

# International Planning Competition 2008 – Deterministic Part

Results

## Competition rules

### Planner submission

- participants submit planners **before seeing any domains**, no “tuning period”
- planner modifications only allowed for bug fixes, diffs checked rigorously
- participants **must publish planner source code**

### Competition tracks

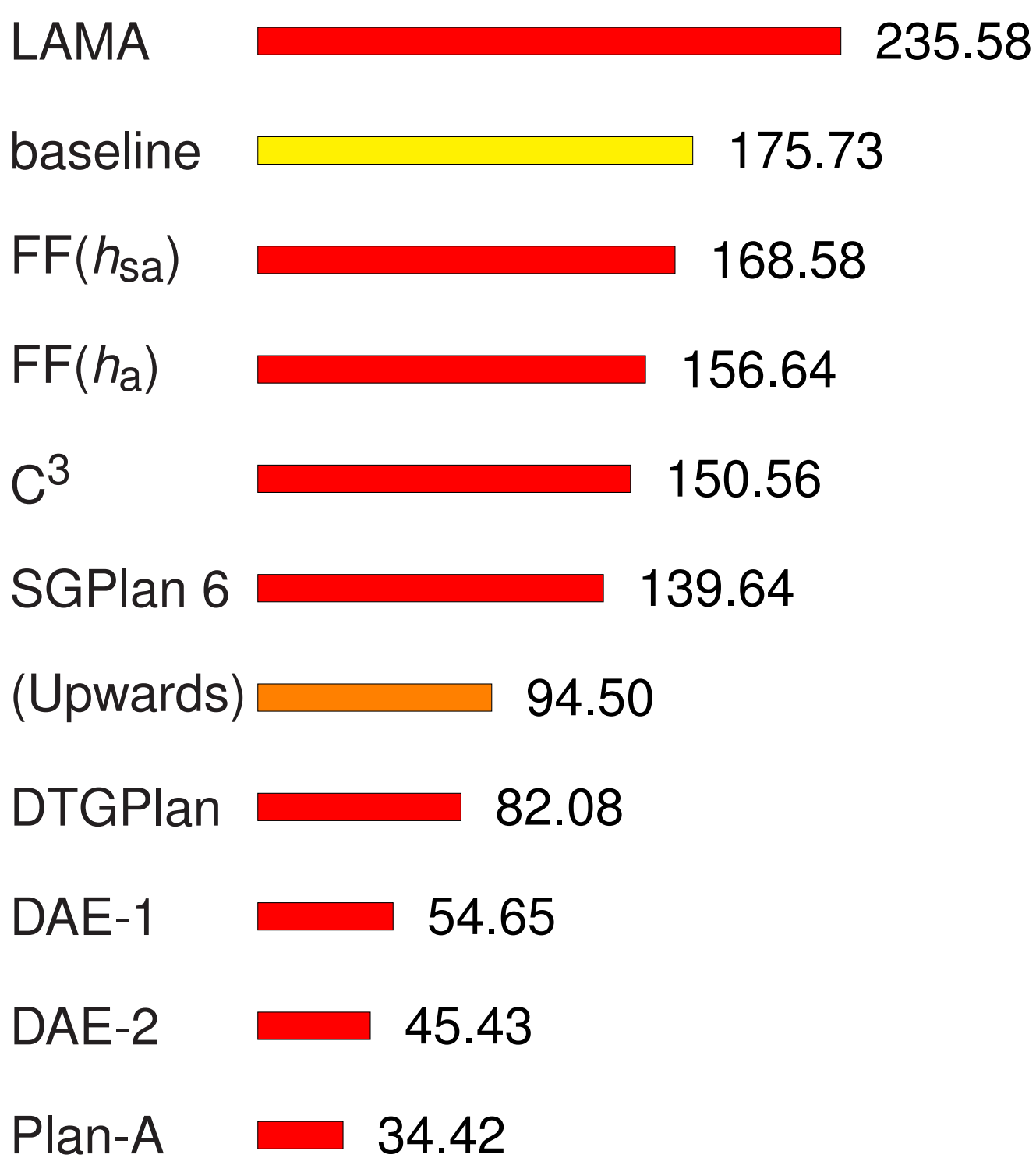
- three track categories, each with a **satisficing track** and **optimization track**:
  - sequential**: STRIPS + action costs  
objective: minimize **total cost** (sum of action costs)
  - temporal**: STRIPS + durative actions + (some domains with) numeric fluents  
objective: minimize **total time** (makespan)
  - net benefit**: STRIPS + action costs + soft goals + (some domains with) numeric fluents  
objective: maximize **net benefit** (utility of achieved goals minus total cost)
- each track is a **completely separate competition**
- temporal optimization and net benefit satisficing tracks cancelled for lack of participants

### Scoring function

- emphasis on plan quality, **runtime does not count towards score**
- 6–9 domains per track, 30 problems per domain
- planner score: total score for the 180–270 problems
- organizers run each planner on each problem (30 minute timeout, 2 GB memory limit)
- each problem scores **up to 1 point**: ratio best known quality vs. generated plan’s quality
- optimal tracks: suboptimal solutions lead to score 0 **for the whole domain**

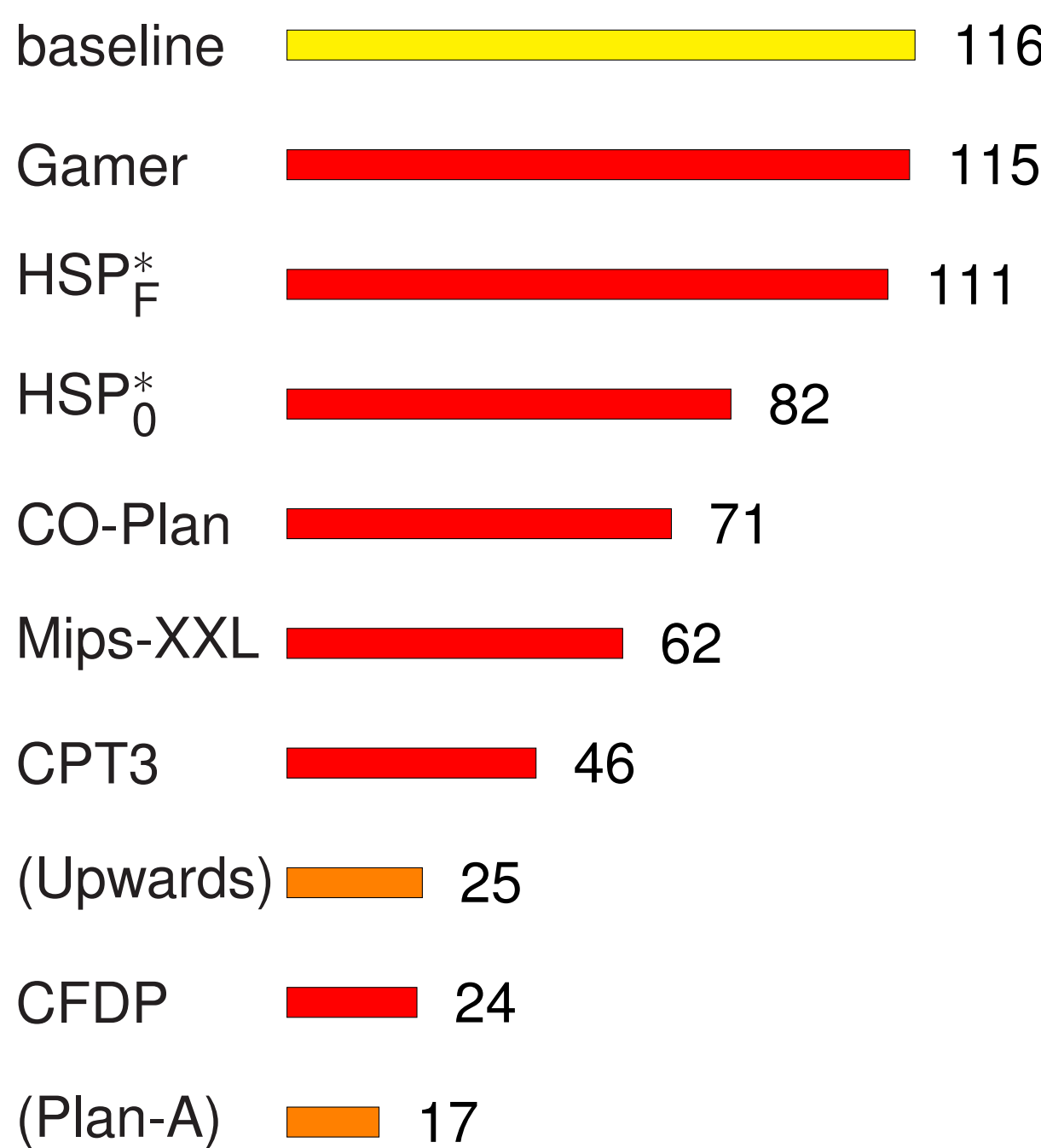
## Total scores

### Sequential satisficing track



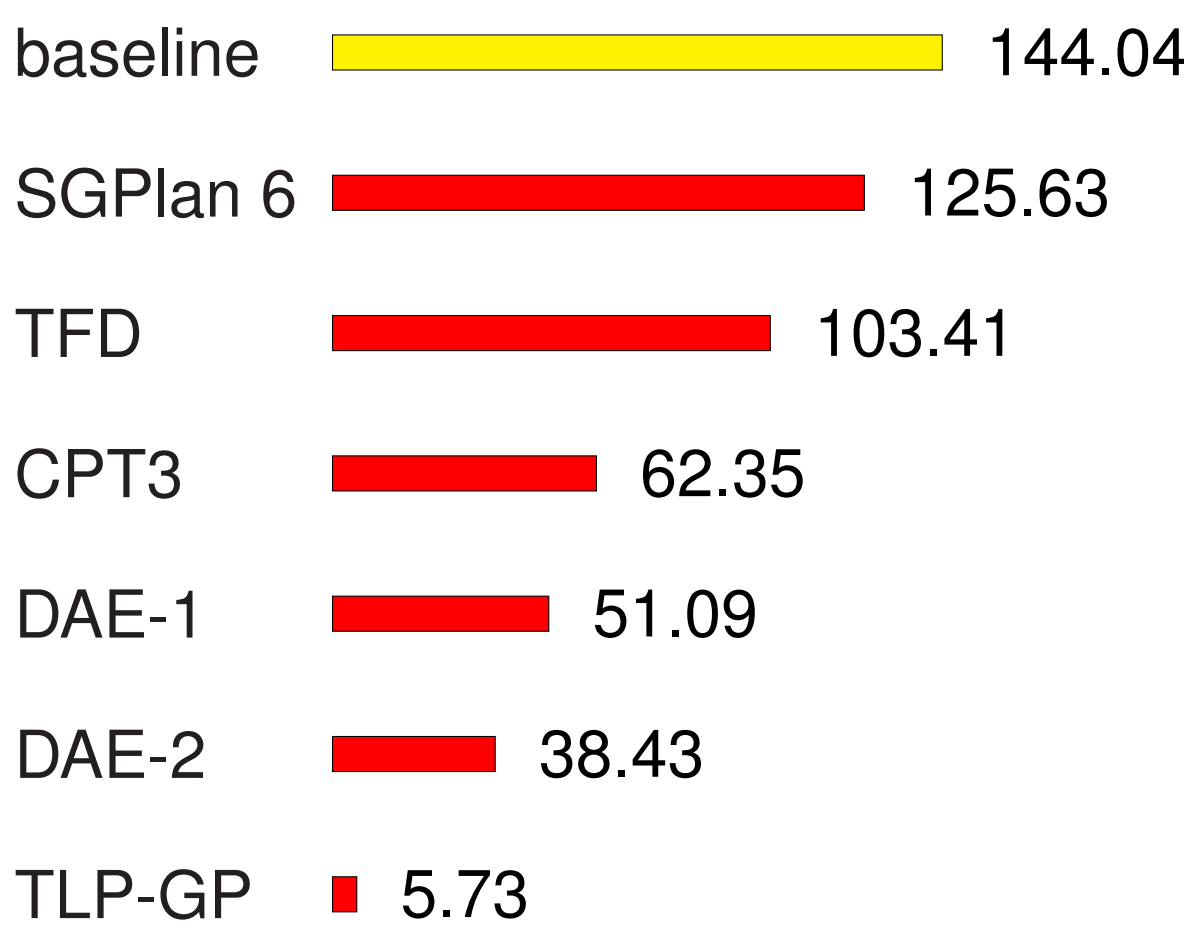
- Winner:** LAMA
- Runner-up:** FF( $h_{sa}$ )
- Jury Award:** C<sup>3</sup>

### Sequential optimization track



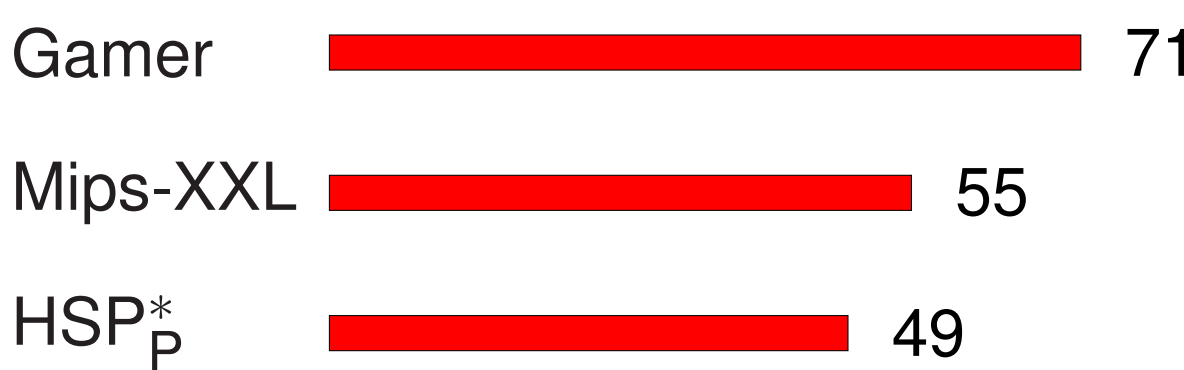
- Winner:** Gamer
- Runner-up:** HSP<sub>F</sub><sup>\*</sup>

### Temporal satisficing track



- Winner:** SGPlan 6
- Runner-up:** Temporal Fast Downward

### Net benefit optimization track



- Winner:** Gamer
- Runner-up:** Mips-XXL

## Sequential satisficing track

|                | Cyber security | Elevators     | Openstacks |
|----------------|----------------|---------------|------------|
| C <sup>3</sup> | 10.65          | 19.00         | 10.07      |
| DAE-1          | 0.00           | 4.34          | 3.03       |
| DAE-2          | 0.00           | 2.70          | 1.40       |
| DTGPlan        | 0.00           | 16.92         | 13.65      |
| FF( $h_a$ )    | 21.87          | 10.62         | 8.17       |
| FF( $h_{sa}$ ) | 21.68          | 12.09         | 8.26       |
| LAMA           | 29.92          | 23.35         | 27.33      |
| Plan-A         | 2.27           | not attempted | 3.00       |
| SGPlan 6       | 6.27           | 20.00         | 12.09      |
| (Upwards)      | 0.00           | 2.60          | 4.97       |
| baseline       | 4.00           | 24.96         | 21.36      |

|                | ParcPrinter | Peg Solitaire | Scanalyzer-3D |
|----------------|-------------|---------------|---------------|
| C <sup>3</sup> | 18.00       | 19.70         | 22.95         |
| DAE-1          | 14.45       | 3.89          | 8.92          |
| DAE-2          | 5.80        | 3.00          | 9.41          |
| DTGPlan        | 16.44       | 0.67          | 10.15         |
| FF( $h_a$ )    | 16.00       | 21.48         | 23.79         |
| FF( $h_{sa}$ ) | 23.00       | 22.65         | 23.89         |
| LAMA           | 20.93       | 28.88         | 25.64         |
| Plan-A         | 0.00        | 13.00         | 15.15         |
| SGPlan 6       | 24.39       | 10.01         | 20.24         |
| (Upwards)      | 26.91       | 25.00         | 12.35         |
| baseline       | 26.53       | 19.52         | 23.51         |

|                | Sokoban | Transport     | Woodworking   |
|----------------|---------|---------------|---------------|
| C <sup>3</sup> | 17.96   | 5.81          | 26.41         |
| DAE-1          | 0.00    | 4.96          | 15.06         |
| DAE-2          | 0.00    | 5.26          | 17.87         |
| DTGPlan        | 1.84    | 17.78         | 4.64          |
| FF( $h_a$ )    | 15.28   | 15.76         | 23.67         |
| FF( $h_{sa}$ ) | 17.83   | 15.34         | 23.84         |
| LAMA           | 24.11   | 28.93         | 26.49         |
| Plan-A         | 1.00    | not attempted | not attempted |
| SGPlan 6       | 7.69    | 18.08         | 20.85         |
| (Upwards)      | 5.00    | 5.84          | 11.83         |
| baseline       | 21.08   | 19.33         | 15.45         |

## Sequential optimization track

|                               | Elevators     | Openstacks | ParcPrinter |
|-------------------------------|---------------|------------|-------------|
| CFDP                          | 0             | 6          | 3           |
| CO-Plan                       | 6             | 4          | 5           |
| CPT3                          | 1             | 1          | 17          |
| Gamer                         | 22            | 20         | 0           |
| HSP <sub>0</sub> <sup>*</sup> | 8             | 6          | 14          |
| HSP <sub>F</sub> <sup>*</sup> | 8             | 21         | 16          |
| Mips-XXL                      | 2             | 6          | 7           |
| (Plan-A)                      | not attempted | 2          | 0           |
| (Upwards)                     | 0             | 0          | 0           |
| baseline                      | 11            | 19         | 10          |

|                               | Peg Solitaire | Scanalyzer-3D | Sokoban |
|-------------------------------|---------------|---------------|---------|
| CFDP                          | 8             | 3             | 0       |
| CO-Plan                       | 25            | 6             | 12      |
| CPT3                          | 10            | 3             | 3       |
| Gamer                         | 22            | 9             | 18      |
| HSP <sub>0</sub> <sup>*</sup> | 21            | 11            | 4       |
| HSP <sub>F</sub> <sup>*</sup> | 27            | 6             | 14      |
| Mips-XXL                      | 24            | 6             | 6       |
| (Plan-A)                      | 12            | 0             | 3       |
| (Upwards)                     | 25            | 0             | 0       |
| baseline                      | 27            | 12            | 19      |

|                               | Transport     | Woodworking   |
|-------------------------------|---------------|---------------|
| CFDP                          | 0             | 4             |
| CO-Plan                       | 8             | 5             |
| CPT3                          | 3             | 8             |
| Gamer                         | 11            | 13            |
| HSP <sub>0</sub> <sup>*</sup> | 9             | 9             |
| HSP <sub>F</sub> <sup>*</sup> | 10            | 9             |
| Mips-XXL                      | 6             | 5             |
| (Plan-A)                      | not attempted | not attempted |
| (Upwards)                     | 0             | 0             |
| baseline                      | 11            | 7             |

## Temporal satisficing track

|          | Crew Planning | Elevators     | Model Train   |
|----------|---------------|---------------|---------------|
| CPT3     | 5.00          | 1.98          | not attempted |
| DAE-1    | 12.76         | 6.46          | not attempted |
| DAE-2    | 13.76         | 2.96          | not attempted |
| SGPlan 6 | 22.97         | 18.81         | 13.01         |
| TFD      | 9.34          | 11.29         | 1.48          |
| TLP-GP   | 0.00          | not attempted | not attempted |
| baseline | 16.21         | 23.10         | 12.00         |

|          | Openstacks    | ParcPrinter | Peg Solitaire |
|----------|---------------|-------------|---------------|
| CPT3     | 4.00          | 17.38       | 29.00         |
| DAE-1    | 7.04          | 11.93       | 11.89         |
| DAE-2    | 4.00          | 6.81        | 9.89          |
| SGPlan 6 | 13.07         | 11.04       | 15.39         |
| TFD      | 26.14         | 5.67        | 23.32         |
| TLP-GP   | not attempted | 1.73        | 4.00          |
| baseline | 18.20         | 13.87       | 24.35         |

|          | Sokoban | Transport     | Woodworking   |
|----------|---------|---------------|---------------|
| CPT3     | 5.00    | not attempted | not attempted |
| DAE-1    | 1.00    | not attempted | not attempted |
| DAE-2    | 1.00    | not attempted | not attempted |
| SGPlan 6 | 9.31    | 11.54         | 10.48         |
| TFD      | 9.57    | 4.29          | 12.31         |
| TLP-GP   | 0.00    | not attempted | not attempted |
| baseline | 16.88   | 7.24          | 12.19         |

## Net benefit optimization track

|                               | Crew Planning | Elevators | Openstacks  |
|-------------------------------|---------------|-----------|-------------|
| Gamer                         | 4             | 11        | 7           |
| HSP <sub>p</sub> <sup>*</sup> | 16            | 5         | 5           |
| Mips-XXL                      | 8             | 4         | 2           |
|                               | Peg Solitaire | Transport | Woodworking |
| Gamer                         | 24            | 12        | 13          |
| HSP <sub>p</sub> <sup>*</sup> | 0             | 12        | 11          |
| Mips-XXL                      | 23            | 9         | 9           |