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Onno logo ^[2]

Onno,
was a commercial chess engine
developed by [Onno Garms](#), written
in [C++](#) and released in May 2009.
After announcing the end of
Onno's development in March
2011 ^[1], Onno Garms revealed
several ideas that made Onno
stronger. The 32/64-bit [Windows](#)
or 64-bit [Linux](#) executables
communicate with a chess [GUI](#) via
the [UCI](#).

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Description

Basics

Onno uses a fixed shift variation of [Magic bitboards](#) ^[3] to determine [sliding piece attacks](#). Its [static exchange evaluation](#) considers [alpha](#) and [beta](#) ^[4]. [Evaluation](#) features were [tuned automaticly](#) performing a [Genetic algorithm](#) ^[5].

Search

Onno applies an [iterative search](#) along with [PVS](#), [null move pruning](#) and [verification search](#). Onno further uses a technique dubbed **bad pruning** similar to [razoring](#). The idea is to apply a [reduced search](#) with a reduced [window](#) - if the search at depth d-3 says that one loses more then a pawn, it does not search the move with the current depth d ^[6].

Parallel Search

The MP version of Onno searches in [parallel](#) utilizing [YBWC](#) by following [Rainer Feldmann's](#) 1993 Ph.D. thesis *Game Tree Search on Massively Parallel Systems* ^[7] using [virtual messaging](#).

Node Types

Onno determines expected [Node Types](#) to perform [IID](#) not only at [PV-nodes](#) but also at expected [Cut-nodes](#). Onno Garms gave following rules ^[8]

- The [root node](#) is a PV-node.
- The first child of a PV-node is a PV-node
- The further children are searched by a [scout search](#) as CUT-nodes
- [PVS](#) re-search is done as PV-node
- The first node of bad pruning is a CUT-node
- The node after a [null move](#) is a CUT-node
- The first node of [null move verification](#) is a CUT-node
- [Internal iterative deepening](#) does not change the node type
- The first child of a CUT-node is an [ALL-node](#)
- Further children of a CUT-node are CUT-nodes

- Children of ALL-nodes are CUT-nodes

See also

- [Given Name](#)
- [Iterative Search in Onno](#)

Forum Posts

2009

- [Magic with fixed shift](#) by [Onno Garms](#), [Winboard Forum](#), March 18, 2009
- [Onno 0.12](#) by Ted Summers, [CCC](#), April 04, 2009
- [New commercial engine soon: Onno](#) by [Jouni Uski](#), [CCC](#), May 17, 2009
- [Onno 1.0 is now available](#) by [Graham Banks](#), [CCC](#), May 30, 2009
- [About becoming Commercial. The Onno Case](#) by [Fernando Villegas](#), [CCC](#), June 02, 2009
- [Onno 1-1-1 released](#) by [Eduard Nemeth](#), [CCC](#), August 30, 2009

2010

- [Onno MP beta has been released to customers](#) by [Martin Thoresen](#), [CCC](#), February 27, 2010
- [Re: DTS Structure](#) by [Onno Garms](#), [CCC](#), May 28, 2010 » [Iterative Search in Onno](#)

2011 ...

- [Development of Onno ends](#) by [Onno Garms](#), [CCC](#), March 13, 2011
- [Root node search](#) by [Onno Garms](#), [CCC](#), March 13, 2011 » [Root](#)
- [Software Engineering](#) by [Onno Garms](#), [CCC](#), March 13, 2011 » [History Heuristic](#), [Toga](#)
- [Bad Pruning](#) by [Onno Garms](#), [CCC](#), March 13, 2011 » [Pruning](#)
- [On internal iterative deepening](#) by [Onno Garms](#), [CCC](#), March 13, 2011 » [Internal Iterative Deepening](#), [Node Types](#)
- [Less null move pruning by trans map](#) by [Onno Garms](#), [CCC](#), March 13, 2011 » [Null Move Pruning](#)
- [Playing better moves in drawish positions \(anti-0.00\)](#) by [Onno Garms](#), [CCC](#), March 13, 2011 » [Draw](#), [Contempt Factor](#)
- [On parallelization](#) by [Onno Garms](#), [CCC](#), March 13, 2011 » [Parallel Search](#)
- [Parameter tuning](#) by [Onno Garms](#), [CCC](#), March 13, 2011 » [Automated Tuning](#)
- [Memory-PV-Search](#) by [Onno Garms](#), [CCC](#), March 13, 2011 » [Principal Variation Search](#)
- [Move ordering by PST](#) by [Onno Garms](#), [CCC](#), April 16, 2011 » [Piece-Square Tables](#), [History Heuristic](#), [Move Ordering](#)
- [SEE with alpha beta](#) by [Onno Garms](#), [CCC](#), August 14, 2011 » [Static Exchange Evaluation](#), [SEE - The Swap Algorithm](#)

External Links

Chess Engine

- [Onno Chess Software](#)
- [Computerschach, Interview mit Onno Garms](#) by [Frank Quisinsky](#), December 25, 2009 (German)

Misc

- [Onno – Wikipedia.de](#) - [Frisian Given Name](#) (German)

References

1. [Development of Onno ends](#) by [Onno Garms](#), [CCC](#), March 13, 2011
2. [Onno Chess Software](#)
3. [Magic with fixed shift](#) by [Onno Garms](#), [Winboard Forum](#), March 18, 2009
4. [SEE with alpha beta](#) by [Onno Garms](#), [CCC](#), August 14, 2011
5. [Parameter tuning](#) by [Onno Garms](#), [CCC](#), March 13, 2011
6. [Bad Pruning](#) by [Onno Garms](#), [CCC](#), March 13, 2011
7. [Rainer Feldmann \(1993\)](#). *Game Tree Search on Massively Parallel Systems*. Phd-Thesis, [pdf](#)
8. [Re: On internal iterative deeping](#) by [Onno Garms](#), [CCC](#), March 17, 2011

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