

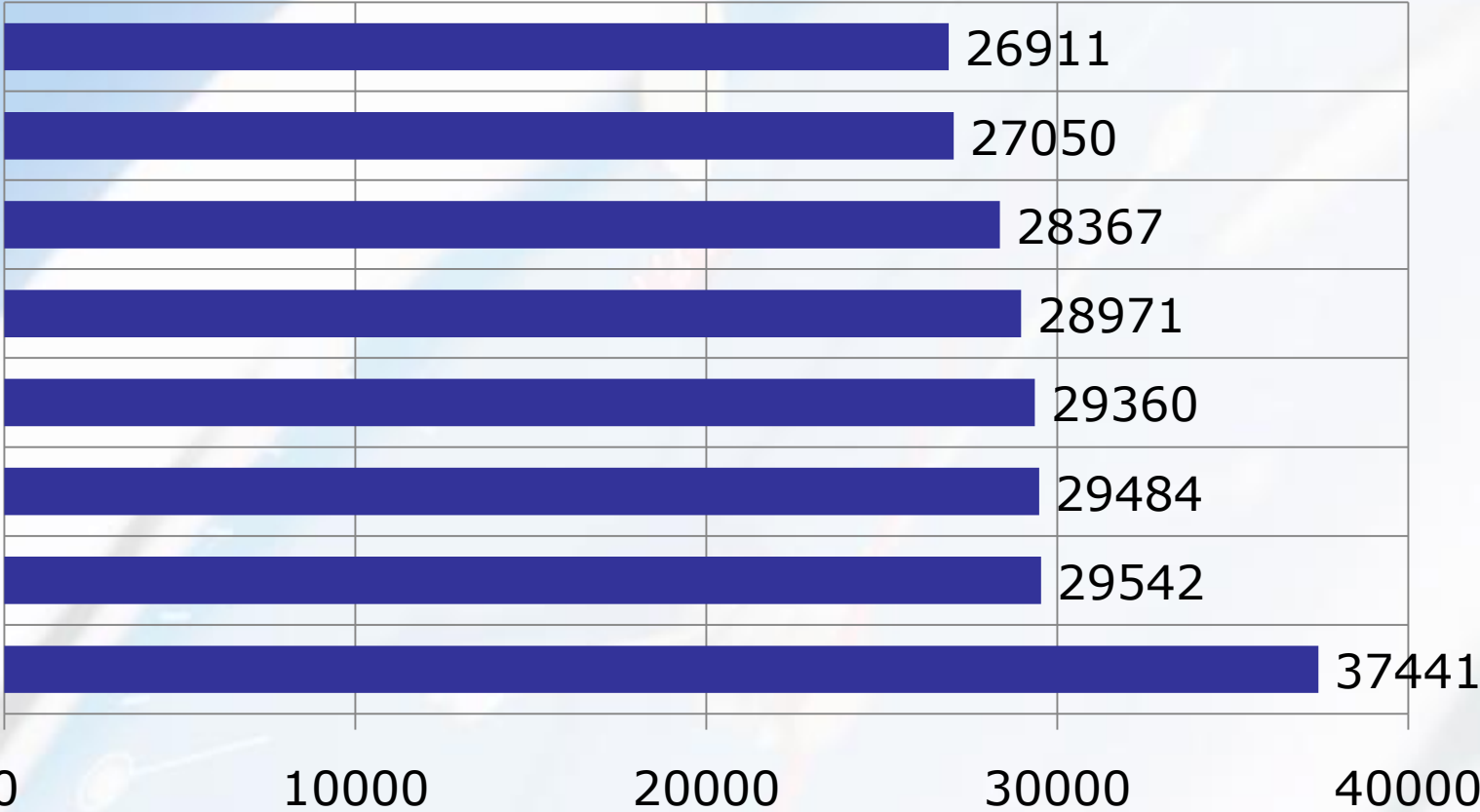


Peephole Contest 2008

COMP 520

Final Ranking (Total)

Bytecodes



A-

Submissions

Group	Patterns submitted	Unsound	Remaining
1	88	0	88
2	70	8	62
3	41	5	36
4	36	4	32
5	90	1	89

Sound or unsound?

Constant folding

```
iconst_x
```

```
iconst_y
```

```
iadd || isub || imul || idiv || irem
```

```
----->
```

```
ldc x op y
```

Sound or unsound?

StringBuffer

```
aload x
dup
ifnull label_1
goto label_2
label_1:
pop
ldc "null"
label_2:
----->
new j/l/StringBuffer
dup
invokenonvirtual j/l/StringBuffer/<init>()V
aload x
invokevirtual
  j/l/StringBuffer/append(Lj/l/String;)Lj/l/StringBuffer;
invokevirtual j/l/StringBuffer/toString()Lj/l/String;
```

Sound or unsound?

StringBuffer

```
invokevirtual
  j/l/String/concat(Lj/l/String;)Lj/l/String;
dup
ifnonnull lbl1
pop
ldc "null"
label lbl1
----->
invokevirtual
  j/l/String/concat(Lj/l/String;)Lj/l/String;
```

Sound or unsound?

Dead code elimination

```
goto lbl  
not-a-label  
----->  
goto lbl
```

```
[a|i]return  
not-a-label  
----->  
[a|i]return
```

Rules to keep in mind

- Ok to assume “sensible code”, i.e. verifiable code
- Should not assume certain code-generation scheme
- Why? Times change, and code generation schemes, too!

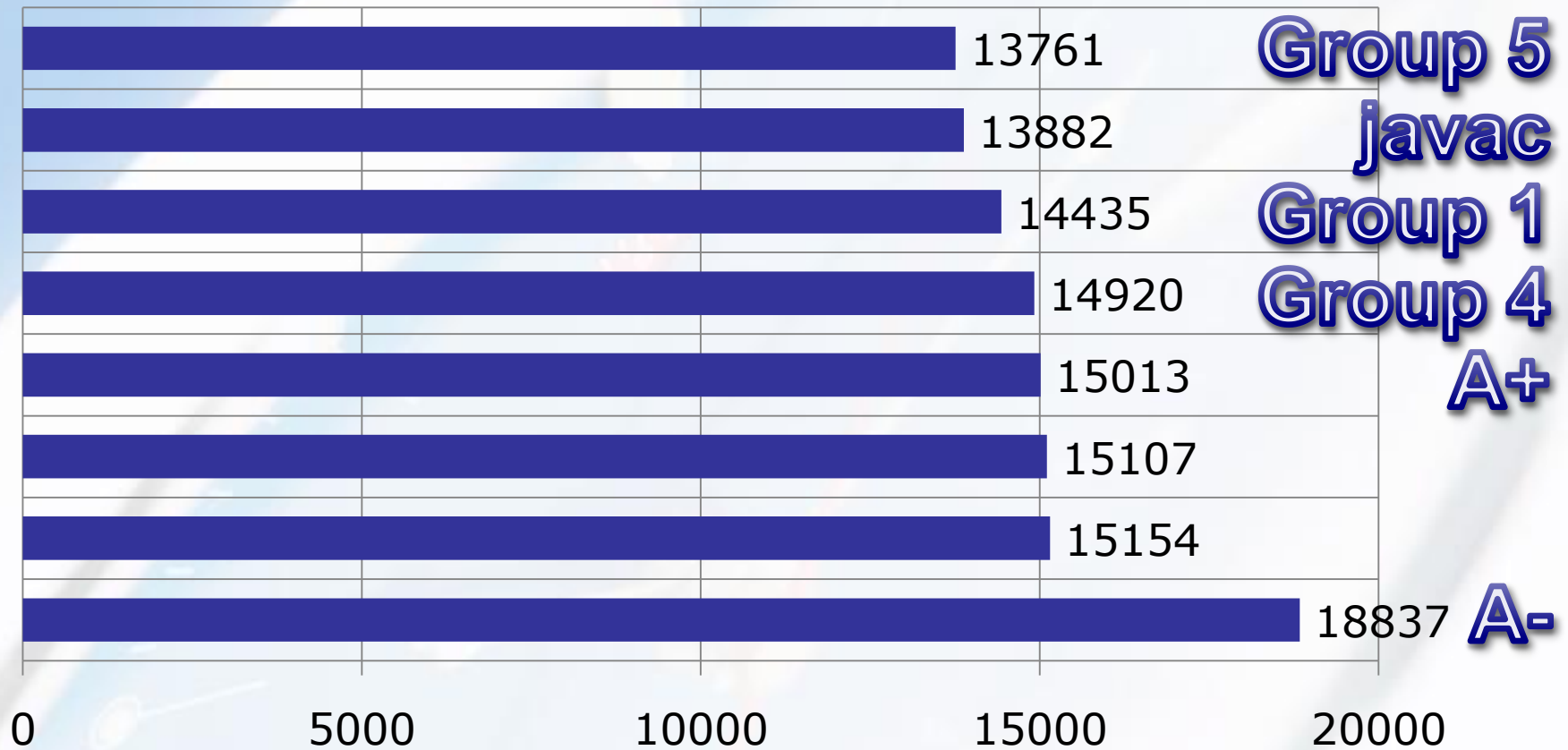


Results

Tatatataaaa....

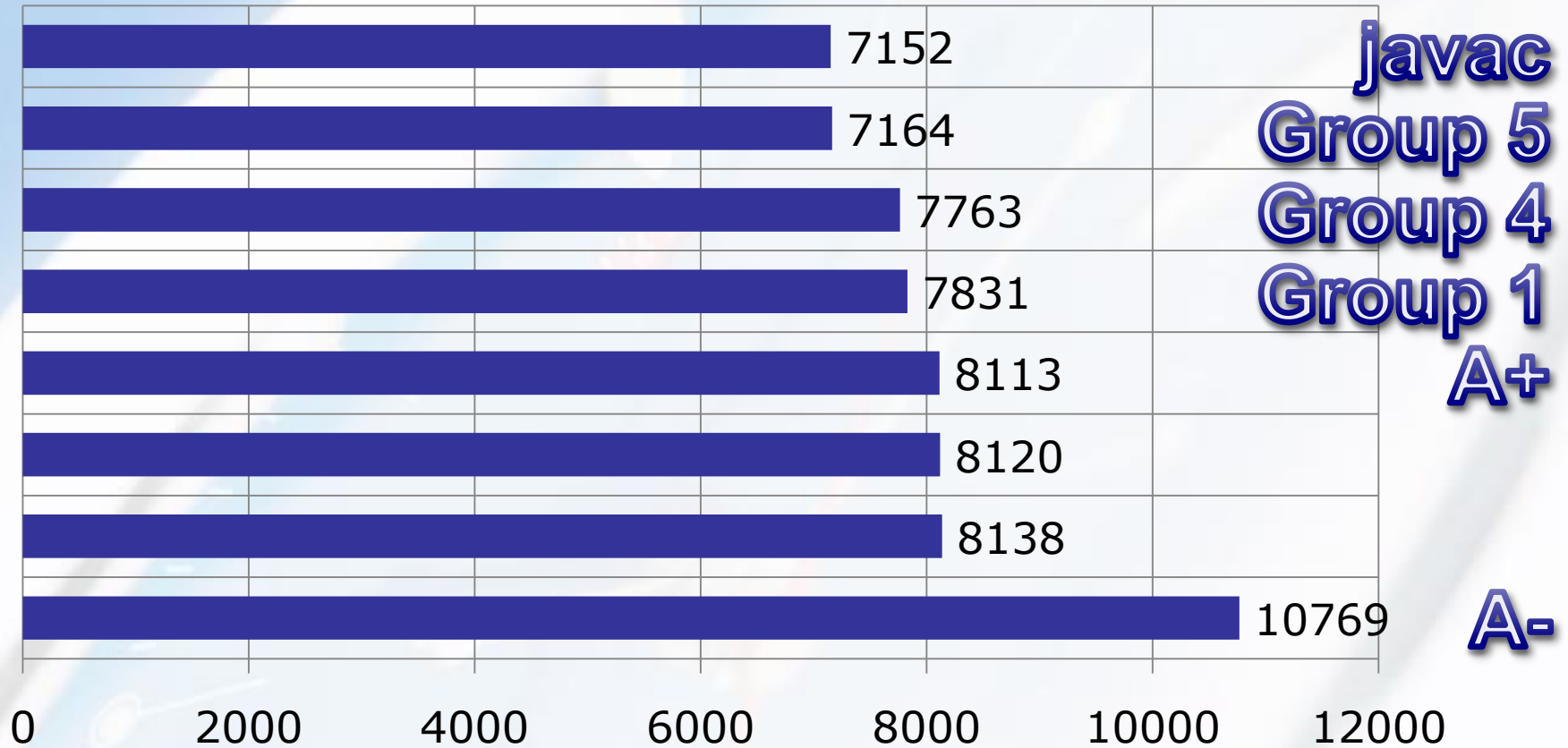
2004 Benchmarks

Bytecodes



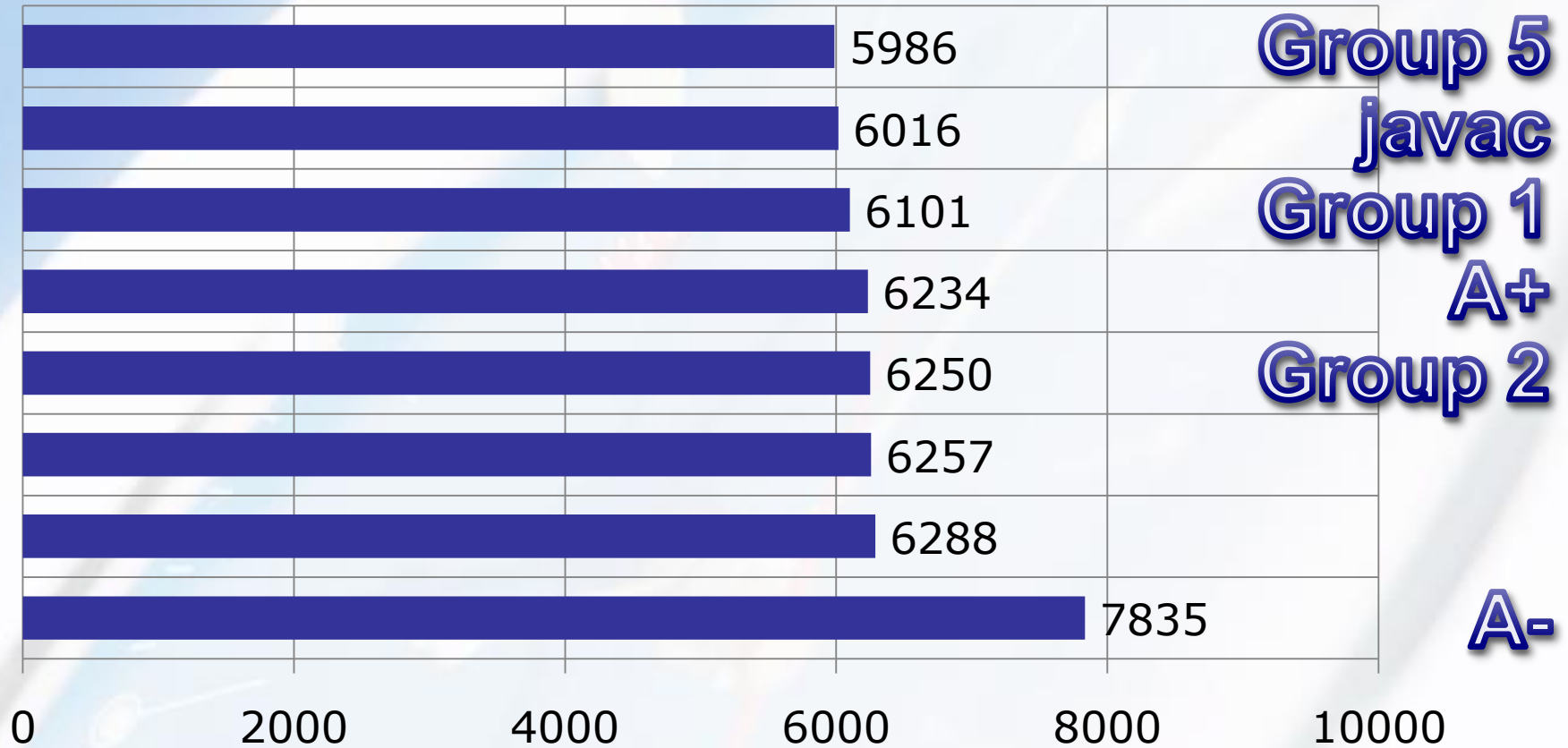
2007 Benchmarks

Bytecodes



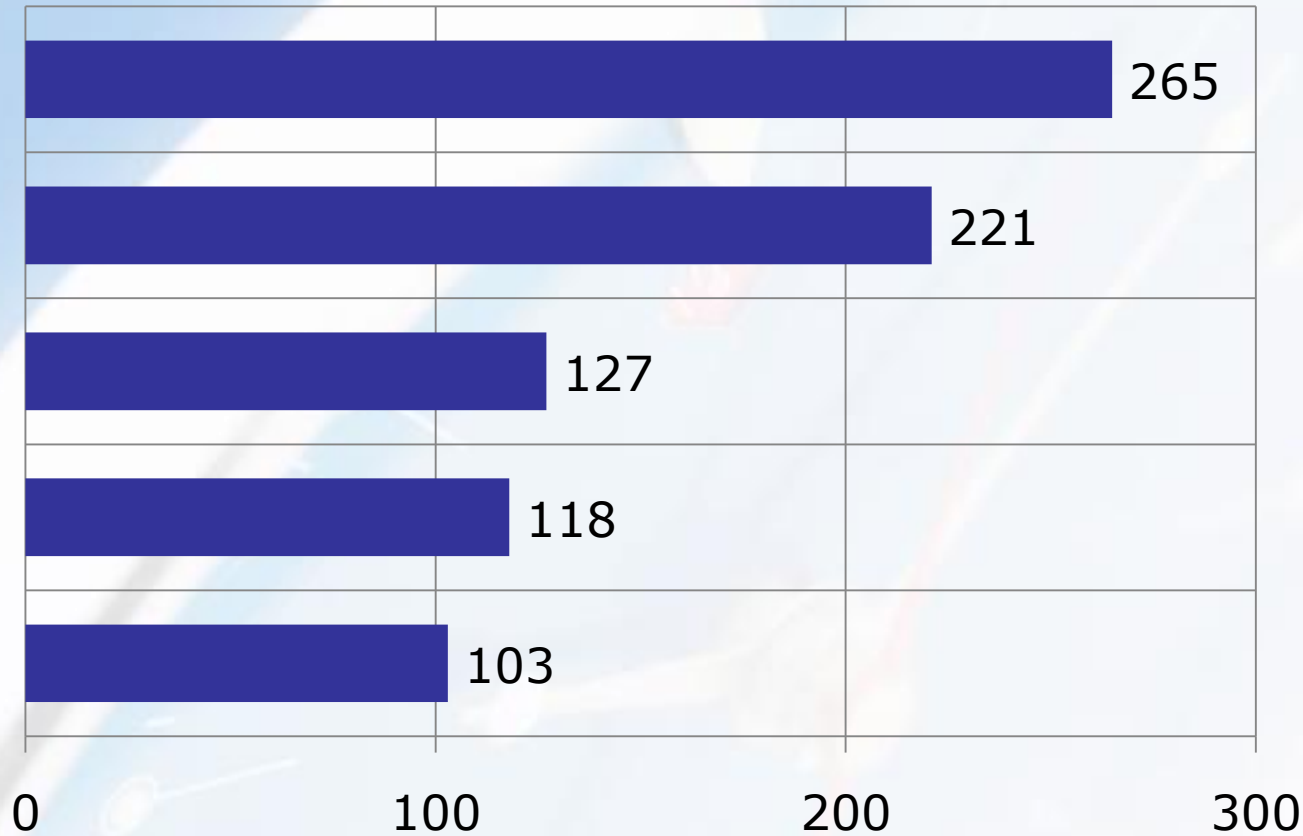
2008 Benchmarks

Bytecodes



Most gain for the pain

Bytecodes removed / pattern



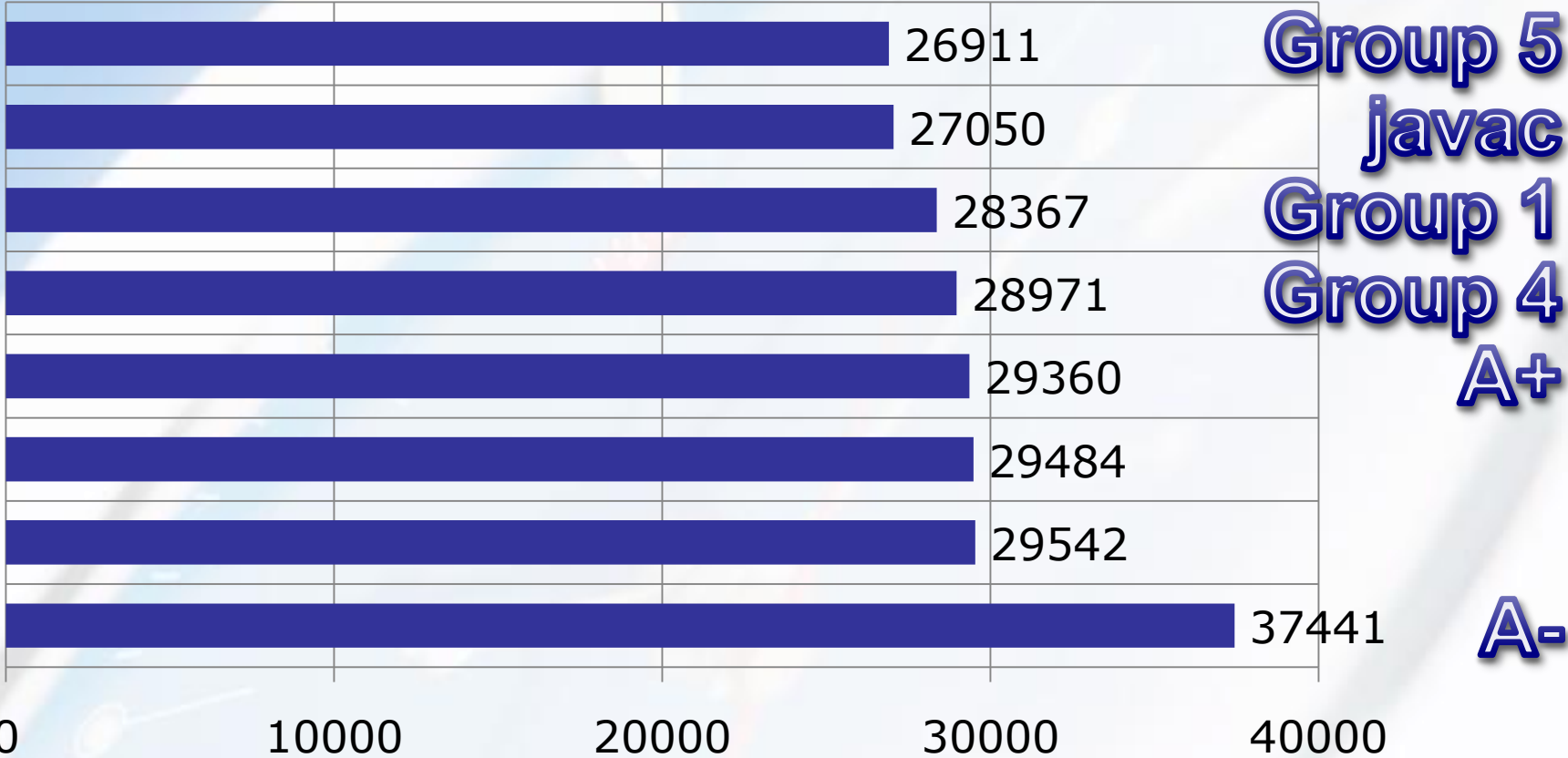
Group 4

Group 3

Group 2

Final Ranking (Total)

Bytecodes



COMP 520 PRESENTS

*Winners of the Peephole Contest
of the Year 2008*

GROUP 5

Ning Jia

Alexis Malozemoff

Wei Wu

November 21st, 2008

Eric Bodden & Reehan Shaikh

