

Description

Carballo (the galician word for Oak, well it's all about search trees) is an Open Source Java chess engine hosted at <http://sourceforge.net/projects/carballo/>, where you can download a UCI binary to play in interfaces like [Arena](#). Has the following features:

- Simple and clear code (has 6000 lines aprox. excluding tests)
- Maven source code organization
- JUnit used for testing, multiple test suites provided (Perft, BT2630, LCTII, WAC, etc.)
- Based on Bitboards (not so complicated as other people say)
- State-of-the-art magic bitboard move generator (doubles the basic move generator speed!), also code for magic number generation
- PVS searcher
- Iterative deepening
- Aspiration window, moves only one border of the window if falls out
- Transposition Table (TT) with Zobrist Keys (two zobrist keys per board, to avoid collisions) and multiprobe/two tier
- Quiescent search with only good captures (according to SEE) and limited check generation
- Move sorting: two killer move slots, SEE, MVV/LVA and history heuristic
- Also Internal Iterative Deepening to improve sorting
- Fractional Extensions: check, pawn push and passed pawns, mate threat, recapture (2 = 1PLY)
- Reductions: Late Move Reductions (LMR)
- Pruning: Null Move Pruning, Static Null Move Pruning, Futility Pruning and Aggressive Futility Pruning
- Polyglot Opening Book support; in the code I include Fruit's Small Book
- FEN notation import/export support, also EPD support for testing
- Pluggable evaluator function, distinct functions provided: the Simplified Evaluator Function, other Complete and other Experimental
- Parametrizable evaluator (only the complete & experimental evaluators)
- Contempt factor
- Cute drag and drop Applet GUI, to fit in web sites
- UCI interface with lots of UCI options

It scores about 2330 ELO points at BT2630 tests in my Core2 Duo@2.2GHz. Also solves 277 positions of the 300 WinAtChess test (5 seconds for each). His real strength is about 2100 ELO points.

It is licensed under GPL, and you are free to use, distribute or modify the code but I ask for a mention to the original author and/or a link to my blog. I also put links in my source code to webs were I found information for coding.

Test Results

I made a Java Engines Tournament to compare Carballo against other chess engines at tournament time 5 minutes. Here are the results: (Those results are outdated, now i'm running tests with Carballo 0.5 and more Java Engines, will show the results when finished)

[illegible]

03: Mediocre-0.3.4	34,5/50	00000	00==1	.....	0101=	=1000	11101	11=11	11111	11111
11111 11111 613,00										
04: Alf-1.0.9	33,5/50	00=00	00010	1010=	.....	1010=	10001	11111	11111	11111
11111 11111 575,50										
05: Carballo-0.5	32,5/50	00000	01100	=0111	0101=	.....	1=001	=1011	1111=	11011
11111 11111 600,25										
06: Cuckoo-1.0.4	32,0/50	0=00=	01000	00010	01110	0=110	.....	111=1	1=111	11111
11111 =1111 563,00										
07: Bremboce-0.6.2	21,0/50	0=000	00000	00=00	00000	=0100	000=0	.....	10111	11=11
=1111 11111 256,75										
08: ArabianKnight-0.55	14,5/50	00000	00000	00000	00000	0000=	0=000	01000	.....	11=1=
110=1 11111 135,25										
09: Cheoss-0.6.49	8,5/50	00000	=0000	00000	00000	00100	00000	00=00	00=0=	.....
=1== =1=0= 112,25										
10: Frittle-1.0	8,0/50	00000	00000	00000	00000	00000	00000	=0000	001=0	=0==
..... =111= 65,25										
11: JChecs-0.1.0	4,0/50	00000	00000	00000	00000	00000	=0000	00000	00000	=0=1=
=000= 45,25										

275 games played / Tournament is finished

Name of the tournament: JavaEnginesTournament

Site/ Country: JDEVELOPER5, España

Level: Tournament Game in 5 Minutes

Hardware: Intel(R) Core(TM)2 Duo CPU T7500 @ 2.20GHz 2200 MHz with 752 MB Memory

History

Version 0.5: Improves about 150 ELO points over Carballo 0.4

- PVS searcher: SearchEngine completely changed
- Futility pruning now works!
- New TT algorithm, now also uses TT to store evaluation values
- Bug with draw detection with 3-fold repetition
- Bug with time management on tournament, was using the opponent's time amount
- Bug with history table overflow

Version 0.4: First version integrated with Mobialia Chess

- Parametrizable evaluator
- Evaluator changes