

First Call — Call for model proposal

2nd Model Checking Contest @ Petri Nets 2012

June 2012

Hamburg, Germany

<http://mcc.lip6.fr>

General Chairs:

D. Buchs - *Univ. Geneva, Switzerland*
F. Kordon - *UPMC, France*

Technical Chairs:

A. Linard - *Univ. Geneva, Switzerland*
F. Pommereau - *Univ. Evry, France*

Technical Experts:

PNML: L. Hillah - *UPMC, France*
Cluster: N. Gibelin - *UPMC, France*

Contest Committee:

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K. Wolf - *Univ. Rostock, Germany*

Important Dates:

Call for Models:

October 30, 2011

Detailed Procedure and publication of models:

November 30, 2011

Tool Submission:

February 25, 2012

Announcement of results:

June 26, 2012

Objectives.

When modeling a system with formal methods, such as Petri Nets, one may have several questions such as: “*To verify highly concurrent systems, should we use a symmetry-based or a partial order-based model checker?*” or “*For models with large variable domains, should we use decision diagram-based, or a symmetry-based model checker?*”

Results that help to answer these questions are spread among numerous papers in numerous conferences. Moreover, as benchmarks are executed over several platforms and composed of different models, conclusions are not easy.

The objective of the Model Checking Contest is to compare the efficiency of techniques according to characteristics of models. To do so, the Model Checking Contest compares tools on several classes of models with scaling capabilities (e.g. values that set up the “size” of the associated state space).

Through the feedback on tools efficiency according to the selected benchmarks, we aim at identifying the techniques that can tackle a given type of problem identified in a “typical mode”, for a given class of problem (e.g. state space generation, deadlock detection, reachability analysis, causal analysis).

Types of Models.

Several classes of models will be provided:

- Academic models: P/T Nets (1-bounded, k-bounded), and colored Nets (1 and k-bounded per color, with and without non-equal guards on transitions, with and without cartesian product on colors, with and without successor/predecessor functions),
- “Case studies” P/T Nets.

All models will be provided as PNML files. The two types of models will be provided with a detailed set of characteristics that tools can exploit when possible. For colored Nets, a P/T unfolded equivalent P/T net will be provided.

Case studies are proposed to evaluate the possibilities of a tool in a “push-button” mode. Thus, they will not be known before submission time and, to participate, tools will have to parse the PNML format (for P/T nets only), PNML for colored nets will also be provided but this is not mandatory for tools to support it.

Important: A first step of the contest consist in a submission of models by the community, following the instructions provided below in this call.

Examinations.

Several examinations are proposed:

- State Space Generation: tools will have to generate the state space and provide data on its size,
- Deadlock detection: tools will have to check if there is at least one deadlock in the system,
- Evaluation of reachability properties: tools will have to process verified and unverified reachability properties, stating for each one if it is verified or not,
- Evaluation of temporal logic properties: tools will have to process verified and unverified causal properties, stating for each one if it is verified or not.

Each examination will be processed for all the scaling values of benchmark models. CPU and memory consumption will be measured and reported. Formulae will be provided in a dedicated language for which a BNF in ANTLR format will be provided.

Tools will have to provide results as well as an identification of the techniques activated during their execution.

First Step – Call for Models.

The first step of the Model Checking Contest is a call for model. The community (and not only tool developers) may propose models belonging to one of the categories mentioned above. To do so, please respect the following procedure.

- download the model submission kit at <http://mcc.lip6.fr/archives/modelForm.zip> and read instructions ;
- fill the `DescModel.tex` file to provide information on the model, you may (if it has a meaning), provide a picture as a pdf in the `model-image.pdf` file ;
- Elaborate, for each scaling parameter of your model, the following description files: PNML^a for the corresponding P/T model (mandatory), PNML for the colored model (if possible), non mandatory properties files for each instance (typically, invariant and bounds) using the format defined in the model description form (you also have to respect the naming convention presented in the instructions ;
- put all files in a folder, zip it, and send it as an attached document to mcc-contest-committee@systeme.lip6.fr.

Models will be evaluated and selected for the second step (publication of the procedure). The models provided for the 2011 edition of the Model Checking Contest will also be used for this edition.

^aIf help is needed, please contact our PNML technical expert: lom-messan.hillah@lip6.fr

