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[Carina nebula](#) <sup>[1]</sup>

**Nebula**, (Nebula Chess) an [UCI](#) compliant chess engine by [Dragan Zdravkovic](#), first released in November 2012. Nebula features [Chess960](#) and can probe [Nalimov Tablebases](#) with up to five pieces. Nebula had a great tournament debut at the [CCT15](#) with 4½ / 7 and 6th place out of 24, and further participated at [TCEC Season 5](#).

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## Description

Nebula, apparently a [bitboard](#) engine potentially using the [SSE4 popcnt](#) instruction <sup>[2]</sup>, is able to [search in parallel](#) on up to 16 processors. [Selectivity](#) is achieved through [null move pruning](#), [late move reductions](#), [futility pruning](#) and since Version 2.0, [singular extensions](#) <sup>[3]</sup>. The basic [evaluation](#) considers [material](#), [mobility](#), [passed pawns](#) and [king safety](#), and subsequently [piece-square tables](#), [isolated](#), [doubled](#), and [backwards pawns](#), [pawn storms](#), and [candidates](#), and [rook on open/semi-open files](#) and [7th rank](#) <sup>[4]</sup>.

## Selected Games

[CCT15](#), round 2, [Nebula](#) - [Hannibal](#) <sup>[5]</sup>

```
[Event "CCT15"]
[Site "Variant-ICS, Amsterdam, NL"]
[Date "2013.02.23"]
[Round "2"]
[White "Nebula"]
[Black "Hannibal"]
[Result "1/2-1/2"]
```

```
1.e4 c5 2.Nf3 Nc6 3.d4 cxd4 4.Nxd4 g6 5.Nc3 Bg7 6.Be3 Nf6 7.Bc4 O-
O 8.Bb3 d6
9.f3 Bd7 10.Qd2 Nxd4 11.Bxd4 b5 12.a4 b4 13.Nd5 Nxd5 14.exd5 Bxd4 15.Q
xd4 a5
16.O-O Qc7 17.Rfe1 Rfe8 18.Re2 Qa7 19.Qxa7 Rxa7 20.Rae1 Kf8 21.g4 Rc7
22.Kf2
Bc8 23.Re4 Ba6 24.h4 h5 25.gxh5 gxh5 26.Rg1 f6 27.Ke3 Rec8 28.Rg2 Bc4
29.Bxc4
Rxc4 30.Kd3 R4c5 31.Rd4 Kf7 32.f4 f5 33.Rg5 Rxc2 34.Rxf5+ Kg8 35.Rg5+
Kf8
36.Rf5+ Ke8 37.Rxh5 R8c5 38.Rh8+ Kd7 39.b3 R2c3+ 40.Ke4 Rxb3 41.Kf5 Rb
c3 42.h5
b3 43.Rd2 R5c4 44.Rb8 Kc7 45.Re8 Rc2 46.Rxe7+ Kb6 47.Rd1 b2 48.Rb1 Rf2
49.Re4
Rc1 50.Re1 Rc4 51.Re4 Rc1 52.Re1 Rc4 53.Re4 1/2-1/2
```

## See also

- [Astronomy](#)
- [Dark Horse](#)
- [Orion](#)
- [Search Instability](#)
- [Wizard](#)

## Forum Posts

- [Nebula 1.0 released](#) by [Dragan Zdravkovic](#), [CCC](#), November 30, 2012
- [Nebula 1.5 released](#) by [Dragan Zdravkovic](#), [CCC](#), January 21, 2013
- [Nebula 2.0 released](#) by [Dragan Zdravkovic](#), [CCC](#), March 12, 2013

## External Links

### Chess Enginee

- [Nebula Chess](#)
- [Nebula 2.0 64-bit 4CPU](#) in [CCRL 40/40](#)
- [Nebula 2.0 64-bit](#) in [CCRL 40/4](#) FRC

### Misc

- [Nebula from Wikipedia](#)
- [Nebula \(disambiguation\) from Wikipedia](#)
- [Nebula \(computing platform\) from Wikipedia](#)
- [Nebulae \(computer\) from Wikipedia](#)
- [McCoy Tyner - Nebula, Montreux Jazz Festival](#), July 7, 1973, [YouTube](#) Video  
[McCoy Tyner](#), [Azar Lawrence](#), [Juney Booth](#), [Alphonse Mouzon](#)

## References

1. <sup>^</sup> Composed of gas and dust, the pictured pillar resides in a tempestuous stellar nursery called the [Carina Nebula](#), located 7500 light-years away in the southern constellation of [Carina](#), [Hubble's Wide Field Camera 3](#) observed the Carina Nebula on July 24-30, 2009. The composite image was made from filters that isolate emission from [iron](#), [magnesium](#), [oxygen](#), [hydrogen](#) and [sulphur](#), September 09, 2009, source: [HubbleSite - NewsCenter - Hubble Opens New Eyes on the Universe \(09/09/2009\) - Release Images](#), Author: [NASA](#), [ESA](#), and the Hubble SM4 ERO Team. [Nebula from Wikipedia](#)
2. <sup>^</sup> [Re: Nebula 1.0 released](#) by [Dragan Zdravkovic](#), [CCC](#), December 01, 2012
3. <sup>^</sup> [Re: Nebula 2.0 released](#) by [Dragan Zdravkovic](#), [CCC](#), March 13, 2013
4. <sup>^</sup> [Nebula Chess](#)
5. <sup>^</sup> [CCT15 Results, Download](#)

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