

Max-SAT Evaluation 2015

Tenth Edition

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Outline

- 1 What's new this year
- 2 Results
- 3 More information

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- 1** What's new this year
 - Evaluation Environment
 - Benchmarks
- 2** Results
- 3** More information

What's new this year

Less Solvers 37 solvers (46 last year)

Complete solvers: 27 submissions

Incomplete solvers: 10 submissions

More benchmarks 4273 instances

10 new sets

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 (1207 instances)
 - All soft clauses
 - Unary weights
- Partial Max-SAT (1489 instances)
 - Hard and soft clauses
 - Unary weights
- Weighted Partial Max-SAT (1577 instances)
 - Hard and soft clauses
 - Integer positive weights

New benchmarks

Random Unweighted MaxSAT, Random
Maxcut Unweighted MaxSAT, Crafted

Fault Diagnosis Partial, Crafted

AES Key Recovery Partial, Crafted

Treewidth Computation Partial, Industrial

Random Weighted Partial, Random

Causal Discovery Weighted Partial, Crafted

Correlation Clustering Weighted Partial, Industrial

Railway Transport Weighted Partial, Industrial

Bounded Treewidth Bayesian Net Weighted Partial, Industrial

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Results

- 15 submitters
- 37 solvers. Two types:
 - Complete solvers: 27
 - Incomplete solvers: 10
- 4273 benchmark instances
- Experimentation time: 3 months

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

- Ranking by percentages:
 - 1 Sum of percentage of solved instances
 - 2 Time needed to solve those instances

Complete Solvers – Solved instances

| | 1st | 2nd | 3rd |
|------------|-----------------|--------------|--------------|
| Random | | | |
| MaxSAT | ahms-ls-1.55 | ahms-ls-1.68 | CCLS2akms |
| Partial | ahms-ls-1.55 | ahms-1.55 | ahms-1.68 |
| W. Partial | CCLS2akms | CCEHC2akms | ahms-ls-1.68 |
| Crafted | | | |
| MaxSAT | ahms-ls-1.55 | ahms-ls-1.68 | ahms-1.55 |
| Partial | ISAC+-2015-pms | Open-WBO-R | mscg2015b |
| W. Partial | ISAC+-2015-wpms | LMHS-C | MaxHS |
| Industrial | | | |
| MaxSAT | ISAC+-2015-ms | mscg2015a | mscg2015b |
| Partial | ISAC+-2015-pms | WPM3-2015-co | Open-WBO-R |
| W. Partial | LMHS-I | MaxHS | mscg2015b |

Incomplete Solvers – Solved instances

| | 1st | 2nd | 3rd |
|------------|----------------|----------------|----------------|
| Random | | | |
| MaxSAT | CCLS2015 | Swcca_ms | CCEHC |
| Partial | DistUP | CCEHC | Dist1 |
| W. Partial | Dist1 | Dist2 | CCLS2015 |
| Crafted | | | |
| MaxSAT | CCLS2015 | CCEHC | Swcca_ms |
| Partial | WPM3-2015-in | optiriss-def-i | Dist2 |
| W. Partial | CCEHC | ILP-2015-in | Dist1 |
| Industrial | | | |
| MaxSAT | optiriss-def-i | WPM3-2015-in | optiriss-sel-i |
| Partial | WPM3-2015-in | optiriss-def-i | optiriss-sel-i |
| W. Partial | WPM3-2015-in | optiriss-def-i | ILP-2015-in |

Complete Solvers – Percentage

| | 1st | 2nd | 3rd |
|------------|------------------|--------------------|------------------|
| Random | | | |
| MaxSAT | ahms-ls-1.55 | ahms-ls-1.68 | CCLS2akms |
| Partial | ahms-ls-1.55 | ahms-1.55 | ahms-1.68 |
| W. Partial | CCLS2akms | CCEHC2akms | ahms-ls-1.68 |
| Crafted | | | |
| MaxSAT | ahms-ls-1.55 | ahms-ls-1.68 | ahms-1.55 |
| Partial | ISAC+-2015-pms | Open-WBO-R | mscg2015b |
| W. Partial | ISAC+-2015-wpms | LMHS-C | MaxHS |
| Industrial | | | |
| MaxSAT | ISAC+-2015-ms | mscg2015a | mscg2015b |
| Partial | ISAC+-2015-pms | WPM3-2015-co | Open-WBO-R |
| W. Partial | mscg2015b | maxino-kdyn | mscg2015a |

Incomplete Solvers – Percentage

| | 1st | 2nd | 3rd |
|------------|----------------|----------------|----------------|
| Random | | | |
| MaxSAT | CCLS2015 | Swcca_ms | CCEHC |
| Partial | DistUP | CCEHC | Dist1 |
| W. Partial | Dist1 | Dist2 | CCLS2015 |
| Crafted | | | |
| MaxSAT | CCLS2015 | CCEHC | Swcca_ms |
| Partial | WPM3-2015-in | optiriss-def-i | Dist2 |
| W. Partial | ILP-2015-in | CCEHC | Dist1 |
| Industrial | | | |
| MaxSAT | optiriss-def-i | WPM3-2015-in | optiriss-sel-i |
| Partial | WPM3-2015-in | optiriss-def-i | optiriss-sel-i |
| W. Partial | WPM3-2015-in | optiriss-def-i | optiriss-sel-i |

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- Max-SAT Evaluation 2015 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
- Ranking tables for all solvers
- All the cactus plots
- Detailed results for each instance (with a **Best solver** column)
- Description of the solvers and benchmarks.

Thanks

Thanks to the people that contributed solvers and benchmarks, and to the **Universitat de Lleida** for allowing us to use their clusters.

We encourage you to participate in the next

Max-SAT Evaluation!

