Chairperson, Vice Chairperson and Secretary shall be one year and each officer shall be elected by a simple majority of the voting members of the RGSC or a given WG. The number of terms of any officer shall be unlimited.

The Chairperson shall preside at all meetings. The Chairperson may designate the Vice Chairperson or, in the latter's absence, another alternate to serve in his or her place.

The Vice Chairperson shall assist the Chairperson in all duties of the office.

The Secretary shall assure that all activities are accurately recorded. The secretary shall also assure that all records of membership and voting status are maintained.

The Secretary is responsible for preparing and distributing the minutes of all official meetings. Issues raised at meetings, or through electronic means, will be recorded in the manner of standards discussion. An electronic mail archive will be kept.

5. Membership and Voting Rights

Members of the RG are organizations, and they elect members of the RGSC, which are individuals.

An important factor that should be taken into account is having a good balance between RGSC members representing different topic areas and technology domains. Each member of the RGSC must be able to demonstrate extensive experience in the area of benchmarking and performance evaluation. RGSC members will be appointed for a period of two years. New members must be nominated by an existing member of the RGSC. RGSC officers will be elected at the beginning of each year during SPEC's annual meeting.

5.1. Member Responsibilities

RG and RGSC members are expected to uphold the policies and principles endorsed by SPEC and the RG. This includes policies described in this document and amended by resolutions of the RG; SPEC's Articles of Incorporation and Bylaws; policies adopted by the SPEC Board of Directors; and any applicable set of benchmark run and reporting rules.

Members are also expected to remain members in good standing by the prompt remittance of annual dues. To be in good standing, a member is required to be current on fees and obligations imposed by SPEC. A member not in good standing participates as an observer at WG technical meetings. Membership privileges will be suspended if dues have not been received by the SPEC administrator by March 31st. Membership privileges will be restored once dues have been paid.

RGSC Member responsibilities include:

- Attendance of regular con-calls of the RGSC.
- Timely delivery of assigned reviews of submitted benchmarking tools or research benchmarks.
- Active participation in the RGSC activities.

5.2. Voting Rights

5.2.1. Voting in Organization Sessions of RGSC and RG Working Groups

Organization Sessions of RGSC and the RG Working Groups are meetings that are convened to address issues that are deemed necessary to conduct the business of the RG. These issues are left to the specific agenda of the RG or its Working Groups.

Organizations are the voting members in Organization Sessions of the RG, and RG Working Groups. Each active member organization is allowed one vote on any issue. Organizations may send as many representatives as necessary to represent their interests (this number may be limited if meeting facilities of SPEC are constrained). Members of the RG are only granted voting rights within the RG unless they are also a member of other SPEC groups (GWPG, HPG or OSG).

After joining the RGSC or a Working Group, voting status there is achieved by attendance at the second consecutive official (qualified) meeting of the RGSC or the Working Group.

Voting status is lost if the organization fails to remit payment for membership fees or annual dues. Voting status is restored by payment of these fees or dues.

Voting status is also lost if the organization is not represented in person during at least two consecutive official meetings of the RGSC or the considered WG. Voting status is restored at the second consecutive official meeting after attendance has been resumed.

Issues may be designated for resolution by ballot by voting members of the RGSC or Working Group. Ballot may be by standard mail, by electronic means, conference call voice ballot or a combination of any of the three. A ballot is deemed valid if a quorum of eligible voting organizations returns ballots. Voting is Approved, Approved with Comment, Disapproved with Comment, or Abstained with Comment. Disapproval and Abstained votes require comment on the nature of the vote.

All RG votes shall be open and public votes, except election of officers, which is by secret ballot. Exceptions to the secret ballot may be made if there is only one candidate per office.

It should be noted that the lack of passage of a motion by the RG does NOT imply approval of the CONVERSE of the motion.

Affiliation: Entering into a relationship of affiliation (as defined in the SPEC Bylaws, Section 2.1) does not alone constitute the creation of a vacancy. (For example, Company B is not a member of the RG or one of its groups. It buys all the assets of, and takes on all the responsibilities of, Company A, including Company A's RG seat.) If, however, such affiliation would cause or appear to cause a member and its affiliate(s) to have two or more votes on the RG, then, as described in the Bylaws, a single voting representative shall be designated and one or more vacancies shall be declared.

Voting representative: Each RG member institution shall designate a voting representative. If the designated voting representative is absent from a RG meeting, another person employed by the member institution (or its affiliates) may temporarily represent the member. In the event of a lack of clarity as to who has the vote, the RG Chair may refuse to accept a vote until the designated voting representative appoints a substitute in writing.

5.2.2. Voting in Technical Sessions of Working Groups

Technical Sessions of Working Groups are those meetings in which discussions are based on the technical merit of the issues being addressed. These issues are left to the specific agenda of the Working Group.

Each Voting Member designates one person as its primary representative. This designation is made in writing usually on the Participation application form.

5.2.3. Alternate representatives

In addition, each voting member may designate one or more alternate representatives for a particular WG. This designation must be made in writing.

5.2.4. Changes in assigned representatives

Members (other than Individual) may revoke or reassign their assigned representatives at any time. Notice of changes must be designated in writing.

5.2.5. Proxy representation

Voting members may designate a proxy for a Technical Committee for a given period or subject matter. This designation must be made in writing. The designation must be signed by the primary representative or by an alternate representative acting as the primary representative. Appointment of a proxy orally is not acceptable.

Proxies may be revoked at any time by the primary representative or by an alternate representative acting as the primary representative. The revocation must be in writing if the representative is not physically present at the meeting.

The proxy authorization or revocation is effective upon receipt by the Chair. A person may hold and exercise multiple proxies.

5.2.6. Who may be a proxy

RG and RGSC impose few restrictions on who may be a proxy. It may be the representative of another member, a Technical Committee Officer, or an Officer of the RGSC or any other chosen person as long as he or she belongs to a SPEC member.

5.2.7. When is a proxy not required

A proxy is not required when a member is being represented by an alternate representative (instead of the principal representative). The alternate representative must be listed on the Membership Roster.

6. Meetings

Parliamentary procedure: RGSC meetings are conducted in accordance with general parliamentary procedures under the direction of the chair. Meeting participants may remind the chair of such principles, e.g. by raising a "point of order" from Robert's Rules, but the chair is responsible for interpretation of such principles, which in some cases may specify a greater degree of complexity than is required in order to accomplish SPEC's business.

In such interpretations, the Chair shall use fairness as the primary criterion, and simplicity of process as a secondary criterion. The chair's interpretations may be over-ruled by the RGSC using its usual voting rules.

Locations and dates for RGSC meetings shall be decided upon by the RGSC, and notification distributed to the RGSC members at least 20 days in advance of the meeting.

Notification for meetings in person is distributed on the e-mail lists. For telephone meetings, schedules may be announced a week before the meeting.

Regular and special meetings: RGSC meetings are of two types: regularly scheduled, or special. Special meetings may be called by the Chair, the Vice-Chair, or any 3 members, to handle urgent issues.

Notice of meeting: At least two full business days' notice is required prior to RGSC meetings, unless every voting member agrees to shorter notice. For example, if the meeting is called for Tuesday at 11AM PST, the meeting notice needs to go out by 11AM PST on the previous Friday.

Venue: Meetings may be face-to-face or by teleconference. Remote call-in access at face-to-face meeting will be provided (when feasible) to encourage participation.

Meeting protocol: For regularly scheduled meetings, the RGSC has adopted the following meeting protocol:

- Written proposals submitted in advance of the meeting will be given priority on the agenda.
- A written form of the proposal must accompany all non-trivial proposals.
- Guest presentations may be scheduled for no more than one hour in total for all guests in any one meeting.
- Meetings include:
    - A short session to adjust the agenda
    - Status reports from each active Working Group
    - Old business
    - Action item follow up
    - New business
    - Notice of the time and place of the next meeting
    - Announcements
- If time permits, the agenda may also include a section for informal discussions to allow the group to begin discussion on relevant topics that are likely to require action at future meetings. During informal discussions, no RGSC votes will be taken.

Web Pages and Email Subscription

RG web pages (including RG Wiki pages) may be read by all members and a member may subscribe to the email list for the RG.

Ad Hoc Meetings

RG may establish an informal group to discuss specific issues or subjects. The meetings of such groups are considered ad hoc meetings. Activities of these groups may include the review of action items or bug reports and may result in recommendations to a Technical Committee. The recommendations of an ad hoc meeting are not binding on the Technical Committee.

7. Documentation

7.1. Mailing lists

The RGSC Chair or Working Group (WG) Chair shall designate a person to maintain a mailing list for participants in RGSC or WG meetings. Participation in mailing list discussions is considered an extension of RGSC or WG meetings, and, as such, participation is at the discretion of the RGSC Chair or WG Chair.

7.2. Calendar of meetings

The calendar of RGSC meetings and WG meetings shall be available on the private site. The calendar will also show other events or meetings of interest.

7.3. Agenda of meeting

The initial agenda of a meeting shall be made available to members no later than three business days before the meeting. Additional agenda items may be added after the initial agenda is distributed, up to and during the meeting itself. All members may submit items to the Chair for inclusion in the agenda. The inclusion of submitted items is at the discretion of the Chair, or during the meeting at the discretion of the Presiding Chair.

All members of email lists may submit items to the Chair for inclusion in the agenda. Additional agenda items may be added after the initial agenda is distributed, up to and during the meeting itself. The inclusion of submitted items is at the discretion of the Chair and Vice Chair.

7.4. Meeting documents

Documents to be considered at meetings of the RGSC or a WG shall be distributed not later than one week before the meeting. Documents received less than one week before a RGSC / WG meeting may, at the discretion of the Chair, be processed, particularly if there is a need for action to meet a schedule for standardization or for coordination with another SPEC group or Working Group.

When a proposal is introduced for the first time in a meeting, any voting member can ask for the decision to be delayed to the next meeting, to allow time for study. The Chair will normally honor the request, except under exceptional circumstances.

Meeting documents will be announced on the e-mail lists and placed in the document register.

7.5. Meeting Minutes

The Minutes of a meeting shall be made available within seven business days of the meeting.

7.6. Action Item list

A list of action items shall be kept and reviewed at each meeting.

7.7. Member web site

SPEC will maintain a password-protected section of the web site. For information on handling of company private data, see SPEC's Confidentiality Statement (this will be linked to the online version at http://www.spec.org/spec/confidentiality.html).

Appendix A: Technical Committee Charter -- Revision History