

Second Call — Call for Tool Submission

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:

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F. Pommereau - *Univ. Evry, France*

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PNML: L. Hillah - *UPMC, France*
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Contest Committee:

G. Ciardo - *Univ Riverside, USA*
M. Colange - *UPMC, France*
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W. Penczek - *Univ. Podlasie, Poland*
Y. Thierry-Mieg - *UPMC, France*
K. Wolf - *Univ. Rostock, Germany*

Important Dates:

Call for Models:

October 30, 2011

Detailed Procedure and publication of models:

March 15, 2012

Tool Submission:

May 15, 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 (MCC) 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 (e.g. state space generation, deadlock detection, reachability analysis, causal analysis), identified in a “typical model”.

Classes 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, an 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 consisted in a submission of models by the community. Tools will be operated on these models.

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,
- Evaluation of structural properties.

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 will be provided.

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

Call for Tool Submission. After the call for model, the second call of the Model Checking Contest is the submission of Tools to be evaluated against the benchmark made of the MCC’2011 models, enriched with the models submitted during the first step of MCC’2012. To submit a tool, please respect the following procedure:

- Download the tool submission kit at <http://mcc.lip6.fr/archives/MCC2012-submission-kit.bz2> and read instructions ;
- Since tools will be operated in a virtual machine, you may either reuse our proposed disk image (Linux Ubuntu server 11.04 with a full development environment) or provide your own (see instruction for this in the submission manual) ;
- You can test your tool in the condition it will be operated during the contest ;
- Once the disk image is ready, have it reachable via an URL you provide to us using the instructions located in the web site.

Results will be published within the context of the Petri Nets 2012 conference.

If you have any question, please contact Fabrice.Kordon@lip6.fr.

