

**USP - ICMC - SSC**  
**SCE 0703 (PISE) - 2o. Semestre 2008**

**Quartus II Versão 8.0 - TUTORIAL**

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**Quartus II Versão 8.0 - TUTORIAL**



Icon	Module Title	Duration
	Module 1: Quartus II Introduction	(5 minutes)
	Module 2: Create a Design	(30 minutes)
	Module 3: Compile a Design	(40 minutes)
	Module 4: Run Timing Analysis	(40 minutes)
	Module 5: Run Timing Simulation	(30 minutes)
	Module 6: Configure a Device	(20 minutes)
	Module 7: Advanced Topics	(20 minutes)

## Quartus II Versão 8.0 - TUTORIAL

**QUARTUS II INTERFACE**

> Main Window

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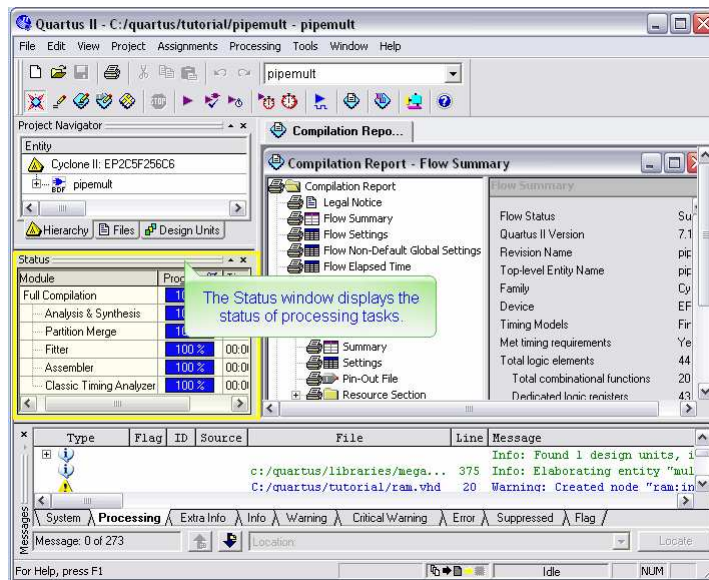
## Quartus II Versão 8.0 - TUTORIAL

**QUARTUS II INTERFACE**

> Project Navigator

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## Quartus II Versão 8.0 - TUTORIAL

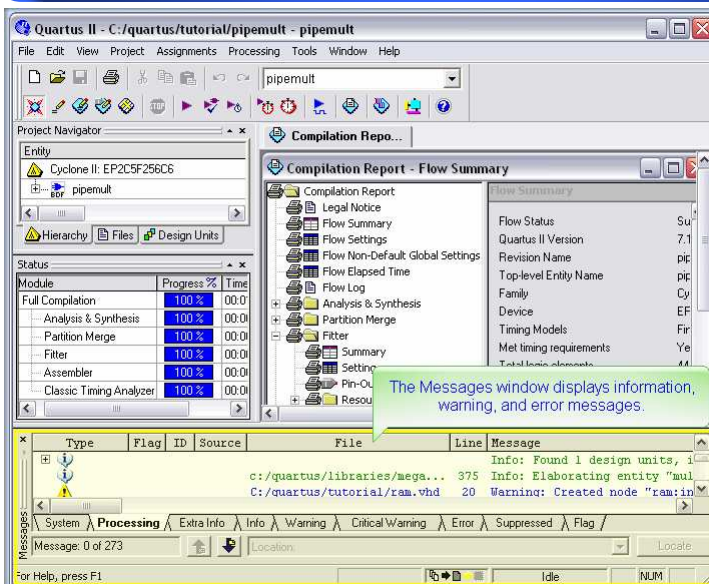


QUARTUS II  
INTERFACE

> Status  
Window

5  
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## Quartus II Versão 8.0 - TUTORIAL



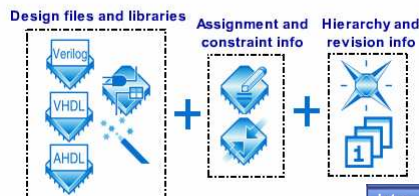
QUARTUS II  
INTERFACE

> Messages  
Window

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## Quartus II Versão 8.0 - TUTORIAL

### Quartus II Projects include:



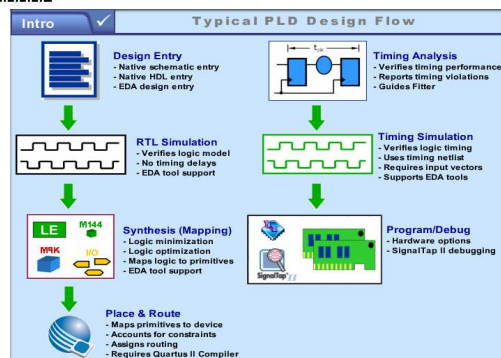
### QUARTUS II

#### > Projects:

QPF - Quartus Project File  
 QSF - Quartus Settings File

#### > Wizard

Helps to Create new projects

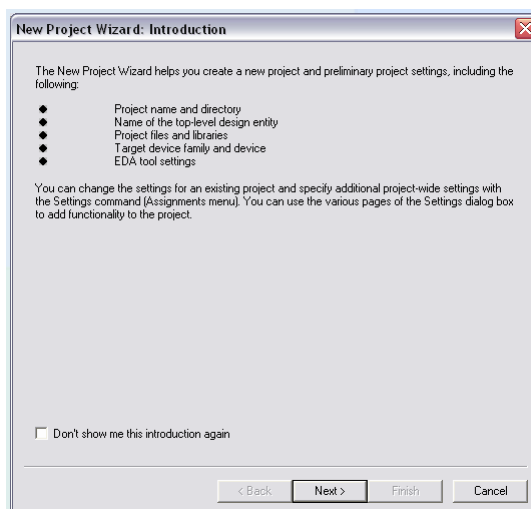


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## Quartus II Versão 8.0 - TUTORIAL

### QUARTUS II - Wizard: Helps to Create new projects



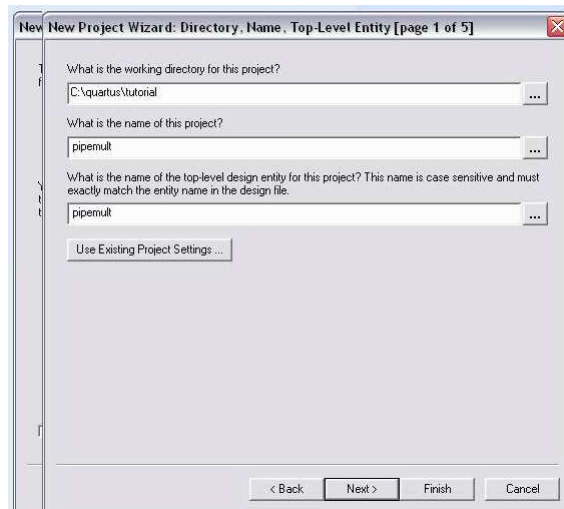
8

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New Project Wizard

## Quartus II Versão 8.0 - TUTORIAL

### QUARTUS II - Wizard: Helps to Create new projects



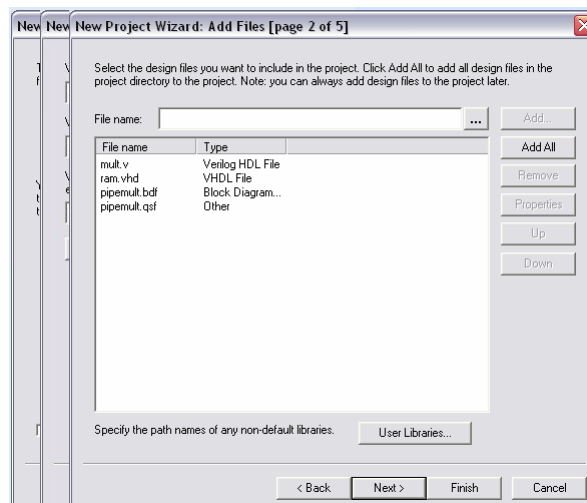
Project Name and  
Working Directory

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## Quartus II Versão 8.0 - TUTORIAL

### QUARTUS II - Wizard: Helps to Create new projects



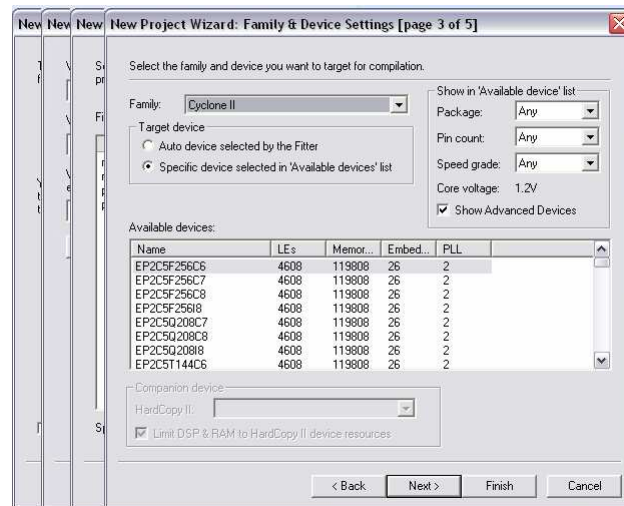
Add Files and Libs

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### QUARTUS II - Wizard: Helps to Create new projects



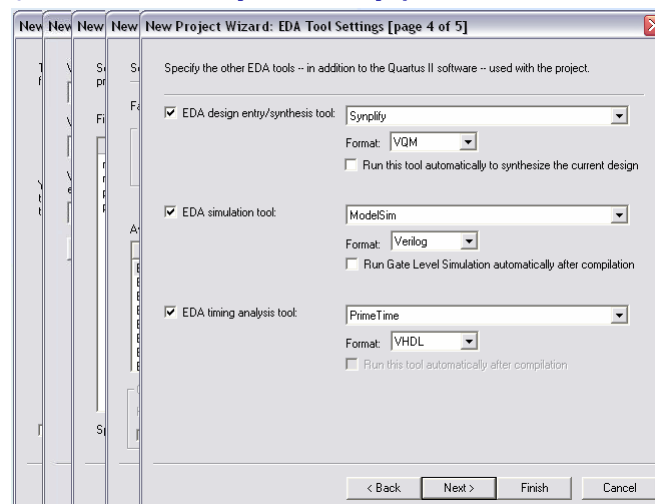
11

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Target Altera Device

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### QUARTUS II - Wizard: Helps to Create new projects



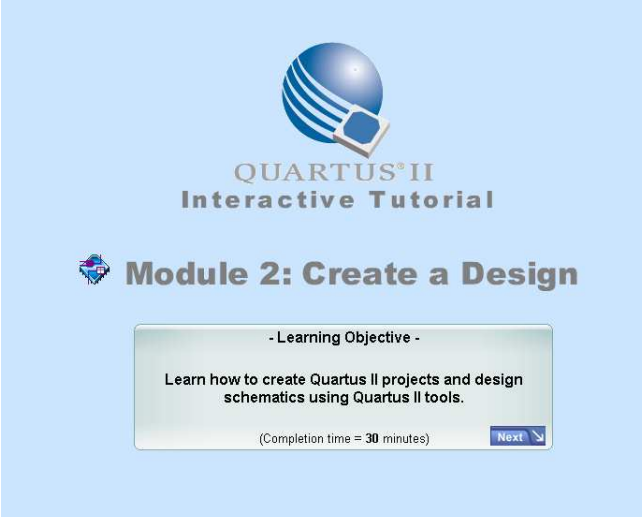
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EDA Tool Settings

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### QUARTUS II - Create a Design



The screen displays the Quartus II logo at the top, followed by the text "QUARTUS® II Interactive Tutorial". Below this is a small icon and the title "Module 2: Create a Design". A central box contains the learning objective: "Learn how to create Quartus II projects and design schematics using Quartus II tools." Below the objective, it states "(Completion time = 30 minutes)" and a "Next" button with a dropdown arrow.

**QUARTUS® II**  
**Interactive Tutorial**

**Module 2: Create a Design**

- Learning Objective -

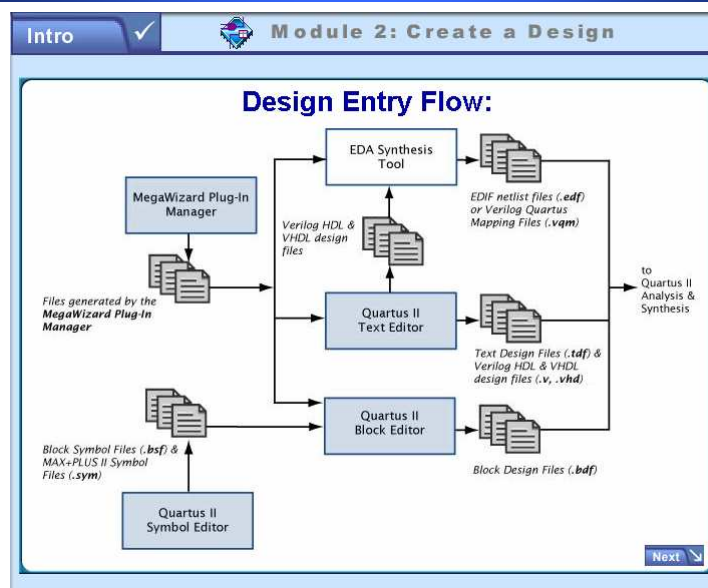
Learn how to create Quartus II projects and design schematics using Quartus II tools.

(Completion time = 30 minutes) **Next** ▾

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## Quartus II Versão 8.0 - TUTORIAL



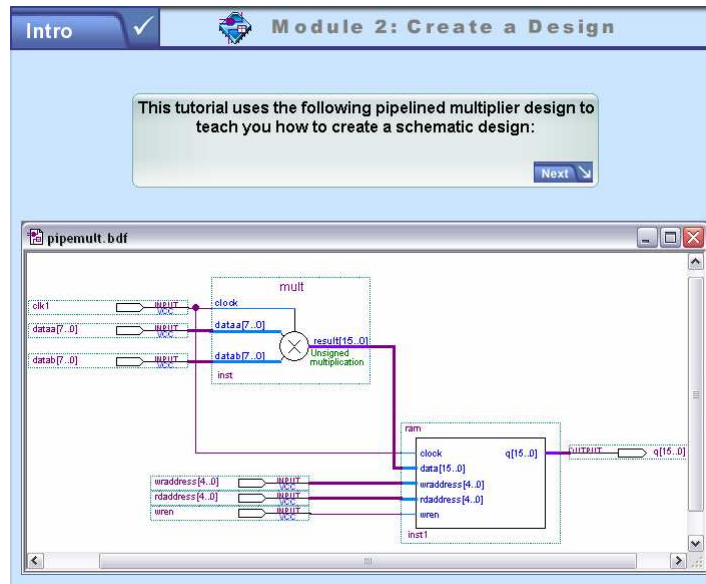
14

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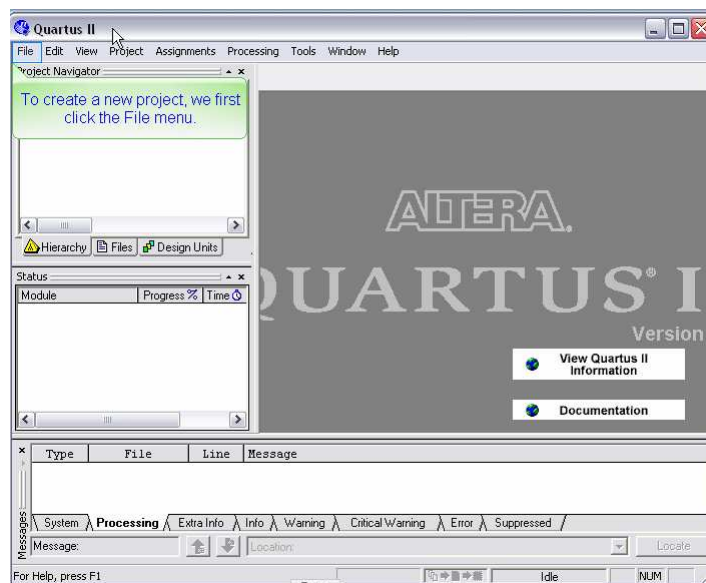
## Quartus II Versão 8.0 - TUTORIAL

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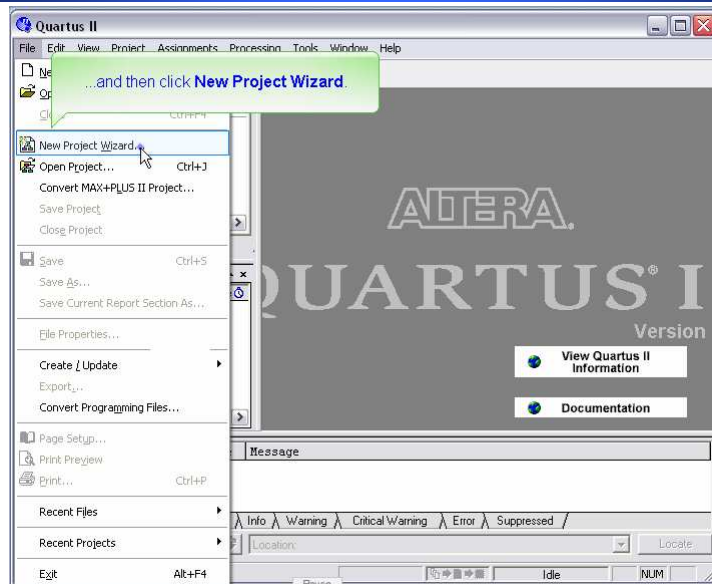
## Quartus II Versão 8.0 - TUTORIAL

16  
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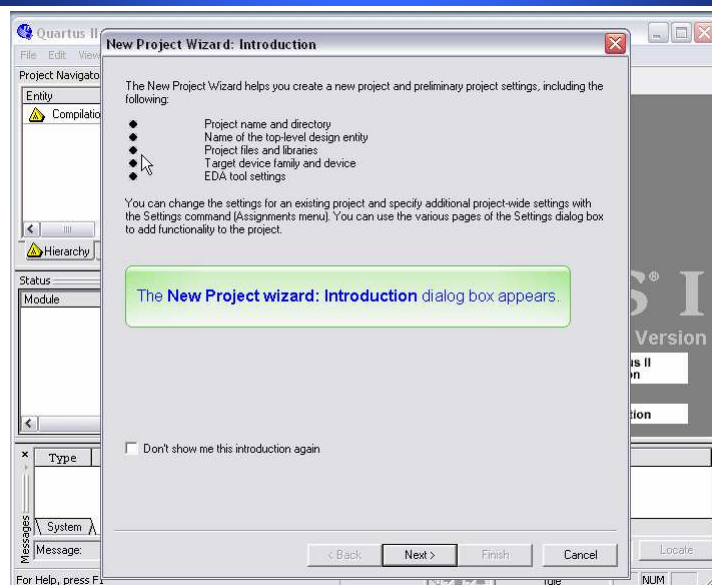
## Quartus II Versão 8.0 - TUTORIAL



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## Quartus II Versão 8.0 - TUTORIAL

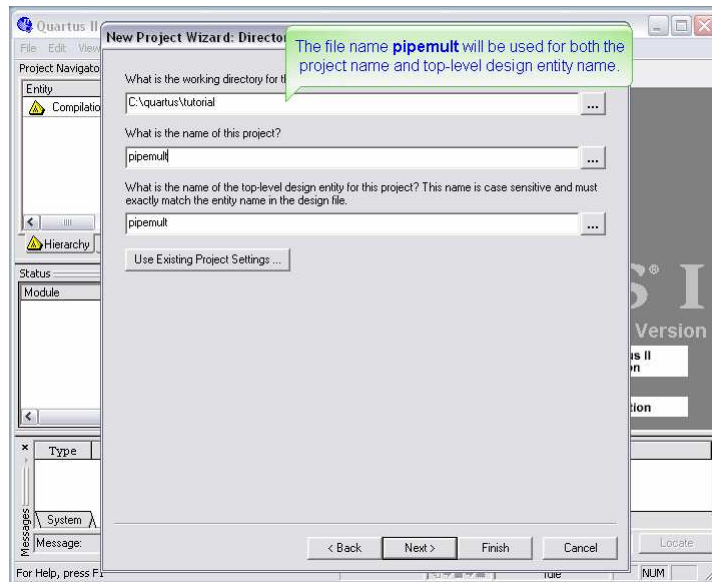


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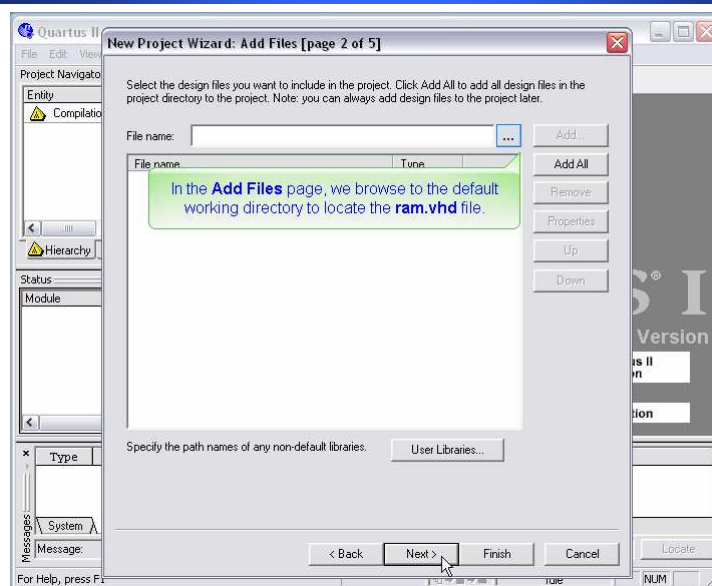
## Quartus II Versão 8.0 - TUTORIAL

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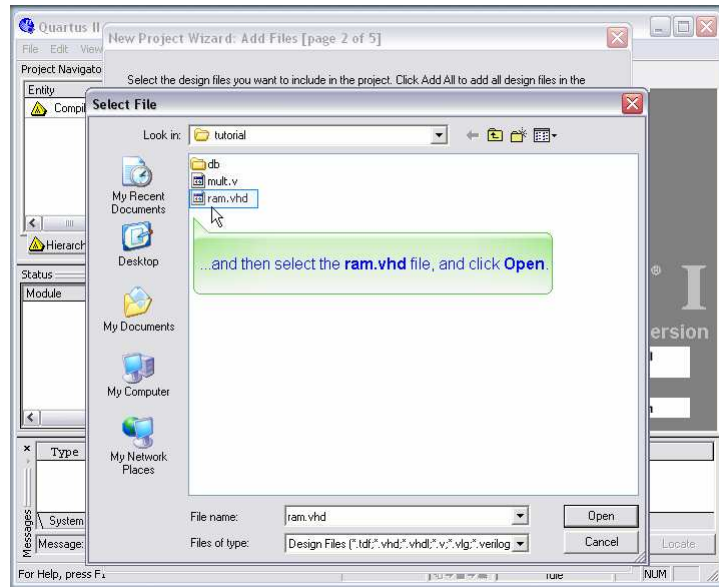
## Quartus II Versão 8.0 - TUTORIAL

20  
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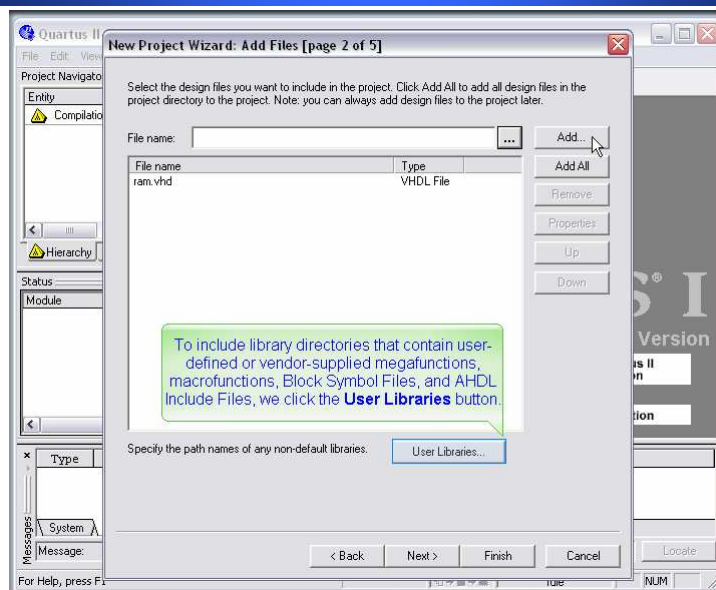
## Quartus II Versão 8.0 - TUTORIAL

21  
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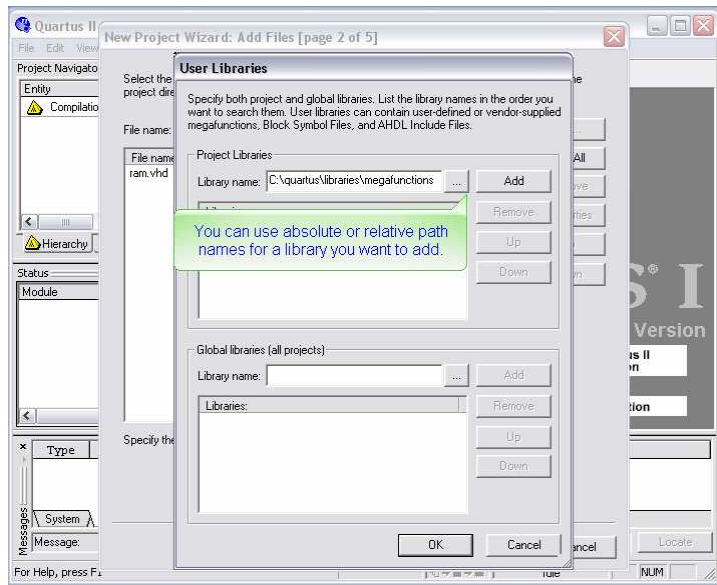
## Quartus II Versão 8.0 - TUTORIAL

22  
 Agosto 2008



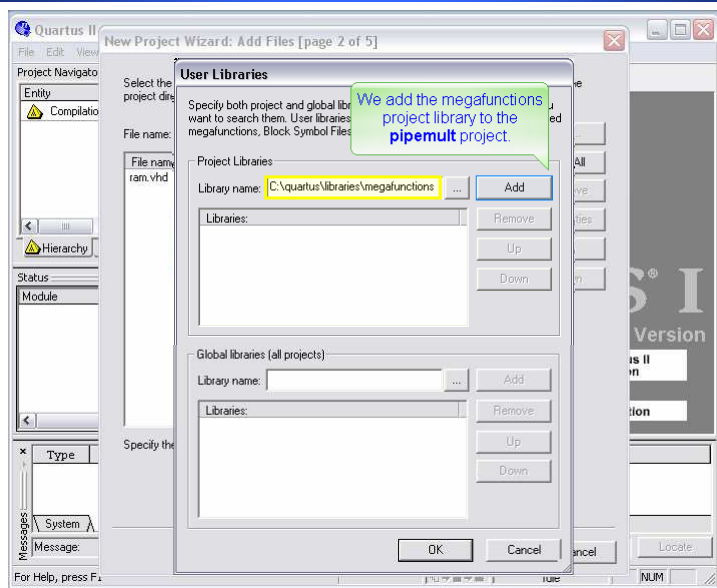
## Quartus II Versão 8.0 - TUTORIAL

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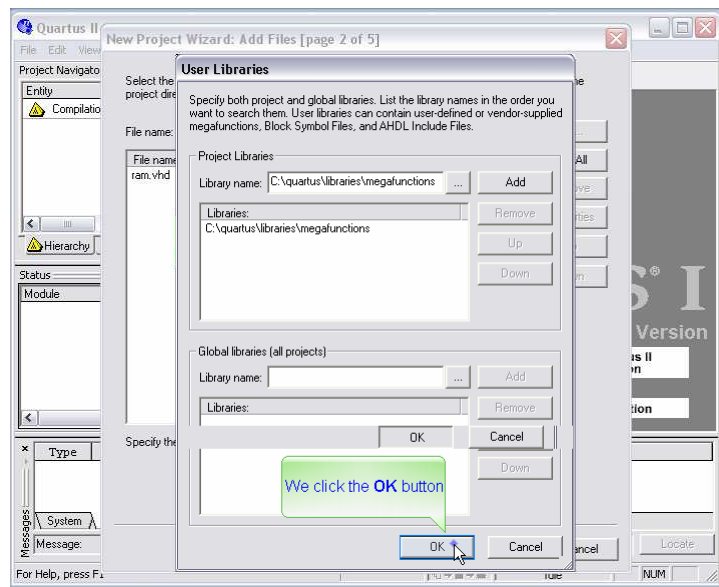
## Quartus II Versão 8.0 - TUTORIAL

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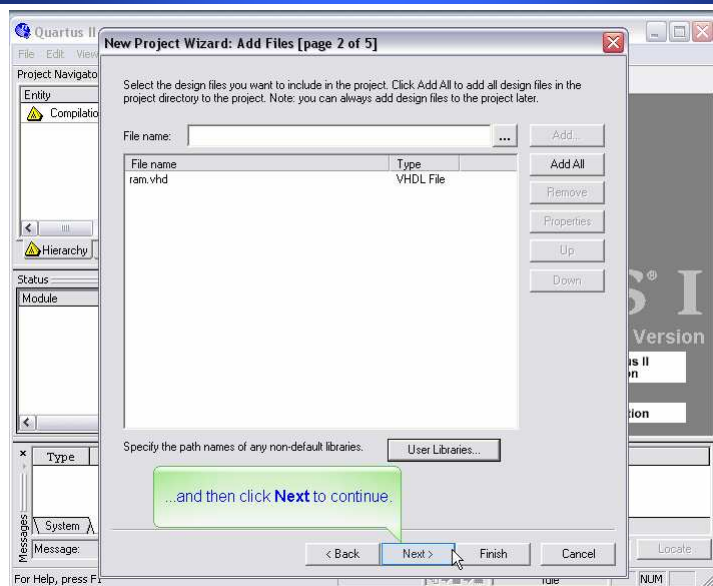
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## Quartus II Versão 8.0 - TUTORIAL

**New Project Wizard: Family & Device Settings [page 3 of 5]**

Select the family and device you want to target for compilation.

Family: Cyclone

Target device:

- ☒ Auto device selected by the Filter
- ☐ Specific device selected in 'Available devices' list

Available devices:

Name	LEs	Memor...	PLL
EP1C3T100C6	2910	53904	1
EP1C3T100C7	2910	53904	1
EP1C3T100C8	2910	53904	1
EP1C3T100I7	2910	53904	1
EP1C3T144C6	2910	53904	1
EP1C3T144C7	2910	53904	1
EP1C3T144C8	2910	53904	1
EP1C3T144I7	2910	53904	1
EP1C4F324C6	4000	78336	2
EP1C4F324C7	4000	78336	2

Companion device: HardCopy II

☒ Limit DSP & RAM to HardCopy II device resources

**The Family & Device Settings page allows us to specify the target device for compilation.**

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## Quartus II Versão 8.0 - TUTORIAL

**New Project Wizard: Family & Device Settings [page 3 of 5]**

Select the family and device you want to target for compilation.

Family: Cyclone II

Target device:

- ☒ Auto device selected by the Filter
- ☐ Specific device selected in 'Available devices' list

Available devices:

Name	LEs	User I/O	Memor...	Embed...	PLL	Global...
EP2C5F256C6	4608	170	119808	26	2	8
EP2C8F256C6	8256	203	165888	36	2	8

Companion device: HardCopy II

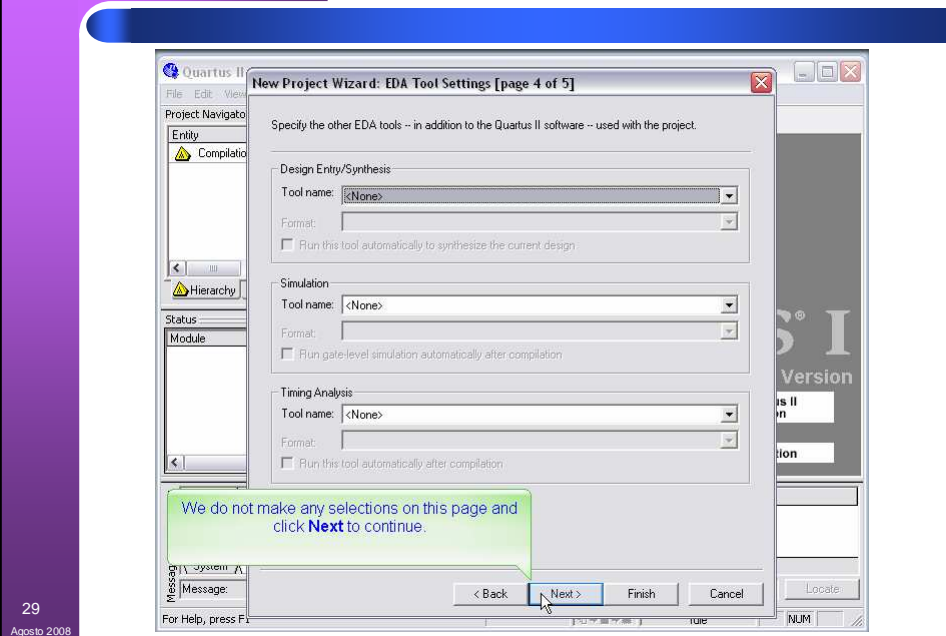
☒ Limit DSP & RAM to HardCopy II device resources

**Finally, we select EP2C5F256C6 in the Available devices list.**

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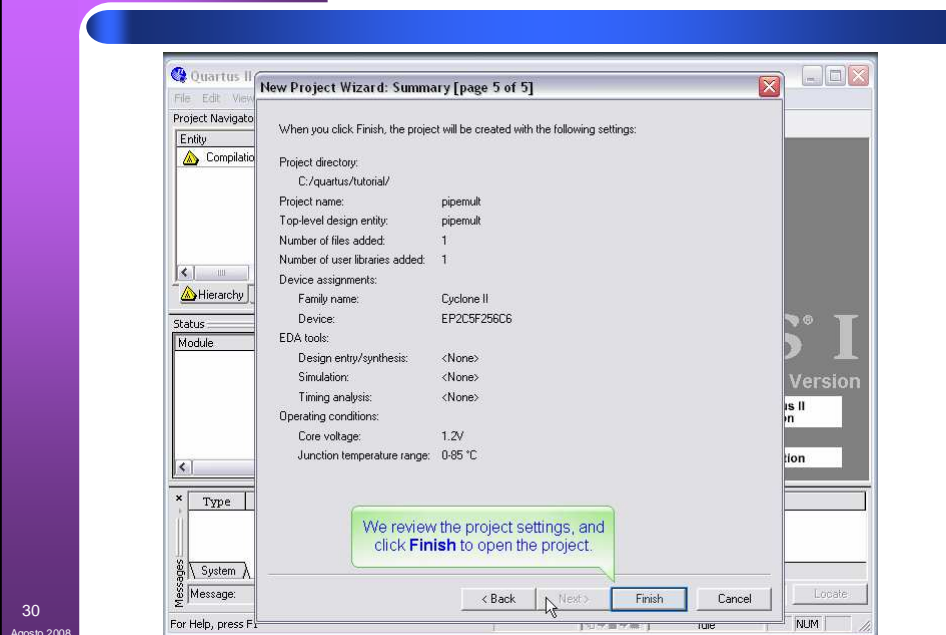
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## Quartus II Versão 8.0 - TUTORIAL

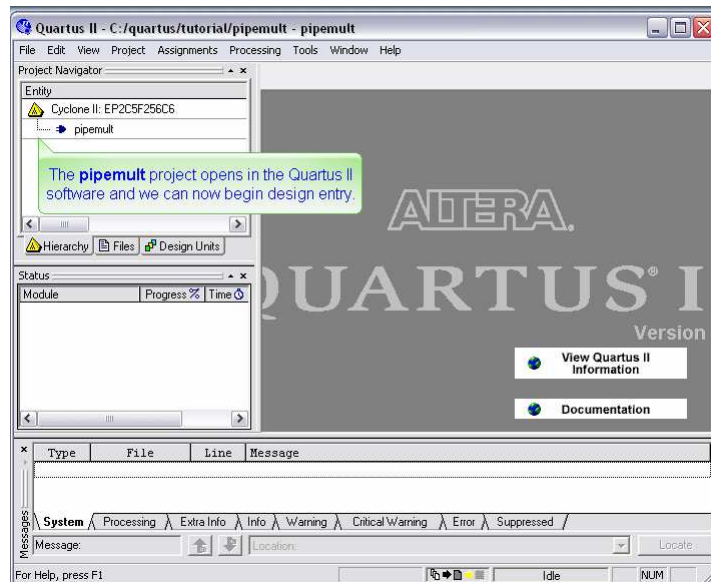


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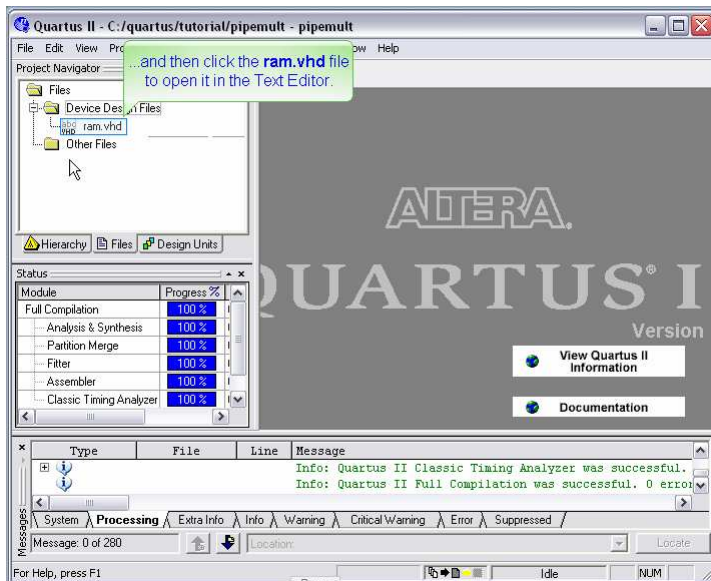
## Quartus II Versão 8.0 - TUTORIAL



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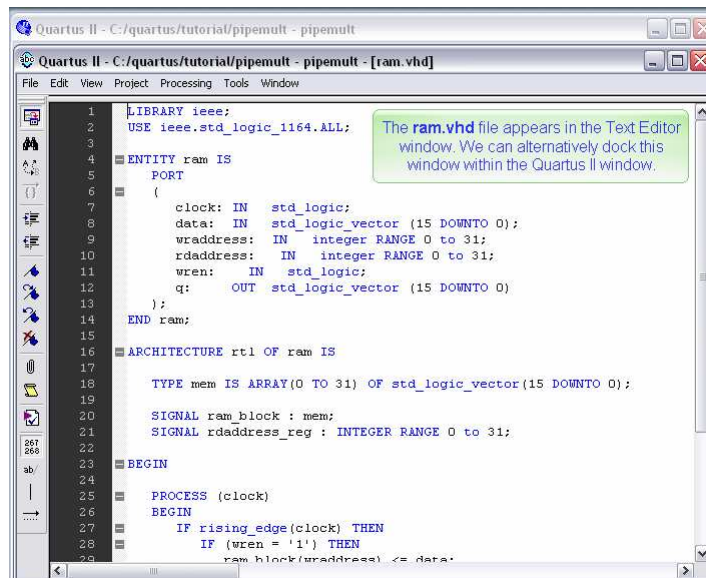
## Quartus II Versão 8.0 - TUTORIAL



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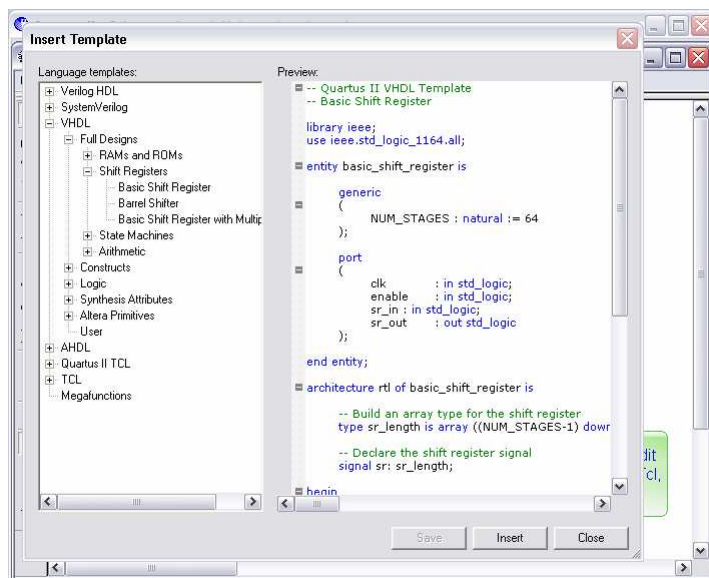
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## Quartus II Versão 8.0 - TUTORIAL



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Show Me Module 2: Create a Design

**Step 2 - Create a Block Design File**

This step shows you how to create a Block Design File with the Quartus II Block Editor.

Next

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Quartus II - C:/quartus/tutorial/pipemult - pipemult

File Edit View Project Assignments Processing Tools Window Help

Project Navigator

Entity

Cyclone II: EP2C5F256C6

pipemult

With the **pipemult** project open in Quartus II, we click the File menu.

Quartus II - C:/quartus/tutorial/pipemult - pipemult

File Edit View Project Assignments Processing Tools Window Help

New... Ctrl+N

Open Project... Ctrl+J

Convert MAX+PLUS II Project...

...and then **New** to create a new Block Design File.

QUARTUS II Version

View Quartus II Information

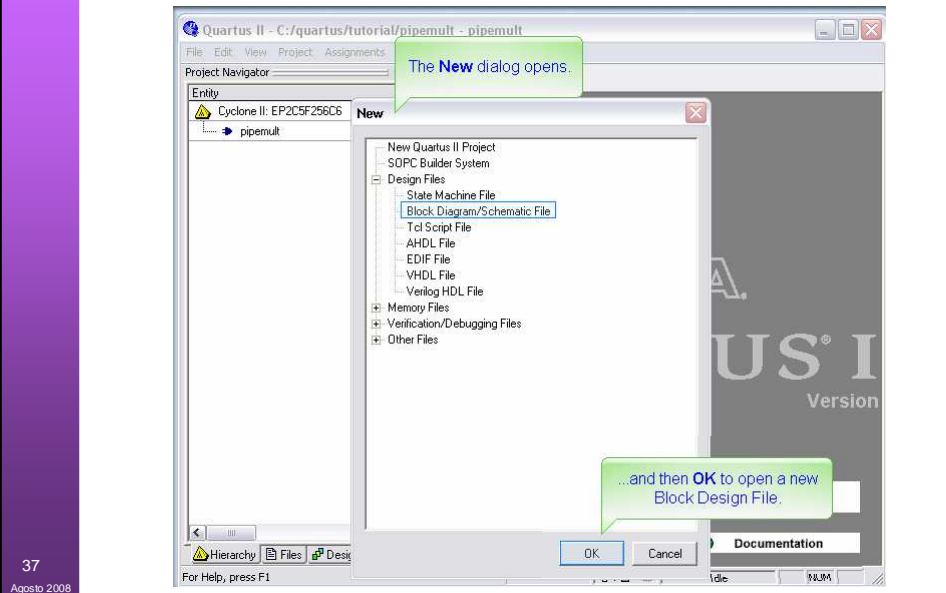
Documentation

Hierarchy Files Design Units

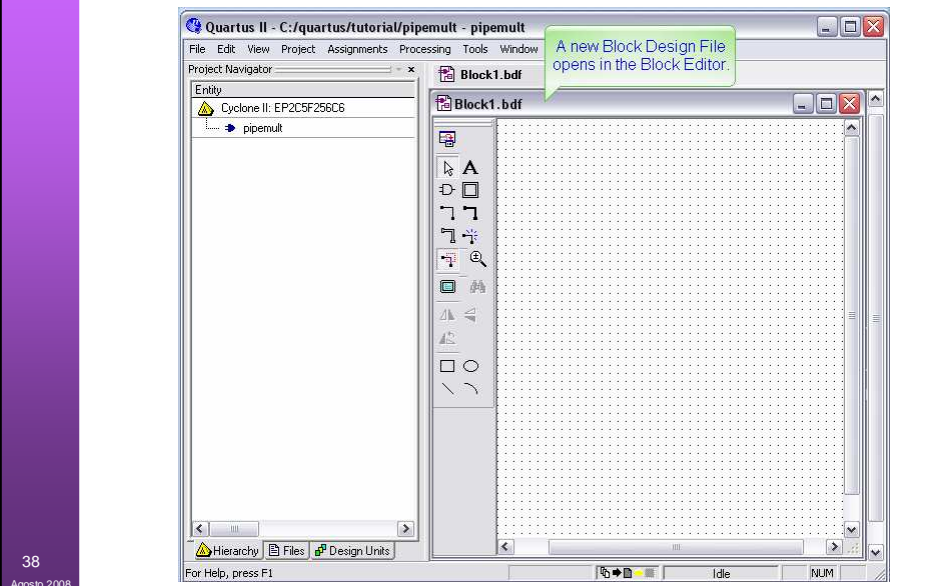
For Help, press F1

Idle NUM

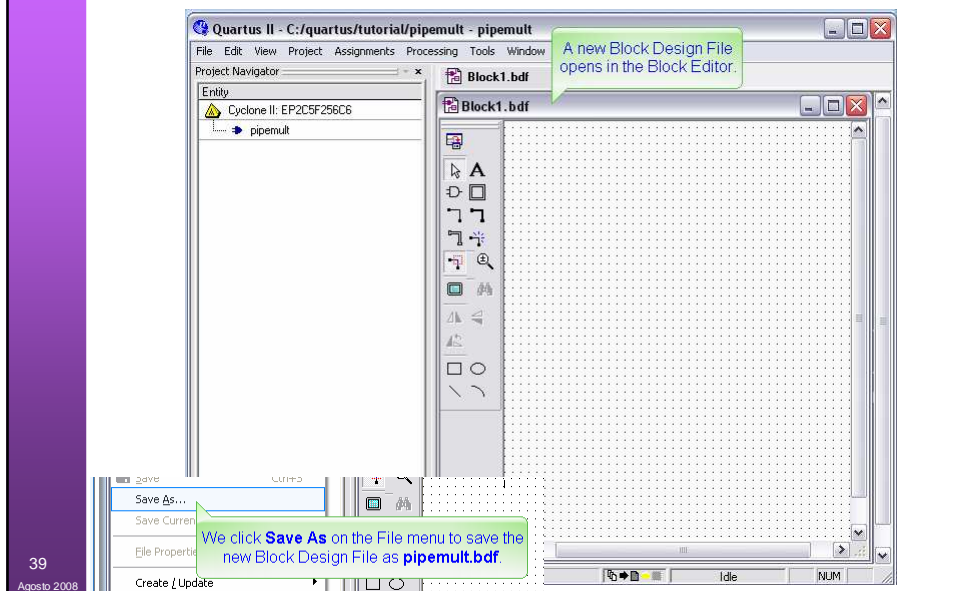
## Quartus II Versão 8.0 - TUTORIAL



## Quartus II Versão 8.0 - TUTORIAL



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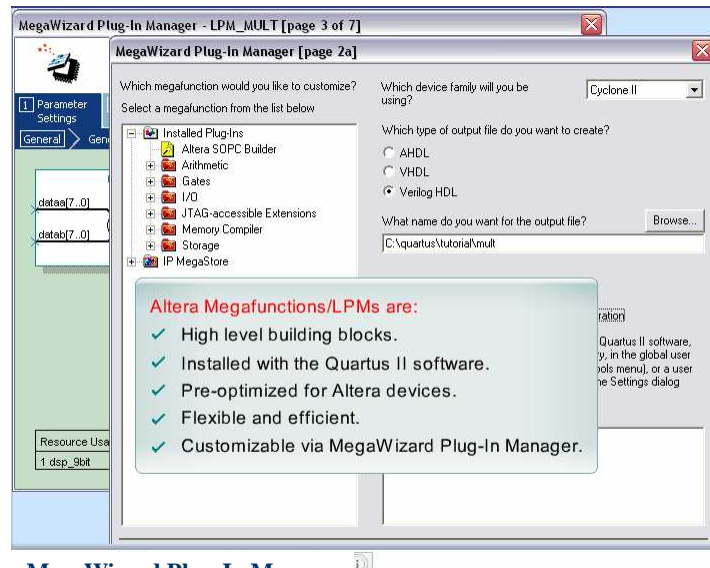
## Quartus II Versão 8.0 - TUTORIAL



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## Quartus II Versão 8.0 - TUTORIAL

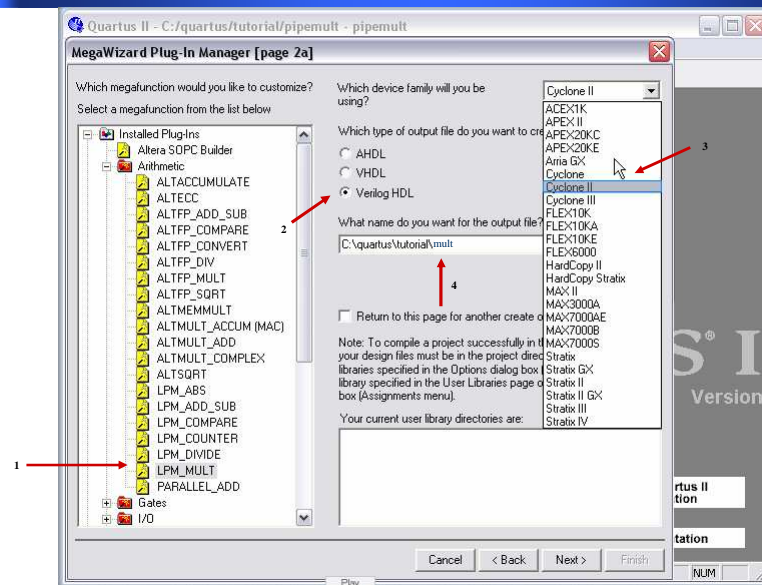


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Tools - MegaWizard Plug-In Manager

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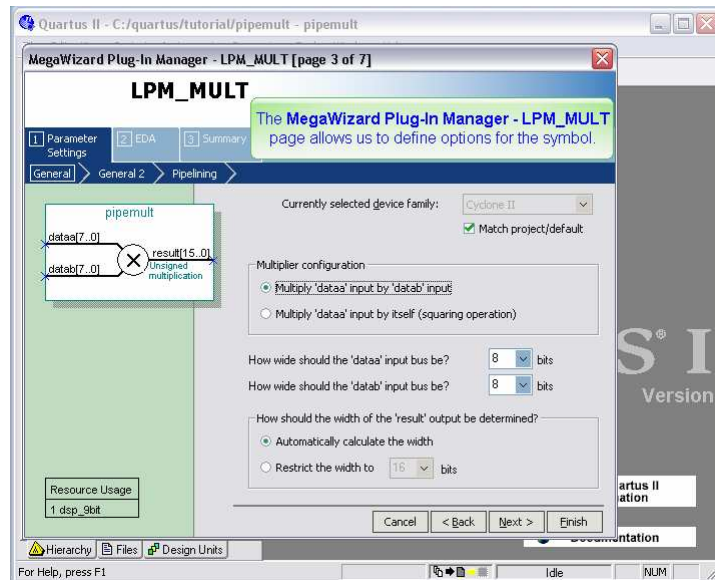


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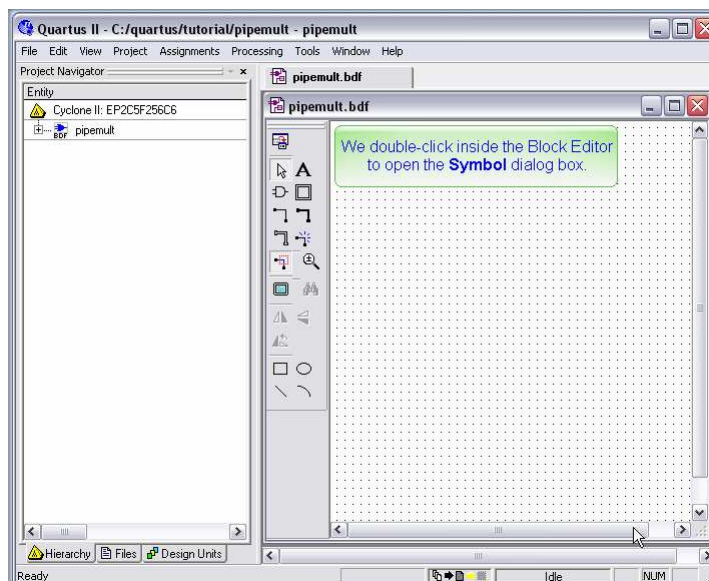
## Quartus II Versão 8.0 - TUTORIAL

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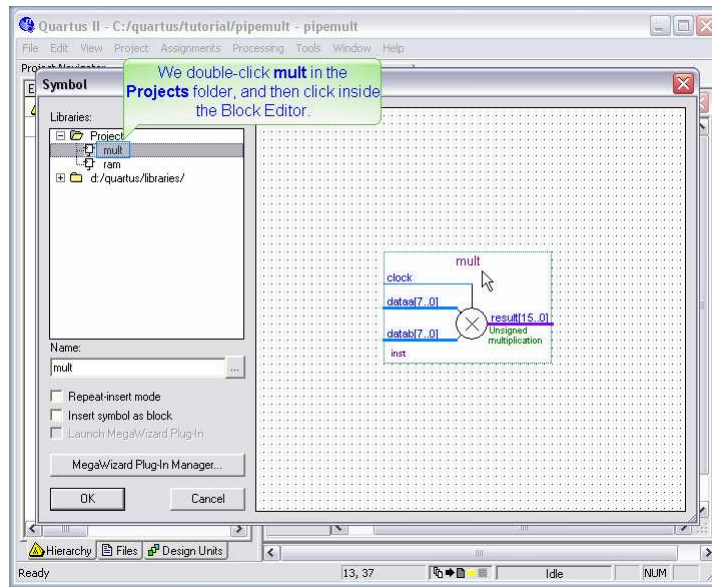
## Quartus II Versão 8.0 - TUTORIAL

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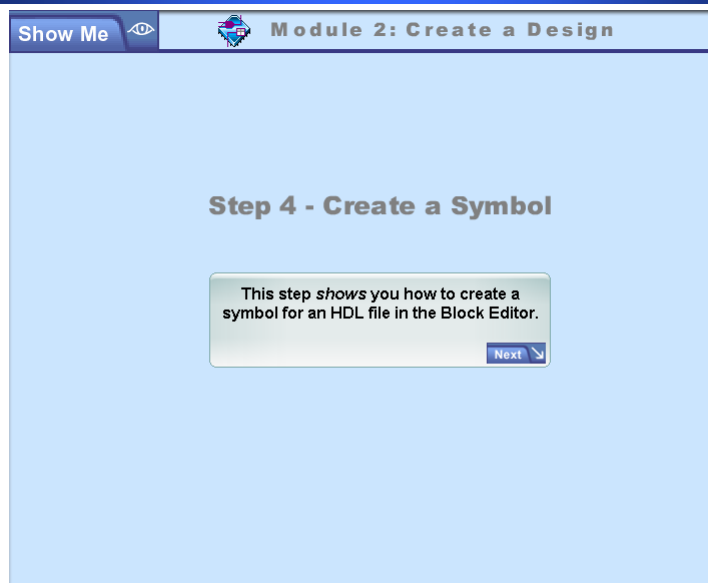
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Show Me



Module 2: Create a Design

### Step 5 - Add Pins

This step shows you how to create and connect pins in a schematic design.

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Interactive Tutorial



### Module 3: Compile a Design

#### - Learning Objective -

Learn how to specify Compiler settings, run a full compilation, create a pin assignment, and analyze compilation results.

(Completion time = 40 minutes)

Next

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**INFORMAÇÕES SOBRE A DISCIPLINA**

**USP - Universidade de São Paulo - São Carlos, SP**  
**ICMC - Instituto de Ciências Matemáticas e de Computação**  
**SSC - Departamento de Sistemas de Computação**

**Prof. Fernando Santos OSÓRIO**

**Web institucional: <http://www.icmc.usp.br/ssc/>**

**Página pessoal: <http://www.icmc.usp.br/~fosorio/>**

**E-mail: [fosorio \[at\] icmc. usp. br](mailto:fosorio@icmc.usp.br) ou [fosorio \[at\] gmail. com](mailto:fosorio@gmail.com)**

**Disciplina de Proj. e Implementação de Sistemas Embarcados I**

**Ferramentas: Altera - Quartus, NIOS II, Cyclone Dev-Kit**

**Web disciplina: <Http://www.icmc.usp.br/~fosorio/>**

**> Programa, Material de Aulas, Critérios de Avaliação,**

**> Material de Apoio, Trabalhos Práticos**