

Introduction

Intersil provides a powerful web-based simulation tool called iSim™. This software package gives the user a web based tool for designing and simulating various circuits used in Power Management and Op-Amp applications. The simulation results provide a good baseline analysis of a device's in-circuit performance. To compliment iSim, Intersil's interactive simulation tool offers an offline, more robust, fully realized simulation package called iSim:PE (Personal Edition). This document details the steps for a first time user to download, install, and initialize the simulator on a personal computer. Although the steps documented were performed on a computer running the Windows® XP operating system, these steps should be similar on any computer that meets the system requirements of the installed software (see Figure 5).

iSim Access and Registration

The iSim simulation tool is accessible from Intersil's home web page at www.intersil.com under "iSim Online Design Simulation" or by going directly to the iSim home page at <http://www.intersil.com/iSim>. Figure 1 is a snap shot of the iSim landing page, first time users of this system will need to complete a brief registration. Those with existing accounts

can log in if they are not using the registered computer. Both the Login and Register links are on the upper right portion of the page next to the search window (refer to Figure 1).

Note: The presence of pop-up blockers in the browser interface may interfere with the registration process. If a pop-up blocker is installed, and the registration process is impeded, simply disable the pop-up blocker during the registration process and then enable it again after registration is complete.

Utilizing iSim Online

Once logged in, the browser will be directed back to the iSim home page, which has been modified as part of an all-system upgrade. The number of sub-categories under Power Management and Operational Amplifiers has been increased to help the user build more application specific designs. Select any of the applications and enter the desired input and output specifications in the Solution Selector fields. Then click the Search button, a list of devices that meet the specifications will be generated in a table of ICs which meet the initial conditions specified (see Figure 2). If no solutions were generated from the first sort, the user will be prompted to adjust their inputs. Then resubmit.

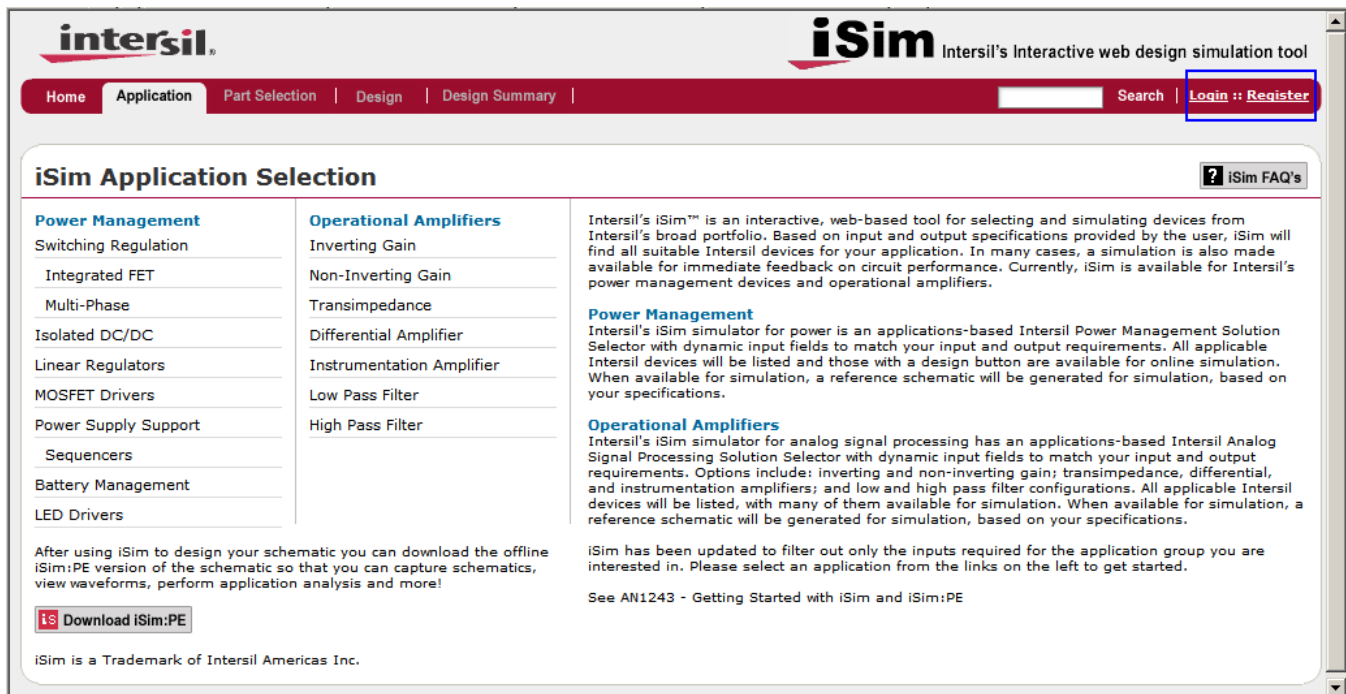


FIGURE 1. iSim HOME PAGE








iSim	Device	Description	Control Mode	UVLO Rising (V)	UVLO Falling (V)	VBIAS (max) (V)	No-Load Operating Current (mA)	PWM Outputs	Max Duty Cycle (%)	Package(s)
	ISL6401	Synchronizing Current Mode PWM for Subscriber Line Interface Circuits (SLICs)	Peak Current Mode	4.1	3.6	7	3.7	1	50	View All
	ISL6721	Flexible Single Ended Current Mode PWM Controller	Peak Current Mode	8.25	7.7	20	4.5	1	100	View All
	ISL6842	Improved Industry-Standard Single-Ended PWM Controller	Peak Current Mode	14.4	8.8	20	2.3	1	100	View All
	ISL6843	Improved Industry-Standard Single-Ended PWM Controller	Peak Current Mode	8.4	7.6	20	2.3	1	100	View All
	ISL6844	Improved Industry-Standard Single-Ended PWM Controller	Peak Current Mode	14.4	8.8	20	2.3	1	50	View All
	ISL6845	Improved Industry-Standard Single-Ended PWM Controller	Peak Current Mode	8.4	7.6	20	2.3	1	50	View All
	ISL6740	Flexible Double-Ended Voltage-Mode PWM Controller	Voltage Mode	7.25	6.75	20	5	2	100	View All
	ISL6740A	Flexible Double-Ended Voltage-Mode PWM Controller with Voltage Feed Forward	Voltage Mode	7.25	6.75	20	5	2	100	16 Ld TSSOP
	ISL6741	Flexible Double-Ended Peak-Current-Mode PWM Controller	Peak Current Mode	7.25	6.75	20	5	2	100	View All
	ISL6742	Advanced Double-Ended PWM Controller with Synchronous Rectifier Control and Average Current Limit	Voltage, Peak Current, or Average Current Mode	8.75	7	20	5	4	100	16 Ld QSOP

FIGURE 2. SORTABLE PRODUCT SELECTION TABLE

Click on the  icon next to a device number shown in the table of solutions in order to launch the online simulator iSim. The schematic for the selected reference design is automatically loaded. The simulator features a schematic that is interactive, for example the user can change the values of some components. In all cases, AC analysis in the form of a Bode Plot is available. Steady-State and Transient Response analyses are also available. New features added in the upgrade include:

1. Re-Design tab that allows you to change the input and output specifications without the necessity to start over.
2. Links to Samples, Evaluation Board (if available), downloadable BOM, and Intersil's iBuy Direct (see Figure 3).
3. Design summary page with schematic, user's note, simulation results, BOM, and a PDF link that will allow you to save and/or print (see Figure 4).

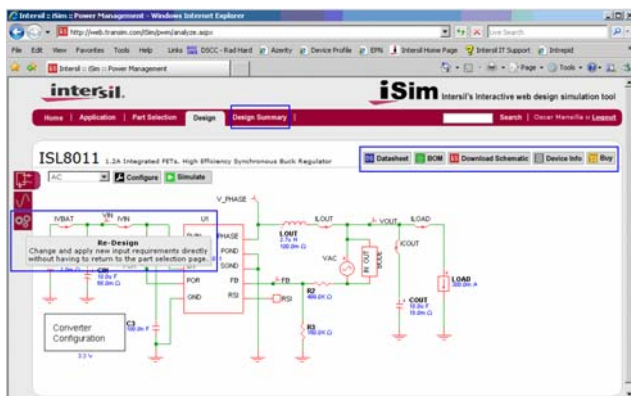


FIGURE 3. DESIGN SCHEMATIC PAGE

iSim:PE Download and Installation

As previously mentioned, iSim is a web-based tool, hosted on a remote server. Therefore the user's control over the schematic is somewhat restricted to keep the simulation in real time. However, the locally installed simulator iSim:PE offers a much more robust simulation environment. The link to download iSim:PE is located in the iSim home page and the new design summary page (See Figures 1 and 4).

Clicking on the icon opens a window that lists the system requirements for the software, as well as a short list of installation instructions (See Figure 5). The software downloaded is the installer executable. In the unlikely event that the simulator becomes corrupted during use, the user can reinstall the software from the local installer executable.

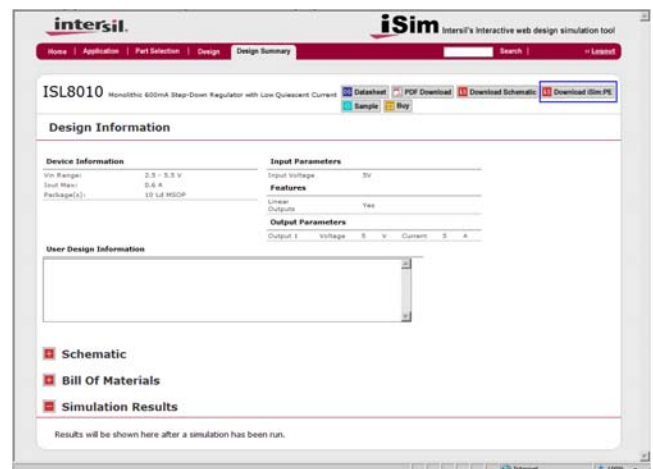


FIGURE 4. DESIGN SUMMARY PAGE



FIGURE 5. iSim:PE SYSTEM REQUIREMENTS

Pay close attention to the system requirements, as this tool will not properly install on systems running pre Windows 2000 or Windows NT operating systems. Also note the software will not install on non-Windows based platforms. Click on the download link again, and a standard download window pops up. Select Save and download the executable file. The file size is roughly 12MB, so download time should be short on most systems. Make sure to note the location of the download. Close the install window once the download is complete. Open Windows Explorer and navigate to the executable file. Double click the file to initiate the install wizard. The computer will not have to be restarted in order to complete the install. The first window contains the licensing agreement. The second window will prompt the user for a customer name and company name. The third window (See Figure 6) provides the user with a suggested file location. Either accept the default location (recommended), or choose a different location and click Next.

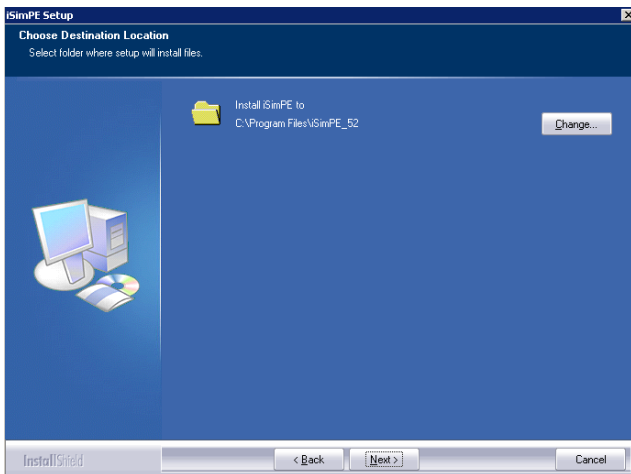


FIGURE 6. DEFAULT iSim:PE FILE CREATED AT INSTALL

At this point, the bulk of the installation takes place. Once the installation is complete, an iSim:PE icon should be located on the menu found under the Start button.

During the first activation of iSim:PE a window opens that refers to the file extension used for the schematics. The simulator uses a *.sxsch file extension for the schematics. This file extension is most likely not used by any other applications on the computer, and the user is asked if this file extension should always be associated with iSim:PE. Select yes, unless there are known conflicts such as the presence

of SIMetrix/SIMPLIS® software on the same system. This is the software platform for iSim:PE, and the same file extension is used for both. In this special case, the user could use the automatic file extension association but must note that SIMetrix/SIMPLIS® *.sxsch files will not be able to run in iSim:PE. Instead, the schematic files must be opened from within the iSim:PE Command Shell. Once the iSim:PE command shell window opens (Figure 7), iSim:PE is now successfully downloaded, installed, and initiated.

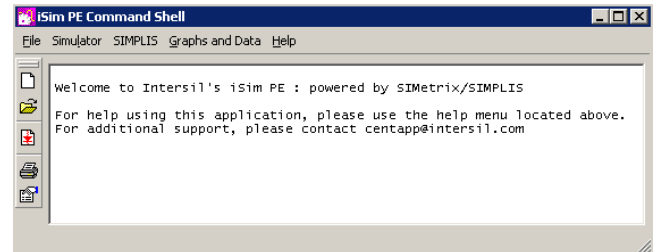


FIGURE 7. iSim:PE COMMAND SHELL

Schematic Download for iSim PE

The link to download a schematic from iSim to iSim:PE is located on the Design Schematic page, in the tool bar on the upper right of the schematic (See Figure 3). It is only necessary to download iSim:PE once for use with any of the simulations, whether they are from the Power Management or Operational Amplifier side of iSim. The simulator package is the same for all models. Click on the link to download the schematic. When the download window opens, take notice of the download location for the schematic. Either use the prompted location, or choose a different location. Once the file is downloaded, close the download window. Open the iSim:PE command shell (if it is not already open), and select File > Open Schematic. Then select the schematic from the menu. It should be display in a new window. At this point, the user is ready to begin simulations. For more information on the use of the simulator itself, consult the Help menu on the Command Shell menu bar.

There is an important relationship between iSim online and iSim:PE. When a schematic is pulled down from iSim to iSim:PE, the initial conditions for some of the passive components are downloaded as well. The online simulation is in a quiescent or idle mode, and the device model assumes the circuit is powered up and ready for analysis. If a change is made to the schematic in iSim, it is possible that the initial conditions for the circuit change. Therefore it is necessary to capture that change for download to iSim:PE. To ensure that the model is properly encoded, it is necessary to execute the online simulation before the schematic is downloaded for use in iSim:PE.

Intersil Corporation reserves the right to make changes in circuit design, software and/or specifications at any time without notice. Accordingly, the reader is cautioned to verify that the Application Note or Technical Brief is current before proceeding.