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[Benjamin Franklin](#) drawing a [spark](#)
^[3]

Spark,

an [UCI](#) compatible chess engine by [Allard Siemelink](#) written in [C++](#). During 2008, Allard found that it became increasingly hard to improve his [Ox88](#) engine [Bright](#) much further, and started to create a [bitboard](#) framework along with a [Perft](#) benchmark which evolved to Spark with [search](#) and [evaluation](#) developed from scratch to try as much as possible alternative search strategies and evaluation terms for the ones that are found in Bright. Spark's evaluation is [data mined](#) from a [database](#) of 700,000 high quality games^[1], and runs on [Windows](#), [Linux](#) and [Mac OS](#).

So far Spark played the [WCRCC 2009](#)^[2], [CCT12](#), [ICT 2010](#), [DOCCC 2010](#), [DOCCC 2011](#) and [ICT 2012](#).

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Parallel Search

Like its earlier [0x88](#) relative [Bright](#), Spark is able to [search in parallel](#) supporting up to 16 [CPU cores](#), basically applying the [Young Brothers Wait Concept](#). Since splitting is a cheap operation in Spark, avoiding an expensive copy of the board and associated data, the [search tree](#) can be split at any [depth](#), maximizing the use of the otherwise idle cores.

LMR

[Late Move Reductions](#) as popularized by [Fruit](#) and [Glaurung](#) are used in Spark with different implementation details. The reductions are not [history](#) based, and all moves, except the first one, can be reduced by up to two [plies](#) depending on static criteria ^[4].

Selected Games

[\[5\]](#)

Rybka

[DOCCC 2010](#), Round 6, [Spark](#) - [Rybka](#)

```
[Event "DOCCC 2010"]
[Site "Leiden NED"]
[Date "2010.11.27"]
[Round "6"]
[White "Spark"]
[Black "Rybka"]
[Result "1/2-1/2"]
```

1.e4 c5 2.Nf3 e6 3.d4 cxd4 4.Nxd4 Nc6 5.Nc3 Qc7 6.Be3 a6 7.Be2 b5 8.Nx
c6 Qxc6
9.O-O Bb7 10.Bf3 Qc7 11.e5 Rc8 12.Bxb7 Qxb7 13.Qd3 Ne7 14.a4 bxa4 15.R
xa4 Nc6
16.f4 Nb4 17.Qe4 Qxe4 18.Nxe4 Rxc2 19.Rc1 Rxc1+ 20.Bxc1 Be7 21.Bd2 Nd5
22.Nd6+
Bxd6 23.exd6 f5 24.Rxa6 Kf7 25.Ra7 Nf6 26.Bc3 Rb8 27.g3 Rb6 28.Bxf6 Kx
f6 29.Rxd7
Rxb2 30.h4 Rd2 31.Rd8 Kg6 32.Kf1 h5 33.Ke1 Rd5 34.Rd7 Rd4 35.Rd8 Kh7 3
6.Ke2 Kh6
37.Ke3 Rd1 38.d7 Kg6 39.Re8 Rxd7 40.Rxe6+ 1/2-1/2

Hiarcs

[DOCCC 2010](#), Round 7, [Hiarcs](#) - [Spark](#)

[Event "DOCCC 2010"]
[Site "Leiden NED"]
[Date "2010.11.28"]
[Round "7"]
[White "Hiarcs"]
[Black "Spark"]
[Result "1/2-1/2"]

1.e4 c5 2.Nf3 d6 3.d4 cxd4 4.Nxd4 Nf6 5.Nc3 a6 6.Be3 e5 7.Nb3 Be6 8.f3
Be7
9.Qd2 O-O 10.O-O-
O Nbd7 11.g4 b5 12.g5 Nh5 13.Kb1 Nb6 14.Na5 Qc7 15.Nd5 Nxd5
16.exd5 Bxd5 17.Qxd5 Qxa5 18.Bd3 Qd8 19.Rhg1 Rb8 20.Be4 Qc7 21.Rg4 g6
22.Qd3
Kh8 23.Bd5 f5 24.Rgg1 a5 25.a3 Qd7 26.f4 Rfc8 27.Bb3 a4 28.Ba2 Qc7 29.
c3 Bf8
30.Rgf1 Rd8 31.h4 Bg7 32.Bd5 Re8 33.Ka2 Re7 34.Kb1 Qc8 35.Ba2 exf4 36.
Bxf4
Be5 37.Be3 f4 38.Bf2 Ng3 39.Bxg3 fxg3 40.Rde1 Qh3 41.Qf3 Qf5+ 42.Qxf5
gxf5
43.Rxf5 Bxc3 44.Rxe7 g2 45.Rxh7+ Kxh7 46.g6+ Kg7 47.Rg5 Bf6 48.Rxg2 b4
49.axb4 Rxb4 1/2-1/2

See also

- [Bright](#)
- [Chispa](#)
- [Delphil's Desperado versus Spark](#)

Forum Posts

- [2009 WCRCC: Bright/Spark issue](#) by [Charles Roberson](#), [CCC](#), August 13, 2009
- [Spark released](#) by [Allard Siemelink](#), [CCC](#), November 01, 2009
- [Spark 0.3a \(mp\) released](#) by [Allard Siemelink](#), [CCC](#), January 11, 2010
- [Spark 0.4 released](#) by [Allard Siemelink](#), [CCC](#), May 23, 2010
- [Spark node count](#) by Peter C, [CCC](#), May 27, 2010
- [Spark 0.4 for Mac OSX released](#) by [Allard Siemelink](#), [CCC](#), June 14, 2010
- [Spark 1.0 released](#) by [Allard Siemelink](#), [CCC](#), December 10, 2010
- [Spark 2.0 Leiden 2011 ?](#) by [Frank Quisinsky](#), [CCC](#), October 16, 2011

External Links

Chess Engine

- [Spark Chess](#) by [Allard Siemelink](#) ([Wayback Machine](#))
- [Spark 1.0 64-bit 4CPU](#) in [CCRL 40/40](#)

Misc

- [Spark \(disambiguation\)](#) from Wikipedia
- [Spark \(mathematics\)](#) from Wikipedia
- [SPARK \(programming language\)](#) from Wikipedia
- [Spark \(cellular automaton\)](#) from Wikipedia
- [Electric spark](#) from Wikipedia
- [Spark-gap transmitter](#) from Wikipedia
- [Spark \(fire\)](#) from Wikipedia
- [Spark of Life](#) from Wikipedia
- [Spark \(Transformers\)](#) from Wikipedia
- [Spark \(U.S. organization\)](#) from Wikipedia
- [Iskra \(Spark\)](#) from Wikipedia
- [Sparks \(disambiguation\)](#) from Wikipedia
- [Hiromi Uehara](#), [The Trio Project](#), feat. [Anthony Jackson](#) & [Simon Phillips](#) - [Spark](#), (2016), [YouTube](#) Video

References

1. [^] [Spark Chess](#) by [Allard Siemelink](#)
2. [^] [2009 WCRCC: Bright/Spark issue](#) by [Charles Roberson](#), [CCC](#), August 13, 2009

3. [^] An engraving of [Benjamin Franklin's kite experiment](#), from page 159 (Fig. 82) of [Le Roy Clark Cooley \(1881\) Natural Philosophy for Common and High Schools](#).
4. [^] Interview with Allard Siemelink by [Frank Quisinsky](#), [Schachwelt](#), January 10, 2010 (dead link)
5. [^] [Downloads | Open Dutch Computer Chess Championships | Games](#)

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Page	Date Edited
Allard Siemelink	May 5, 2011
Bright	Oct 25, 2016
CCT12	Jan 28, 2018
Chispa	Feb 13, 2014
DOCCC 2010	Aug 15, 2015
DOCCC 2011	Dec 1, 2013
Engines	Mar 10, 2018
ICT 2010	Sep 14, 2015
ICT 2012	Jun 11, 2012
Spark	Oct 19, 2017
Stalemate	Feb 21, 2018
TCEC Season 5	Jun 2, 2014
TCEC Season 6	Dec 2, 2014
TCEC Season 7	Jan 23, 2015
WCRCC 2009	Jul 14, 2014

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