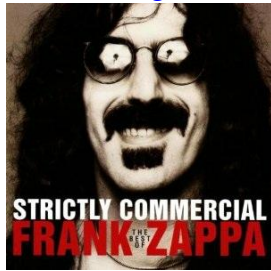


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**Zappa,**

a world class [UCI](#) compliant chess program developed by [Anthony Cozzie](#). Zappa won the [WCCC 2005](#) in [Reykjavík](#) <sup>[1]</sup>, and after the [Rybka disqualification](#) in 2011 the [WCCC 2007](#) in [Amsterdam](#), the [DOCCC 2005](#) and [CCT7](#). During the [World Chess Championship 2007](#) in [Mexico City](#), September 2007, Zappa played a [match](#) versus [Rybka](#) and scored 5.5 / 10 to win the match <sup>[2]</sup> [\[3\]](#) [\[4\]](#). Zappa's book authors for different events were [Arturo Ochoa](#) ([CCT7](#)) and [Erdogan Günes](#) <sup>[5]</sup>.

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## Photos

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[Anthony Cozzie](#) before round 7, Zappa - [Junior](#), [WCCC 2005](#) <sup>[10]</sup>



Zappa Team, [Anthony Cozzie](#) and [Erdogan Günes](#), Closing Dinner [WCCC 2006](#), [Turin](#)

## Genealogy

Zappa is not directly named for [Frank Zappa](#), but from a scene from [Austin Powers 2](#), where [Dr. Evil's](#) base in the moon is divided in two units: Moon Unit Alpha and Moon Unit Zappa - the latter being the name of Frank Zappa's daughter, [Moon Unit Zappa](#) <sup>[11]</sup>.

## Strictly Commercial

Immediately after the successful [WCCC 2005](#), there were plans to commercialize Zappa. First attempts with [Vincent Diepeveen](#) involved failed <sup>[12]</sup>. In April 2006 <sup>[13]</sup>, a commercial version dubbed **Zap!Chess** running under the [Fritz GUI](#) was released by [ChessBase](#) <sup>[14]</sup>. The version which played the Rybka match, Zappa Mexico, is distributed by [Stefan Meyer-Kahlen](#) <sup>[15]</sup>.

Quote from *No Commercial Potential : The Saga of Frank Zappa (1972)* by David Walley, p. 4 <sup>[16]</sup> <sup>[17]</sup> <sup>[18]</sup> :

Information is not knowledge  
Knowledge is not wisdom  
Wisdom is not truth  
Truth is not beauty  
Beauty is not love  
Love is not music  
Music is the best

## Program Internals

### Board Representation

Zappa utilizes [bitboards](#) and uses [rotated bitboards](#) to generate [sliding attacks](#) on the fly. Anthony once experimented with [incremental updated attack tables](#), which was a win on 32-bit systems <sup>[19]</sup>.

## Hash Collisions

Excerpt from *The Effect of [Hash Signature Collisions](#) in a Chess Program*, that is [Crafty](#) and Zappa <sup>[20]</sup>: Both programs are traditional computer chess programs that use the [alpha/beta algorithm](#) to search a [minimax game tree](#). The search is done in three distinct phases.

Phase 1 is the normal full-width search that is done to some fixed [depth](#) as limited by the total time allowed for a move. This fixed-depth search is modified by various [search extensions](#).

Phase 2 is an add-on search done after the basic search has reached a satisfactory depth. Phase 2 only considers [captures](#) in Crafty, while Zappa also includes some [checking](#) moves.

Phase 3 is the [static evaluation](#), which takes the current position after phase 2 has completed, and computes a numerical score based on the [material](#), the [locations of the pieces](#), [pawn structure](#), and many other positional considerations. In Crafty/Zappa, all of the [hashing](#) is done in phase 1 of the search, there is no hashing in the [quiescence search](#).

## Singular Extensions

Zap!Chess, the commercial [ChessBase](#) version, has an implementation of [Singular Extensions](#), the famous [Deep Blue](#) search algorithm. They are disabled by default, but they increase the tactical strength of the program at the cost of positional strength <sup>[21]</sup>.

## Parallel Search

Zappa was designed to run on multiple processors and massive parallel systems using [shared memory](#) and [threads](#) and has an efficient [parallel search](#) <sup>[22]</sup>. Zappa Mexico can be used on [Windows](#) or [Linux](#) computers with up to 512 CPU cores.

## 100% Finished

In March 2008 Anthony Cozzie announced that "the Zappa project is 100% finished", which includes both tournaments and future releases [\[23\]](#) .

## Rondo

In 2010, [Zach Wegner](#) started to work with [Anthony Cozzie](#), who, still in computer chess retirement, has given control for further development of his massive parallel program, now called [Rondo](#), to Zach [\[24\]](#) [\[25\]](#) .

## See also

- [Arthropod](#)
- [Astronomy](#)
- [Fish](#)
- [Frank Zappa Videos](#)
- [Rondo](#)

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- The Editor (2005). *ZAPPA Wins the Computer-Chess Tournament 7*. [ICGA Journal, Vol. 28, No. 2](#) » [CCT7](#)
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Chapter 9: 2005: Zappa Red Hot at 13th WCCC, page 119

Chapter 14: 2007: Zappa Upsets Rybka in Mexico City, 5.5–4.5, page 169

## Forum Posts

### 2003

- [Zappa CCT5 Report](#) by [Anthony Cozzie](#), [CCC](#), January 21, 2003 » [CCT5](#)

## 2004

- [Zappa @ CCT6](#) by [Anthony Cozzie](#), [CCC](#), February 01, 2004 » [CCT6](#)
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- [Diep-Zappa](#) by [Anthony Cozzie](#), [CCC](#), August 21, 2005
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- [What is the secret of Zappa?](#) by [Frank Quisinsky](#), [CCC](#), September 11, 2016

## External Links

### Zappa Chess

- [Zappa Chess Engine](#)
- [Zappa's ICGA Tournaments](#)
- [Zappa \(chess\) from Wikipedia](#)
- [The chess games of Zappa \(Computer\) from chessgames.com](#)
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- [Anthony Cozzie - Zap Chess: 49,99 Euro - Chess program](#) - [Schach Niggemann](#)
- [Zappa Mexico](#) from [shredderchess.com](#)
- [Zappa Mexico II available now](#) from [shredderchess.com](#)

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- [Frank Zappa - Illinois Enema Bandit](#) <sup>[28]</sup>, [YouTube](#) Video  
[Frank Zappa](#), [Ray White](#), [Steve Vai](#), [Tommy Mars](#), [Bobby Martin](#), [Ed Mann](#), [Scott Thunes](#), [Chad Wackerman](#)
- [Frank Zappa - Whippin' Post](#), live at "The Pier", New York City, 26th August 1984, [YouTube](#) Video  
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