

Max-SAT Evaluation 2016

Eleventh Edition

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Outline

- 1 Back to the future
- 2 Data
- 3 Results
- 4 More information

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Back to the future

In [MaxSAT Evaluation 2015](#), solvers LMHS-C and LMHS-I do not give the optimum solution in the Weighted Partial Max-SAT - Industrial category on an instance not solved by any other solver in 2015.

`BTBNSL/Rounded_BTWBNSL_adult15N_TWBound_4.wcnf`

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What's new

Less Solvers 34 solvers (37)

7 new solvers (1+6)

- Complete solvers: 17
- Incomplete solvers: 17

Less instances 3864 instances (4273)

4 new sets

Removed from Random sets

More submitters 22 submitters (15)

Evaluation Environment

Cluster specification

Name	UdL – AM
Operating System	Rocks Cluster 6.5, Linux 2.6.32
Processor	Intel Xeon E5–2620, 2 GHz
Memory	3.5 GB
Compilers	GCC 4.4.7, javac 1.7.0

Evaluation Environment

Resources:

- 3.5 GB of memory
- Timeout of
 - Complete 1800 seconds
 - Incomplete 300 seconds

Categories

- Max-SAT 911 instances
 - All soft clauses
 - Unary weights
- Partial Max-SAT 1489 instances
 - Hard and soft clauses
 - Unary weights
- Weighted Partial Max-SAT 1464 instances
 - Hard and soft clauses
 - Integer positive weights

New benchmarks

Staff Scheduling Partial MaxSAT, Crafted

Optimum Abstraction Weighted Partial MaxSAT, Industrial
Java Program Analysis

Relational Inference Weighted Partial MaxSAT, Industrial
Subproblems: program analysis, advisor
recommender, paper classifier

Generalized Ising model Weighted Partial MaxSAT, Industrial

New solvers

Complete

New complete solvers:

Naps Pseudo-boolean solver

New solvers

Incomplete

New incomplete solvers:

borealis stochastic search solver with parallel tempering algorithm

dsat

HS-Greedy Dist with improvements (focus hard or soft)

Ramp CCLS with improvements (make-positive variables)

SC2016

Substochastic Monte Carlo time-varied substochastic birth-death chains

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Ranking

- Ranking:
 - 1 Number of solved instances
 - 2 Time to solve those instances

Complete Solvers

	1st	2nd	3rd
Random			
MaxSAT	ahms-ls-1.70	CCLS2akms	CCEHC2akms
Partial	ahms-ls-1.70	ahms-1.70	CCEHC2akms
W. Partial	CCLS2akms	CCEHC2akms	ahms-ls-1.70
Crafted			
MaxSAT	ahms-ls-1.70	CCLS2akms	CCEHC2akms
Partial	Open-WBO16	Open-WBO15	maxhs-b
W. Partial	maxhs-b	LMHS-2016	ahms-ls-1.70
Industrial			
MaxSAT	mscg2015a	mscg2015b	WPM3-2015-co
Partial	WPM3-2015-co	maxino16-c10	Open-WBO15
W. Partial	maxhs-b	mscg2015b	LMHS-2016

B&B: AHmaxsat, AKmaxsat Core-SAT: WBO, MSCG, WPM3
 Core-PBO: maxino Core-MIP: MaxHS, LMHS

Incomplete Solvers

	1st	2nd	3rd
Random			
MaxSAT	borealis	SC2016	Swcca-ms
Partial	Dist-r	CCEHC	SC2016
W. Partial	dsat-wpm3-s	SC2016	dsat-wpm3
Crafted			
MaxSAT	CCLS	CCEHC	SC2016
Partial	dsat-wpm3	WPM3-2015-in	dsat-wpm3-s
W. Partial	dsat-wpm3	CCEHC	dsat-wpm3-s
Industrial			
MaxSAT	CnC-LS	dsat-wpm3	WPM3-2015-in
Partial	dsat-wpm3	WPM3-2015-in	Optiriss6-in
W. Partial	WPM3-2015-in	dsat-wpm3	dsat-wpm3-s

New solvers: borealis, SC2016, dsat

- Ranking:
 - 1 Percentage of solved instances by set
 - 2 Time to solve those instances

Complete Solvers – Percentage

	1st	2nd	3rd
Random			
MaxSAT	ahms-ls-1.70	CCLS2akms	CCEHC2akms
Partial	ahms-ls-1.70	ahms-1.70	CCEHC2akms
W. Partial	CCLS2akms	CCEHC2akms	ahms-ls-1.70
Crafted			
MaxSAT	ahms-ls-1.70	ahms-1.70	CCLS2akms
Partial	maxhs-b	Open-WBO16	Open-WBO15
W. Partial	maxhs-b	LMHS-2016	ahms-ls-1.70
Industrial			
MaxSAT	mscg2015a	mscg2015b	WPM3-2015-co
Partial	WPM3-2015-co	maxino16-c10	Open-WBO15
W. Partial	maxhs-b	maxino16-dis	maxino16-c10

Incomplete Solvers – Percentage

	1st	2nd	3rd
Random			
MaxSAT	SC2016	borealis	Swcca-ms
Partial	Dist-r	CCEHC	SC2016
W. Partial	dsat-wpm3-s	SC2016	dsat-wpm3
Crafted			
MaxSAT	CCLS	CCEHC	SC2016
Partial	dsat-wpm3	WPM3-2015-in	Optiriss6-in
W. Partial	CCEHC	dsat-wpm3	dsat-wpm3-s
Industrial			
MaxSAT	dsat-wpm3	WPM3-2015-in	Optiriss6-in
Partial	WPM3-2015-in	dsat-wpm3	Optiriss6-in
W. Partial	WPM3-2015-in	dsat-wpm3	dsat-wpm3-s

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- Max-SAT Evaluation 2016 web page
<http://maxsat.ia.udl.cat/>
- Tables with mean times and number of solved instances
- Tables with percentages of solved instances for each set
- Complete ranking tables
- All the cactus plots
- Detailed results for each set of instances
- Description of the solvers and benchmarks.
- Log files are supplied on demand.

Thanks

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