
Searching the WWW for SPICE and IBIS Models



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Presentation Outline

- **Searching (Overview)**
 - **Searching (an Alternative)**
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Searching <http://www.eigroup.org/ibis/>

Advantages:

- ☐ Free links
- ☐ Most IC vendors have links



Disadvantages:

- ☐ No model searching
 - must search within vendor site to locate the model
 - ☐ Models may not be validated
 - ☐ Links are sometimes broken or missing
 - ☐ Some sites require customer login
 - ☐ Model may be for wrong package or voltage
 - ☐ Part number may not match .ibs file name
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Example: IBIS Searching with Google

Google search: ".ibs"

Returns: 3.9 million hits

And the top page is:

Irritable Bowel Syndrome!

(That wasn't what I was looking for...)

IBIS Searching with Google

Advantages:

- ☐ Searching is free!
- ☐ Extremely fast
- ☐ Finds Web site with 95% success (assuming it exists)
- ☐ Finds model with 75% success (assuming it exists)
- ☐ Roughly 10% of available models cannot be found

Disadvantages:

- ☐ Models may not be validated
 - ☐ Some sites require login - Google cannot search the site
 - ☐ Some sites lock out search engines or do not have correct search terms in .html headers
 - ☐ Can't search inside model files
 - ☐ May not find models if file name does not match part number
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Example: IBIS Searching with Google

Example 1: IDT, PCI, DMA controller

Search: 79RC32V334-100BB IBIS

Returns: Link to product page; bottom of page has link:

title: [79RC32334 IBIS Model](#)

But the actual link is:

<http://www1.idt.com/pcms/getDoc.taf?docID=6316>

Result: Google did not actually find the model; however, with about 20 seconds of looking, the model link was found. There was no .ibs file to download, but the IBIS text can be highlighted and copied to an editor, then saved (adds about 30 seconds of work).

About 1 minute to retrieve the model.

Running IBISCHK adds 1 minute (run and view).

- ibischk4 found 1 error and 30 warnings

Example: IBIS Searching with Google

Example 2: Fairchild, quad differential buffer

Search: fin1031m ibis Fairchild

Returns: Link to product page; middle of page has links to .ibs model for each package type:

http://www.fairchildsemi.com/models/email_model_file.jsp?file=fin1031m_300.ibs

Result: Google did not actually find the model; however, within 15 seconds a link can be found for the model, but it goes to another page where an e-mail address is required to request the model. You must also create a separate e-mail for each model, even just for different package types. No .ibs files to directly download, but fast e-mail response provided the model within 20 seconds.

About 1 minute to retrieve the model.

Running IBISCHK adds 1 minute (run and view).

- ibischk4 found 1 error and 6 warnings

Example: IBIS Searching with Google

Example 3: Philips part number using Google

Search #1: 74LVC* ibis philips (returned empty)

Search #2: 74LVC1G04 ibis philips (returned five hits)

Returns: First pick goes directly to the model:

<http://www.standardproducts.philips.com/support/ibis/lvc1g/ibs/lvc1g04.ibs>

Result: Google did not find the model family but did bring up the exact part number.

Nice work Philips!

About 15 seconds to retrieve the model.

Running IBISCHK adds 1 minute (run and view).

- ibischk4 found 0 errors, 0 warnings

Example: IBIS Searching with Google

Example 4: Motorola Power PC

Search: MPC7457 IBIS (returned 100 hits; it's FreeScale now, but Google found it anyway)

Returns: First pick goes to the part data:

Result: Scroll down 10 pages and you finally see ibis data; there are 9 parts to choose from. Opened several models to see what the differences are.

Google found the page with real ibis models.

IBIS models were directly available, but a complex search required looking inside each file.

Note: IBIS file names were different than part numbers.

Nice site by FreeScale; complex search slowed it down

About 12 minutes to retrieve the model.

Running IBISCHK adds 1 minute (run and view).

- ibischk4 found 1 error and 12 warnings

SPICE Searching

- ❑ SPICE models are equally difficult to locate (maybe harder)
 - SPICE has no standard file extensions, which can add to searching problems
 - File extensions include .mod, .cir, .spi, and .txt; and files are sometimes a .zip file

 - ❑ Spice models have no standards-based validation tool like ibischk4
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Example: SPICE Searching with Google

Example 5: National LMC6081 CMOS op-amp

Search: LMC6081 SPICE (returned 52 hits)

Returns: First pick goes directly to the part data

Result: Scroll down 1 page and with a bit of looking the direct link to the .mod SPICE model is found

Nice work National Semiconductor!

About 30 seconds to retrieve the model.

No validation method other than simulation.

Is there an Alternative?



- ❑ Is there an alternative to the hassle of wading through Web sites searching for models?
- ❑ Is there an alternative to downloading models, only to find out that they have serious defects?

Minutes can easily turn into hours, finding models and validating them

And note: As a bad model propagates farther into the design process, the cost to fix the problem increases exponentially

~ A "Better Bird House" ~ for IBIS & SPICE



Yes: a Web site could be created that specializes in searching for simulation models:

- ☐ Free searching
 - ☐ A specialized search engine
 - (with Google-like speeds)
 - ☐ Models found in seconds instead of minutes
 - ☐ Auto-login and retrieval from sites that require login
 - Will IC vendors embrace this?
 - ☐ (vendors would still get customer information)
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www.findsim.com

- ❑ Model validation results displayed with search results
 - Model checks are run previously (zero hassle)
 - ❑ Selected device parameters and part numbers from inside files could be searchable
 - ❑ Selected device parameters from inside the file could be displayed with search results
 - ❑ Site statistics:
 - Total number of models indexed
 - Total number of models validated
 - Total number of models invalidated
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www.FindSim.com (Preview)

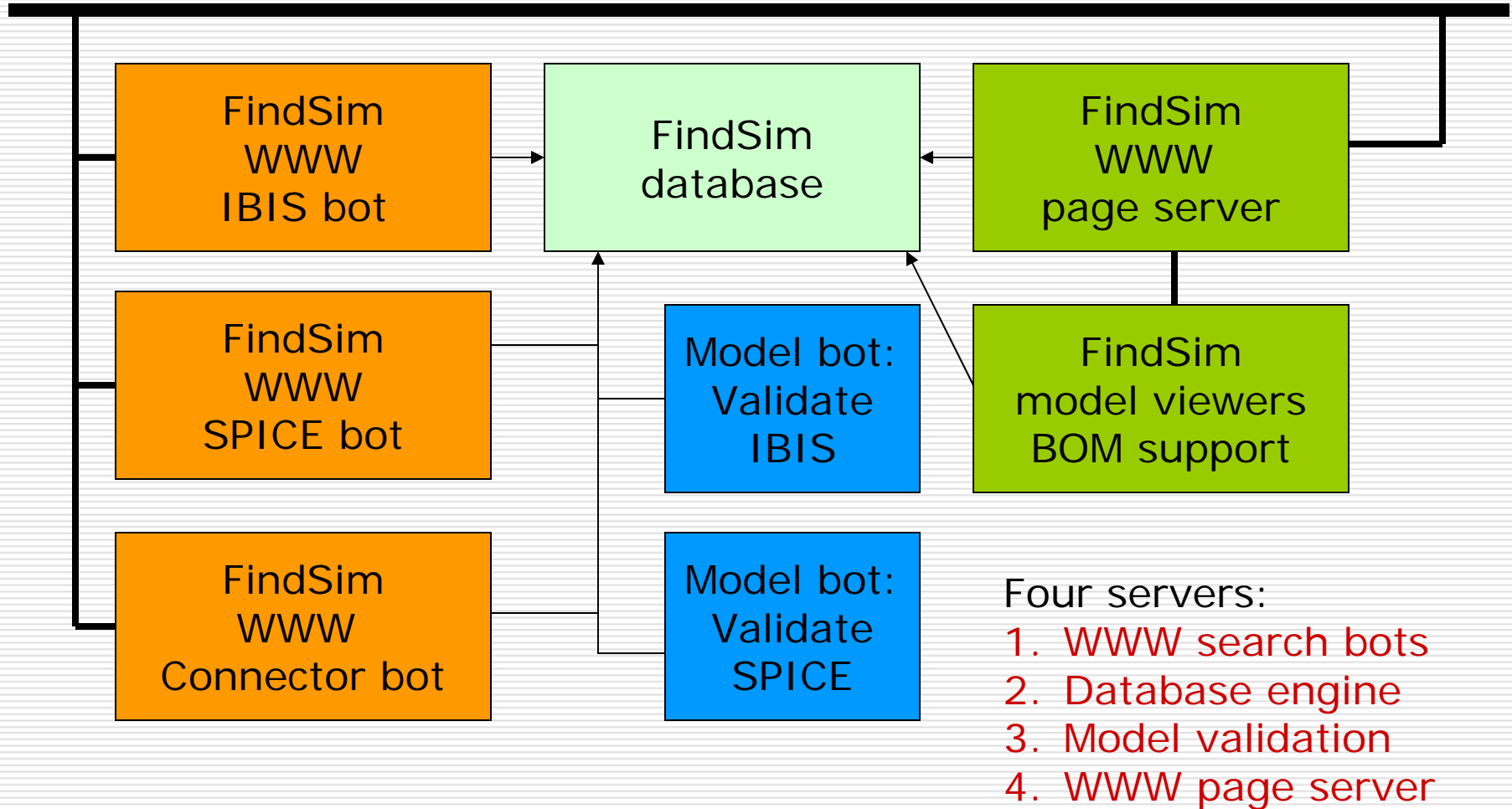
<p>www.FindSim.com™ Find Simulation Models 10x faster than Google! <i>This site works best with your browser security at "medium".</i></p>		
<p>File Type:</p> <p><input type="checkbox"/> IBIS <input type="checkbox"/> SPICE <input type="checkbox"/> TouchStone <input type="checkbox"/> PDF</p>	<div><input type="text"/><input type="button" value="Search"/></div> <div><div>Vendor <input type="text"/></div><div>Package <input type="text"/></div><div>Voltage <input type="text"/></div></div> <div><input type="button" value="Help"/> Advanced Search</div>	<p>This site supported by:</p>
	<p>Login Required for Private Models or Advanced Features:</p> <div><input type="text"/><input type="button" value="Login"/><input type="button" value="New User"/></div>	<p>Platinum Level (rand 4x)</p>
		<p>Silver Level (rand 16x)</p>

www.findsim.com

Possible advanced features might include:

- ☐ Web-based model viewers?
 - ☐ Improved IBIS validation?
 - Not just the committee checker
 - ☐ SPICE model validation?
 - ☐ User-contributed models?
 - ☐ IBIS wrappers for SPICE Models?
 - Package, pins->models
 - ☐ Bill-of-material support?
 - ☐ Connector-model searching?
 - Including Touchstone models
 - ☐ Model tune-up routines (auto-fix common problems)?
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FindSim Architecture



If We Make It, They Might Come?

- The basic site could be running in 3-6 months

***Consider:
Would YOU or your
customers use FindSim?***

Status

1. CelsioniX started work on a prototype in December 2004.
 2. Fast database and GUI servers must be leased before the site can be deployed for users.
 3. We need your feedback to determine if there is sufficient financial support for this project before we commit to the development process and leasing the servers.
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Who Pays for the “Free Service”?

1. Side-bar advertising for IC and EDA companies that wish to have links
2. Fee-based direct connections from EDA tools to the FindSim search engine
3. Grants from IC vendors and large corporations
4. Software donations, (esp. IBISCHK)
5. Small Google and Yahoo advertising feeds

SPICE AND IBIS users are a small community on the WWW

We Need Your Help

1. Contributions of Web-based software for model display
 2. Web links from IC and EDA vendor sites
 3. Permission to automatically log in to sites that require it
 4. If you are an end-user and have in-house software for model validation, please consider contributing it
 5. We request that the IBIS committee donate an IBISCHK source-code license
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We Need Your Help to Launch FindSim

6. If you are an end user or developer of models, please consider a grant for this project
7. If you work at an IC or EDA company, please ask marketing to contact us

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